Infoprint 4000 Model ID1/2 with FC4380

Maintenance Information

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Contents

General Safety Guidelines 36
When A Safety Inspection Is Required 36
Other Safety Hazards 37
How to Perform the Safety Checks 38
  Preparation 38
  References 39

Safety Checks 40
Covers. 40
Line Cord 40
Primary Safety Grounds. 41
Fuses 41
Cables. 41
Printer Safety Grounds 42
Control Unit Safety Grounds 51
Safety Labels 52
Fuser Over-Temperature Safety Interlock 55
Unit Emergency Power Off Switch 56
Circuit Breaker (CP1) 56
End of Inspection 57

Chapter 1. Diagnosing Problems 59
MAPS 68
  MAP 0001: Introduction 69
  MAP 0002: Start Of Call Procedure 77
  MAP 0003: End Of Call Procedure 80
  MAP 0010: Symptom Start MAP 85
  Messages That Cannot Be Cleared or Occur Too Often 103
  Display, Indicator, Switch, or Pushbutton Problems 106

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Forms Feeding Problems 116
Maintenance Panel Error Codes 119
Host Attachment Problems 121
Visually Detected Problems 123
Print Speed (Start/Stop) Problem 127
Print Application or Forms Problems 128
Printer Will Not Run 129
Other Failures 130
Supplies Life Too Short 131
Image Missing or PEMs (Bars) Near Edge 132
Power Problem 133
MAP 0070: Printer Logic Unit Map 136
MAP 0102: Retractor Speed Error 148
MAP 0103: Retractor Is Extended During NPRO 152
MAP 0104: Retractor Is Retracted During Print 156
MAP 0113: Tractor Motor Encoder Phase Error 160
MAP 0114: Tractor Motor Overcurrent 166
MAP 0115: Retractor Seek Error 169
MAP 0116: Retractor Motor Overcurrent 173
MAP 0117: Forms Width Sensor 177
MAP 0118: Forms Width Sensor Fuse 180
MAP 0119: Upper Tractor Forms Jam 185
MAP 011B: Tractor Drive Signal Always On 202
MAP 011C: Tractor Detent Signal Error 204
MAP 011D: Tractor Motor Overspeed 208
MAP 011E: Tractor Motor Initial Position Error 211
MAP 0122: Drum Motor Overcurrent 216
MAP 0123: Drum Timeout Error 218
MAP 0124: Drum Overspeed 223
MAP 0125: Drum Position Error 226
MAP 0131: Tension Arm Down 229

MAP 0132: Tension Arm Up 235
MAP 0133: Skew Error. 244
MAP 0134: Fuser Wrap 264
MAP 0135: Backup Roll Motor Thermal 280
MAP 0136: Backup Roll Position Error. 285
MAP 0137: Steering Motor Driver 291
MAP 0138: Hot Roll Overspeed 292
MAP 0139: Backup Roll Overtravel Error 295
MAP 013A: Backup Roll Drive Signal On 299
MAP 013B: Backup Roll Open Error 305
MAP 013C: Hot Roll Underspeed 311
MAP 013D: Hot Roll Motor Blower Stopped 318
MAP 0141: Felt Oiler Belt Driver Error 324
MAP 0142: Oil Pump Driver Error 328
MAP 0143: Felt Oiler Belt Motor Always Driven 332
MAP 0144: Felt Oiler Belt Motor Never Driven. 336
MAP 0145: Oil Pump Always Driven 340
MAP 0146: Oil Pump Never Driven 343
MAP 0152: Scuff Roll Motor Thermal 346
MAP 0153: Backup Idler Roll Not Closed 351
MAP 0154: Backup Idler Roll Not Open 359
MAP 0155: Backup Idler Roll Motor Thermal 366
MAP 0156: Backup Roll Lift Motor (M610) Position Error 371
MAP 0157: Backup Roll Lift Motor (M610) Overcurrent 373
MAP 0161: Stacker Jams (Light Never Sensed) 375
MAP 0162: Pendulum Motor Overcurrent 391
MAP 0163: Pendulum Initial Position Error. 394
MAP 0164: Stacker Jams (Light Always Sensed) 400
MAP 0165: Pendulum Control Error 410
MAP 0166: Pendulum Interface Error 413
MAP 0167: Pendulum Motor Overcurrent 416

MAP 0169: Stacker Cooling Blower Rotation Error 419
MAP 0171: Stacker Table Motor Thermal 424
MAP 0172: Stacker Table Timeout 428
MAP 0174: Stacker Safety Switch On 437
MAP 0175: Stacker Table Motor Runs Too Long 441
MAP 0176: Stacker Forms Length Sensor 453
MAP 0177: Stacker Length Motor Timeout 459
MAP 0178: Stacker Length Motor Driver Error 469
MAP 0182: Capstan Pinch Roll Cannot Be Lowered 472
MAP 0183: Bridge Cannot Be Raised (Autoload) 479
MAP 0184: Transfer Station Forms Jam During Autoload 484
MAP 0185: Upper Fuser Jam (Autoload) 505
MAP 0186: Capstan Pinch Roll Cannot Be Raised (Autoload) 523
MAP 0187: Bridge Cannot Be Lowered (Autoload) 531
MAP 0188: Capstan Pinch Roll Initial Position Error 536
MAP 0189: Bridge Home Position Error (Autoload) 543
MAP 018A: Autoload Reset Error 548
MAP 0190: Autoload Error 550
MAP 0211: Charge Corona Voltage Error 553
MAP 0212: Transfer Corona Voltage Error 561
MAP 0213: Preclean Corona Voltage Error 567
MAP 0214: Precharge Corona Voltage Error 572
MAP 0221: Mirror Motor Operating Error 579
MAP 0222: Video Data Active 584
MAP 0223: Mirror Motor Drive Error 589
MAP 0224: Mirror Motor Start-Up Error 602
MAP 0225: Resolution Lens Initial Position Error 614
MAP 0226: Resolution Lens Motor Overcurrent 617
MAP 022A: PC Drum Cover Is Open 620
MAP 022B: Laser Power Dropped 624
MAP 022C: Laser Power-Up Error 628

MAP 022D: Laser Power Supply Error 632
MAP 0231: Mag Brush Bias Error 639
MAP 0232: Conveyor Roll Rotation Error 644
MAP 0233: Mag Roll Motor Thermal 651
MAP 0234: Toner Overfeed Error 656
MAP 0235: Toner Underfeed Error 664
MAP 0241: Primary Erase Lamp Never On 677
MAP 0242: Secondary Erase Lamp Never On 683
MAP 0243: Primary Erase Lamp Always On 689
MAP 0244: Secondary Erase Lamp Always On 695
MAP 0251: Cleaner Brush Rotation Error 701
MAP 0252: Cleaner Brush Motor Thermal 706
MAP 0253: Cleaner Housing Never Homes 712
MAP 0254: Cleaner Housing Motor Driver 715
MAP 0256: Cleaner Housing Always At Home 716
MAP 0261: Vacuum Blower Thermal 720
MAP 0262: Shutter Control Motor Driver 724
MAP 0263: Vacuum Shutter Cannot Home 725
MAP 0264: Cyclone Blower Motor Thermal 730
MAP 0265: Vacuum Shutter Always Home 734
MAP 0266: Cyclone Blower Rotation Error 738
MAP 0281: Preheat A/B Over Temperature 744
MAP 0282: Preheat A/B Under Temperature 750
MAP 0283: Preheat C/D Over Temperature 754
MAP 0284: Preheat C/D Under Temperature 760
MAP 0285: Preheat Control Signal Disconnected 764
MAP 0286: Preheat Element ’A’ Lost Temperature 767
MAP 0287: Preheat Element ’B’ Lost Temperature 770
MAP 0288: Preheat Element ’C’ Lost Temperature 773
MAP 0289: Preheat Element ’D’ Lost Temperature 776
MAP 028A: Thermistor 1 Over Temperature 779

MAP 028B: Thermistor 2 Over Temperature 783
MAP 028C: Thermistor 3 Over Temperature 787
MAP 028D: Thermistor 1 Under Temperature 791
MAP 028E: Thermistor 2 Under Temperature 795
MAP 028F: Thermistor 3 Under Temperature 799
MAP 0291: Hot Roll Over Temperature 803
MAP 0292: Hot Roll Lamp Drive On Too Long 810
MAP 0293: Fuser Soft Start Thermal Open 813
MAP 0294: Hot Roll Over Current 820
MAP 0295: Hot Roll Does Not Reach Operating Temperature 823
MAP 0296: Hot Roll Lamp 1 Relay Always Off 826
MAP 0297: Hot Roll Lamp 1 Filament Open 832
MAP 0298: HOT ROLL LAMP 2 RELAY ALWAYS OFF 837
MAP 0299: Hot Roll Lamp 2 Filament Open 843
MAP 029A: Hot Roll Lamp Drive Signal Off Too Long 848
MAP 029C: Hot Roll Lamp 3 Filament Open 853
MAP 029D: Hot Roll Lamp 3 Relay Always Off 860
MAP 029E: Hot Roll Lamp 4 Filament Open 866
MAP 029F: Hot Roll Lamp 4 Relay Always Off 875
MAP 0300: Operator Panel Start Map 880
MAP 0321: Operator Alert Light Problem 885
MAP 0322: Operator Alert Alarm Problem 892
MAP 0323: Operator Alert Accessory Contacts Problem 898
MAP 0330: Display/Touch Screen Start Map 903
MAP 0331: Display/Touch Screen Is Blank 905
MAP 0500: Power Control – Simplex Printing System 909
MAP 0501: Power Control – Duplex Printing System 925
MAP 0511: Printer Power Error 947
MAP 0514: B1 Logic Gate Thermal Problem 1015
MAP 0515: 24 VD Power Supply Is Off 1018
MAP 0516: PJ136 Disconnected 1024

MAP 0600: Printer Interface Map 1026
MAP 0782: Splice Station Vacuum Switch 1032
MAP 0783: Transfer Station Open 1036
MAP 0784: Vacuum Is Off 1040
MAP 0785: Toner Collector Full. 1044
MAP 0786: Add Toner 1048
MAP 0787: Toner Collector Not Set. 1051
MAP 0788: Change Developer Mix 1055
MAP 0789: Developer Drain Open 1059
MAP 078A: End Of Forms Sensor 1 1064
MAP 078B: Developer Running. 1069
MAP 078C: Forms Loading 1074
MAP 078D: Toner Loading 1078
MAP 0791: Change Fine Filter 1086
MAP 0792: Fuser Oil Empty 1093
MAP 0793: End Of Oiler Belt Reached 1098
MAP 0794: Fuser Oiler Gate Open 1103
MAP 0795: Set Forms Direction 1107
MAP 0796: Stacker Full 1112
MAP 0797: Stacker Gate Open 1119
MAP 0798: Stacker Table Down 1123
MAP 0799: Fine Filter Not Installed. 1132
MAP 079A: Tension Arm Position Incorrect 1136
MAP 079C: Toner Supply Low 1147
MAP 07A0: Toner Loading With Enhanced Toner Loading System 1150
MAP 0800: Pre/Postprocessing Interface Start Map 1155
MAP 0810: Coupled Pre/Processing Interfaces 1157
MAP 0820: Intelligent Pre/Processing Interfaces 1167
MAP 1000: Print Quality Start Map 1174
MAP 1001: Repeating Spots Or Marks 1185
MAP 1002: Random Spots Or Marks 1194

MAP 1003: Light Streaks 1211
MAP 1004: Dark Streaks Or Black Lines 1219
MAP 1005: Background Or Dirty Prints 1229
MAP 1006: Black Prints. 1247
MAP 1007: Blank Prints 1251
MAP 1008: Residual Images 1256
MAP 1009: Fuser Offset Or Forms Sticking Together. 1266
MAP 100A: Voids, Missing Print, Or Poor Contrast 1282
MAP 1010: Poor Fusing 1290
MAP 1011: Registration Or Skew 1301
MAP 1012: Altered Characters Or Images 1306
MAP 1013: Characters Too Dark Or Stoke Width Too Wide 1312
MAP 1014: Background Shadows (Bleeding) 1318
MAP 1018: Light Print 1321
MAP 1020: Poor Solid Area Fill Or Images 1331
MAP 1021: Bar Code Problems 1339
MAP 1022: Label Problems. 1345
MAP 2000: Controller Start Map 1348
MAP 2002: Problem Determination Procedure 1349
MAP 2004: Intermittent Problems. 1360
MAP 2010: Service Request Number (SRN) 1362
MAP 2011: Failing Function Code (FFC) 1444
MAP 2152: Controller Power Problems 1455
MAP 2154: Minimum Configuration 1464
MAP A000: Host Attachment Detected Errors 1473
MAP B000: Printer Detected Errors. 1488
MAP C000: AFCCU Detected Errors 1491
MAP D000: Mechanism Interface Card (MIC) Detected 1494
MAP D706: Beam Detect Missing (For Single-Beam Printhead) 1509
MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads). 1525
MAP D70B: Printhead Underrun 1538

Chapter 2. Diagnostics 1551
Using the Display/Touch Screen 1554
Display/Touch Screen Main Window 1555
Printer Status Window 1557
Password 1558
Operator Panel 1559
Panel Test 1561
Service Actions 1563
Logs 1564
Print. 1568
Diagnostics - General. 1571
Attachment Diagnostics. 1572
Mechanism Diagnostics. 1580
Pre/Postprocessor Diagnostics 1583
Pre/Postprocessing Interface Test Card 1587
Print Quality Enhancement 1593
Disk Operations. 1594
Traces 1596
Configuring the Internal Control Unit Trace 1598
Print Samples. 1600
Print Sample Terms. 1601
Printer Diagnostics 1606
Diagnostic Function Switch Positions. 1609
Normal Print (Position 0) 1610
Read From or Write to Memory (Position 2) 1611
Read From or Write to Toner Control Program Memory (Position 2). 1619
Read From or Write to Toner Control Program Memory (Position 2) - Standard Toner 1402822. 1620
Read From or Write to Toner Control Program Memory (Position 2) - Toner 1402833. 1622
Exerciser Routines (Position 3). 1627
Driver Routines 1633
Sensor Routines 1662

Adjustment Routines . . . 1695
Encoder Routines . . . 1705
Read Memory Address String (Position 5) . . . 1718
Modify Steering Servo (Position 5) . . . 1719
Modify Backup Roll Lift Motor Open/Close Timing (Position 5) . . . 1721
Clear Memory (Position 8) . . . 1725
Optical Sensor Margin Tests (Position 9) . . . 1726
Side 1/Side 2 Diagnostics . . . 1727
Mechanism Interface Card (MIC) Isolation Wrap Test . . . 1734
RS/6000 Controller . . . 1741
Automatic Tests . . . 1741
Host Error Reporting . . . 1747
EREP Summary Report . . . 1748
EREP Detail Report . . . 1749
Interpretation of EREP Sense Bytes . . . 1751
E0XX Codes and SRC Cross-References . . . 1764
E1XX Error Codes to MAP Cross Reference . . . 1772
Hexadecimal-to-Decimal Conversion . . . 1777

Chapter 3. Wiring, Circuit & Block Diagrams . . . 1779
Wiring Diagrams . . . 1780
Wiring Diagrams . . . 1780
Circuit Diagrams . . . 1901
CD01 - Retractor Motor (M304) . . . 1906
CD02 - Tractor Motor Encoder (M303) . . . 1907
CD03 - Retractor Motor Overcurrent (M304) . . . 1908
CD04 - Forms Width Hall Sensor . . . 1909
CD05 - Forms Width Sensor Circuit Breaker . . . 1910
CD06 - Upper Tractor Jam Sensor (Q301) . . . 1911
CD07 - Drum Drive Motor Overcurrent Detection (M107) . . . 1912
CD08 - Drum Drive Servo Control Time Out (M107) . . . 1913

CD09 - Drum Drive Servo Control Overspeed (M107) 1914
CD10 - Drum Drive Servo Control Position 1915
CD11 - Tension Arm Encoder 1916
CD12 - Skew Sensor (D604) 1917
CD13 - Steering Motor (M601) 1918
CD14 - Fuser Front Wrap Sensors (S617, S618, S620) 1919
CD15 -Scuff Roll Motor (M604) 1920
CD16 - Three-Pump Oiling System 1921
CD17 - Six-Pump Oiling System 1922
CD18 - Backup Roll Motor and Thermal Sensor (M603) 1923
CD19 - Backup Roll Motor (M603) and Encoder (EN131) 1924
CD20 - Hot Roll Motor Servo Control (M607) 1925
CD21 - Oiler Belt Motor and Driver (M706) 1926
CD22 - Backup Idler Roll (M609) and Encoder (EN131) 1927
CD23 - Backup Idler Roll Motor and Thermal (M609) 1928
CD24 - Backup Roll Lift Motor (M610) and Position Sensor (S624) 1929
CD25 - Finger Belt Motors (M701, M702) 1930
CD26 - Stacker Jam Sensor (Q701) 1931
CD27 - Pendulum Motor (M704) 1932
CD28 - Pendulum Motor Overcurrent (M704) 1933
CD29 - Pendulum Motor (M704) and Position Sensor (S619) 1934
CD30 - Stacker Cooling Blower (B703) 1935
CD31 - Stacker Table Motor and Thermal Sense (M803) 1936
CD32 - Stacker Height Sensor (Q703) 1937
CD33 - Stacker Gate Safety Switches (S713, S714) 1938
CD34 - Stacker Table Switches (S701, S704) 1939
CD35 - Stacker Forms Length Hall Sensor 1940
CD36 - Stacker Length Motor (M707) 1941
CD37 - Stacker Forms Length Control Switch (SW511) 1942
CD38 - Capstan Pinch Roll Motor (M301) 1943
CD39 - Bridge Up Switch (S608) 1944

CD40 - Bridge Lift Motor (M606) 1945
CD41 - Capstan Roll Motor (M302) 1946
CD42 - Bridge Feed Motor (M605) 1947
CD43 - Capstan Pinch Roll Open Switch (S301) 1948
CD44 - Bridge Down Switch (S609) 1949
CD45 - Charge Corona 1950
CD46 - Tansfer Corona 1951
CD47 - Preclean Corona 1952
CD48 - Precharge Corona 1953
CD49 - Mirror Motor M201 (Fixed Resolution Printheads) 1954
CD50 - Mirror Motor M201 — (Switchable Resoluiton Printheads) 1955
CD51 - Video Data (Single Beam Printhead) 1956
CD52 - Four Beam Printhead 1957
CD53 - Five Beam Printhead 1958
CD54 - Beam Detect (Four and Five Beam Printheads) 1959
CD55 - Video Data (Four Beam Printhead) 1960
CD56 - Rresolution Switching Lens Motor Position Sensor (S202) 1961
CD57 - PC Drum Cover Interlock Switch (S122) — (20 mW) 1962
CD58 - PC Drum Cover Interlock Switch (S122) — (30 mW) 1963
CD59 - Mag Brush Bias 1964
CD60 - Mag Brush Motor (M101) and Conveyor Roll Rotation Sensor (S113) 1965
CD61 - Mag Brush Motor and Thermal Sense (M101) 1966
CD62 - Toner Control Sensor (L101) and Toner Control Motor (M103) 1967
CD63 - Primary Erase Lamp (PL102), Starter (ST102), and Sensor (Q101) 1968
CD64 - Secondary Erase Lamp (PL101), Starter (ST101), and Sensor (Q102) 1969
CD65 - Cleaner Brush Motor (M108) and Rotation Sensor (S114) 1970
CD66 - Cleaner Brush Motor and Thermal (M108) 1971
CD67 - Cleaner Housing Motor (M106) and Position Switch (S103) 1972
CD68 - Vacuum Blower Thermal (M105) 1973
CD69 - Shutter Control Motor (M602) 1974
CD70 - Shutter Control Motor (M602) and Vacuum Shutter Home Sensor (S604) 1975

CD71 - Cyclone Blower Motor (M104) 1976
CD72 - Cyclone Blower Motor (M104) and Rotation Sensor (S116) 1977
CD73 - Preheat Platen 1978
CD74 - Preheat Control. 1979
CD75 - Preheat Platen Thermal 1980
CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623) 1981
CD77 - Hot Roll Over-temperature Sensor (S613) 1982
CD78 - Hot Roll Temperature Control Sensor (L601). 1983
CD79 - Hot Roll Lamp Control 1984
CD80 - Hot Roll Soft Start Thermal Sensors (S601, S602). 1985
CD81 - Hot Roll Motor Over-current Detection (M607) 1986
CD82 - Hot Roll Lamp 1 Relay (SR605) 1987
CD83 - Hot Roll Lamp 1 1988
CD84 - Hot Roll Lamp 2 Relay (SR606) 1989
CD85 - Hot Roll Lamp 2 1990
CD86 - Hot Roll Lamp 3 Relay (SR607) 1991
CD87 - Hot roll Lamp 3. 1992
CD88 - Hot Roll Lamp 4 Relay (SR608) (3900 0Wx & DWx Models, Infoprint 4000 ISx & IDx Models) 1993
CD89 - Hot Roll Lamp 4 1994
CD90 - Operator Alert 1995
CD91 - Printer Remote Power 1996
CD92 - Printer 1 Remote Power 1997
CD93 - (+5 V) Voltage Distribution 1998
CD94 - (+12 V) Voltage Distribution 1999
CD95 - (−12 V) Voltage Distribution 2000
CD96 - (+24 VD) Voltage Distribution (Three Oil Pump) 2001
CD97 - (+24 VB) Voltage Distribution. 2002
CD98 - (+24 VE) Voltage Distribution. 2003
CD99 - (+24 VH) Voltage Distribution. 2004
CD100 - (+42 V) Voltage Distribution. 2005
CD101 (+5 VM/+12 VM and +120/+140/+260 V) Voltage Distribution 2006

CD102 -Transformer and Soft Start Resistor Thermal . . . 2007
CD103 - Speed Select Alarm . . . 2008
CD104 - B1 Logic Gate Thermal . . . 2009
CD105 - (24 VD) Power Supply . . . 2010
CD106 - PJ136 Jumper . . . 2011
CD107 – Splice Lever Switch (S101) . . . 2012
CD108 - Transfer Station Open Sensor (S302) . . . 2013
CD109 - Vacuum Switch (S606) . . . 2014
CD110 - Toner Collector Bottle Switch (S118) . . . 2015
CD111 - Toner Empty Sensor (S106) . . . 2016
CD112 - Developer Drain Lever Switch (S112) . . . 2017
CD113 - End of Forms (EOF) Sensor (Q103) . . . 2018
CD114 - Developer Run Switch (S107) . . . 2019
CD115 - Printer Control Panel (SW721) . . . 2020
CD116 - Filter Pressure Switch (S102) . . . 2021
CD117 - Fuser Oil Empty Sensor (S702) . . . 2022
CD118 - Oiler Belt End Switch (S610) . . . 2023
CD119 - Oiler Gate Open Switch (S605) . . . 2024
CD120 - Stacker Gate Open Switch (S712) . . . 2025
CD121 - Fine Filter Switch (S108) . . . 2026
CD122 - Toner Supply Switch (S121) . . . 2027
CD123 - Beam Detect (BD121) — (Single Beam) . . . 2028
CD124 - Beam Detect (BD131, BD132, BD141) — (Two, Four, or Five Beam) . . . 2029
CD125 - Video Data for All Two Beam Printheads . . . 2030
CD126 - Two Beam Printheads . . . 2031
CD127 - (+24 VD) Voltage Distribution (Six Oil Pump) . . . 2032
CD128 - Hot Roll Motor Blower (B602) . . . 2033
CD129 - Upper Tractor Jam Sensor (Q301) . . . 2034
CD130 - Hot Roll Lamp 4 Relay (3900 DR1/2 & Infoprint 4000 IRx Models) . . . 2035
CD131 - Stacker Control Panel (SW511) . . . 2036
Block Diagrams - Logic Flow . . . 2037

Block Diagrams of Logic Flow 2038

Chapter 4. Locations 2050
Printer Components (1) 2053
Printer Components (2) 2055
Printer Components (3) 2057
Printer Components (4) 2059
Printer Components - Enhanced Toner Loading Feature 2062
Air System 2063
Auto Load Bridge 2064
Developer Components (Front) 2066
Developer Components (Rear) 2067
Developer - Front 2068
Developer - Rear 2070
Developer Carriage 2072
Fuser - Front 2073
Fuser - Rear 2076
Fuser Control Box (1) 2079
Fuser Control Box (2) 2080
Input Area 2081
PC Drum and Charging Components 2082
Power Supply - Printer AC 2084
Power Supply Connectors - 200 Volt 2086
Power Supply Components - 200 Volt 2088
Power Supply Connectors - 400 Volt 2090
Power Supply Components - 400 Volt 2092
Printhead Links 2094
Printhead Connectors (Single-Beam) 2100
Printhead Components (Single-Beam) 2102
Printhead Connectors (Two-Beam 240) 2104
Printhead Components (Two-Beam 240 DPI) 2106

Printhead Connectors (Two-Beam 240/300 DPI) . . . 2108
Printhead Components (Two-Beam 240/300 DPI) . . . 2110
Printer Interface Links . . . 2112
Printer Interface - IF041 . . . 2113
Printer Interface - IF411 . . . 2114
Printer Interface - IF421 . . . 2115
Splicing Station . . . 2116
Stacker (1) . . . 2117
Stacker (2) . . . 2118
Stacker Control . . . 2120
Transfer Station - Lower . . . 2122
Transfer Station - Upper, Front . . . 2123
Transfer Station - Upper, Rear . . . 2125
B1 Logic Card Links . . . 2126
B1 Board Connectors . . . 2127
B1 Logic Cards . . . 2128
B1J10 Card . . . 2129
B1J11 Card . . . 2130
Cards . . . 2131
  Fuser Control Card – FSxxx . . . 2131
  Hot Roll Control - HR091 . . . 2133
  Mirror Motor Driver - MDxxx . . . 2134
  Relay Board - RB091 . . . 2135
  Relay Board - RB092 . . . 2136
  Toner Control Cards - PCxxx . . . 2137
  Forms Width Sensor Board - PW091 . . . 2139
  Stacker Control - SCxxx . . . 2140
  Sequence Control - SQ081/SQ082 . . . 2142
  YS011 . . . 2144
Control Unit Links . . . 2145
Control Unit - Front . . . 2146

Control Unit - Rear (1) . . . 2148
Control Unit - Rear (2) . . . 2150
Control Unit - Rear (3) . . . 2152
Side 1/Side 2 Verification Card . . . 2153
MIC & PQE - Single Beam Printhead . . . 2154
MIC & PQE - Two Beam Printhead . . . 2156
7013 Model 595 - Front View . . . 2158
7013 Model 595 - Rear View . . . 2159
7013 Model 595 - Internal View . . . 2161
7013 Model 595 - CPU Planar Connectors . . . 2162
7013 Model 595 - I/O Planar Connectors . . . 2163
7013 Model 595 - Power Supply Connectors . . . 2164
7025 Model F50 - Card Locations . . . 2166
7025 Model F50 - Bay Locations . . . 2167
7043 Model 43P-140 - External View . . . 2168
7043 Model 43P-140 - Internal View . . . 2170

Chapter 5. Removals and Adjustments . . . 2171
Air System . . . 2172
- Cyclone Blower . . . 2173
- Cyclone Blower Drive Belt . . . 2175
- Cyclone Blower Motor (M104) . . . 2177
- Cyclone Blower Rotation Sensor (S116) . . . 2178
- Cyclone Pressure Check . . . 2180
- Filter Pressure Switch (S102) . . . 2182
- Fine Filter Case . . . 2183
- Fine Filter Switch (S108) . . . 2184
- Manifold Distribution Filter . . . 2185
- Toner Collector Bottle Assembly . . . 2186
- Toner Collector Bottle Switch (S118) . . . 2187
- Ozone Filter (Feature 9911) . . . 2188

Preheat Platen Vacuum Adjustment . . . 2189
Vacuum Blower (M105) . . . 2191
Auto Load Bridge . . . 2192
Auto Load Bridge Assembly . . . 2193
Bridge Down Switch (S609) . . . 2195
Bridge Feed Belts . . . 2196
Bridge Feed Gears . . . 2197
Bridge Feed Motor (M605) and Gearbox . . . 2198
Bridge Height and Parallelism . . . 2199
Bridge Lift Motor (M606) and Gearbox . . . 2202
Bridge Up Switch (S608) . . . 2209
B1 Logic Cards . . . 2212
B1J10 Card Replacement . . . 2213
B1J11 Card Replacement . . . 2215
B1J11 EPROM Module . . . 2218
Cleaner . . . 2219
Cleaner Brush . . . 2220
Cleaner Brush Drive Belt . . . 2222
Cleaner Brush Drive Cone . . . 2224
Cleaner Brush Driven Cone . . . 2225
Cleaner Brush Motor (M108) Assembly . . . 2227
Cleaner Brush Motor (M108) . . . 2228
Cleaner Brush Rotation Sensor (S114) . . . 2230
Cleaner Housing Cleaning . . . 2232
Cleaner Housing Motor (M106) and Switch (S103) . . . 2233
Cleaner Skirt . . . 2236
Control Unit . . . 2238
Two Types of Control Units . . . 2239
AC Control Box . . . 2240
DC Power Supply . . . 2241
Display/Touch Screen . . . 2243

Mechanism Interface Card (MIC) - Single Beam Printhead 2245
Mechanism Interface Card (MIC) - Two-Beam Printhead 2248
Operator Alert Assembly 2251
Parallel Channel Tailgate 2255
Power Control Panel 2257
PQE Card (Single Beam Printhead) 2258
PQE Card - Two Beam Printhead 2260
Pre/Postprocessing Interface Cards 2262
Side 1 / Side 2 Verification Control Card 2264
RS/6000 Removal and Replacement Procedures 2265
Updating Microcode 2266
7013 Model 595 Controller Removal 2269
7013 Model 595 Hard Disk Drive 2273
7025 Removal Procedures 2278
7025 Controller Removal 2279
7025 Hard Disk Drive 2282
7025 ESCON Serial Channel Adapter Card 2285
7025 PCI Parallel Channel Adapter Card 2290
7043 Removal Procedures 2295
7043 Controller Removal 2296
7043 Hard Disk Drive 2299
7043 ESCON Serial Channel Adapter Card 2302
7043 PCI Parallel Channel Adapter Card 2307
Coronas & High Voltage Power Supply 2312
Charge Corona 2313
Charge Corona to PC Drum Gap 2316
Transfer Corona, Preclean Corona, and Precharge Coronas 2320
Preclean Corona to PC Drum Gap 2323
Corona Cleaning Brushes 2324
High Voltage Power Supply 2328
High Voltage Power Supply Fan (B604) 2329

Mag Brush Bias Voltage . . . 2330
PC Drum Surface Voltage . . . 2331
Transfer, Preclean & Precharge Corona Voltage . . . 2339
Corona Voltage Settings . . . 2343
Mag Brush Bias Voltage Setting . . . 2343
PC Drum Surface Voltage Settings . . . 2343
Covers . . . 2344
External Covers . . . 2345
Internal Service Covers . . . 2347
Printer Operator Panel . . . 2351
Developer . . . 2353
Developer Removal . . . 2355
Developer Installation & Checks . . . 2360
Bias Contact Brushes . . . 2361
Bias Contact Plate Assembly . . . 2362
Conveyor Roll . . . 2363
Conveyor Roll Rotation Sensor (S113) . . . 2368
Developer Belts . . . 2369
Developer Cooling Fans (B108 and B109) . . . 2380
Developer Cooling Fans (B110, B111, and B112) . . . 2382
Developer Drain Lever Sensor (S112) . . . 2383
Developer Front Seal . . . 2385
Developer Rear Seal . . . 2386
Developer Run Switch (S107) . . . 2387
Mag Brush Motor (M101) . . . 2389
Mag Brush Rolls A, B, C . . . 2392
Scavenger Roll . . . 2396
Toner Control Card (PCxxx) . . . 2402
Toner Control Motor (M103) . . . 2407
Toner Control Shaft . . . 2410
Toner Control Sensor (L101) . . . 2412

Toner Empty Sensor (S106) . . . 2414
Toner Feed Gate . . . 2417
Toner Feed Motor (M102) . . . 2419
Toner Feed Scraper Blade . . . 2421
Toner Feed Shaft . . . 2425
Toner Hopper Paddle . . . 2428
Toner Inlet and Toner Supply Motor (M112) . . . 2431
Toner Supply Switch (S121) . . . 2438
Developer Adjustments . . . 2440
Drum Drive and Photoconductor (PC) . . . 2466
PC Drum Removal . . . 2467
PC Drum Cleaning . . . 2474
PC Drum Cover Interlock Switch (S122) . . . 2476
Drum Ground Brush . . . 2478
Drum Motor (M107) and Drive Belt . . . 2479
PC Drum & Developer Clearances/Gaps . . . 2486
Erase Lamps . . . 2489
Primary Erase Lamp (PL102) . . . 2490
Primary Erase Lamp Sensor (Q101) . . . 2492
Secondary Erase Lamp (PL101) . . . 2493
Secondary Erase Lamp Sensor (Q102) . . . 2495
Erase Lamp Starters (ST101, ST102) . . . 2498
Primary Erase Lamp Cover to PC Drum Gap . . . 2499
Fuser . . . 2500
Before You Begin . . . 2502
Backup Roll . . . 2503
Backup Roll Discharge Brush . . . 2505
Backup Roll Encoder (EN131) . . . 2507
Backup Roll Lift Motor (M610) . . . 2509
Backup Roll Lift Motor Drive Belt . . . 2512
Backup Roll Lift Position Sensor (S624) . . . 2520

Backup Roll Load Motor (M603) 2521
Backup Idler Roll 2522
Backup Idler Roll Motor (M609) 2524
Backup Idler Roll Position Encoder Board (EN131) 2526
Fuser Control Card (FSxxx) 2528
Fuser Cooling Fan (B605) 2529
Fuser Wrap Sensor (S617 and S618) 2530
Fuser Wrap Sensor (S620) 2532
Hot Roll Control Card - HR091 2534
Hot Roll Drive Assembly and Lubrication 2535
Hot Roll and Collars 2537
Hot Roll Drive Collar 2540
Hot Roll Drive Motor (M607) 2541
Hot Roll Drive Motor Blower (B602) 2546
Hot Roll Front Hub 2548
Hot Roll Lamps 2550
Hot Roll Lamp End Cap 2554
Hot Roll Lamp Receptacle Contacts 2556
Hot Roll Temperature Control Sensor (L601) 2558
Hot Roll Over-temperature Sensor (S613) 2560
Oiler Belt End Switch (S610) 2562
Oiler Belt Motor (M706) 2564
Oiler Gate Interlock Switch (S605) 2566
Oil Port Assembly 2568
Oil Pumps (L70x) 2569
Paper Cooling Fans (B623, B624, and B625) 2574
Paper Cooling Fan (B626) 2575
Preheat Platens, Upper (PH601) and Lower (PH602) 2576
Preheat Platen Lift Plate Assembly 2580
Preheat Control 2583
Scuff Pressure Rollers 2586

Scuff Roll 2590
Scuff Roll Drive Motor (M704) and Belt 2592
Scuff Roll Release Cable 2594
Vacuum Shutter and Cable 2596
Vacuum Shutter Home Sensor (S604) 2599
Shutter Motor (M602) 2603
Skew Sensor (D603) 2604
Steering Motor (M601), Pulleys, and Cables 2611
Thermistors (S621, S622, S623) 2613
Input Area 2615
Chad Brushes 2616
End-of-Forms Sensor 2619
Printer Control Panel (SW721) 2622
Splice Lever Switch (S101) 2623
Urge Unit 2625
Buffer/Flipper Unit 2626
YS011 Card 2627
Lubrication Chart 2628
Printer Power Supplies 2629
Power-On and Power-Off Procedures 2630
Power Supply Access 2633
AC Power Supply 2635
DC 1 Power Supply 2637
Mirror Motor Driver Board Voltage Adjustment 2638
DC 2 Power Supply 2641
SQ081/SQ082 Card 2642
SR081 Card 2643
Printer DC Voltage Measurements and Adjustments 2644
Single Beam Printhead 2645
Laser Safety 2647
Single Beam Printhead Components 2652

Single-Beam Path 2654
What You Should and Should Not Do 2655
Special Tools 2656
Printhead Access 2657
Printhead Cleaning Procedure 2658
Acousto-Optic (AO) Modulator AM201 2660
Acousto-Optic (AO) Modulator Driver AM202 2661
Beam Detect Card (BD121) 2663
Cylinder Lens (CYL1) 2665
F-Theta Lens Assembly 2667
Front Printhead Fan (B201) 2668
Laser 2669
Simplified Laser Adjustment Procedure 2673
Laser Power Supply and Laser Current Meter (L102) 2679
L1 Lens 2680
L2 Lens 2682
Mirror Motor (M201) 2684
Mirror Motor Driver Board (MD141) 2685
Printhead Interface Card (VI111) 2686
Printhead Pressurizing Fan (B202) and Filter 2687
Printhead Checks and Adjustments 2688
Print Sample Adjustments 2715
Two Beam 240 Printhead 2739
Laser Safety 2741
Two Beam 240 Printhead Components 2745
Two Beam 240 Printhead Path 2747
What You Should and Should Not Do 2748
Special Tools 2749
Printhead Access 2750
Printhead Cleaning Procedure 2751
Acusto-Optic (AO) Modulator AM201 2753

Acusto-Optic (AO) Modulator Drivers AM202/AM203 . . . 2755
AOM Driver Power Peaking and Matching Adjustment . . . 2757
Beam Detect Card (BD132) . . . 2759
Cylinder Lens (CYL1) . . . 2761
F-Theta Lens Assembly . . . 2763
Front Printhead Fan (B201) . . . 2765
Laser . . . 2767
Simplified Laser Adjustment Procedure . . . 2771
Laser Power Supply and Laser Current Meter (L102) . . . 2776
L1 Lens . . . 2777
L2 Lens . . . 2779
Mirror Motor (M201) . . . 2781
Mirror Motor Driver Board (MD141) . . . 2782
Printhead Interface Card (VI141) . . . 2783
Printhead Pressurizing Fan (B202) and Filter . . . 2784
Wollaston Prism . . . 2785
Printhead Checks and Adjustments . . . 2787
Print Sample Adjustments . . . 2815
Two Beam 240/300 Printhead . . . 2846
Laser Safety . . . 2848
Two Beam 240/300 Printhead Components . . . 2853
Two Beam 240/300 Printhead Beam Path . . . 2855
What You Should and Should Not Do . . . 2856
Special Tools . . . 2857
Printhead Access . . . 2858
Printhead Cleaning Procedure . . . 2859
Acusto-Optic (AO) Modulator AM201 . . . 2861
Acusto-Optic (AO) Modulator Drivers AM202/AM203 . . . 2863
AOM Driver Power Peaking and Matching Adjustment . . . 2865
Beam Detect Card (BD131/BD132) . . . 2867
Cylinder Lens (CYL1) . . . 2869

F-Theta Lens Assembly . . . 2871
Front Printhead Fan (B201) . . . 2873
Laser . . . 2875
Simplified Laser Adjustment Procedure . . . 2879
Laser Power Supply and Laser Current Meter (L102) . . . 2884
L1 Lens . . . 2885
L2 Lens . . . 2887
Mirror Motor (M201) . . . 2889
Mirror Motor Driver Board (MD192) . . . 2890
Printhead Interface Card (VI141) . . . 2891
Printhead Pressurizing Fan (B202) and Filter . . . 2892
Resolution Lens Motor (M202) . . . 2893
Resolution Lens Sensor (S202) . . . 2895
Wollaston Prism . . . 2897
Printhead Checks & Adjustments . . . 2899
Print Sample Adjustments . . . 2926
Stacker . . . 2955
Stacker Control Panel (SW511) and Forms Width Display (LD091) . . . 2957
Stacker Cooling Blower (B703) . . . 2959
Forms Length Sensor Board (FL061) . . . 2960
Stacker Forms Width Guide Adjustment . . . 2964
Stacker Gate Interlock Switch (S712) . . . 2967
Stacker Gate Safety Switches (S713 and S714) . . . 2968
Stacker Height Sensors - Left PL703/Q703 . . . 2970
Stacker Height Sensors - Right PL702/Q702 . . . 2973
Stacker Inner Cover . . . 2976
Stacker Jam Sensor - PL701/Q701 . . . 2978
Left Finger Belt Motor (M701) & Drive Belt . . . 2984
Left Finger Belts . . . 2986
Right Finger Belt Motor (M702) and Drive Belt . . . 2990
Right Finger Belts . . . 2992

Stacker Length Belts 2995
Stacker Length Drive Motor (M707) and Drive Belt 2997
Stacker Length Rotary Board (FL041) 3001
Pendulum Motor (M704) and Drive Belt 3004
Pendulum Position Sensor (S619) 3007
Pendulum Static Discharge Brush 3009
Stacker Rear Cooling Fan (B603) 3010
Stacker Table Drive Belts 3011
Stacker Table Motor (M803) 3013
Stacker Table Lower Limit Sensor (S701) 3015
Stacker Table Upper Limit Sensor (S704) 3017
SCxxx - Stacker Control Card 3019
SC061/SC091 Card EPROM Module 3020
SC0101/SC0103 Card EPROM Module 3021
Transfer Station 3022
Capstan Pinch Roll 3024
Capstan Pinch Roll Motor (M301) and Gear Box 3028
Capstan Pinch Roll Open Switch (S301) 3031
Capstan Roll and Drive Belt 3033
Capstan Roll Motor (M302) and Gear Box 3038
Deflector Plate to PC Drum Gap 3040
Lower Forms Guide 3042
Upper Forms Guide 3044
Forms Width Sensor Board (PW091) 3046
Front Cover 3050
Path Modifier and Springs 3051
Path Modifier Position 3052
Pre-Measure Unit 3055
Retractor Motor (M304) 3057
Lower Retractor 3059
Upper Retractor 3061

Retractor Detent Position 3063
Retractor to PC Drum Gap 3066
Side 1/Side 2 Verification Sensor Card 3077
Tension Arm Encoders 3090
Tension Arm Encoder Position 3093
Tension Arm Plate 3097
Tension Arm Shaft and Springs 3098
Tension Arm Parallelism 3105
Tension Arm Position 3106
Tractor Motor (M303) and Drive Belt 3111
Lower Front Tractor 3113
Lower Rear Tractor 3116
Upper Front Tractor 3117
Upper Rear Tractor 3125
Tractor Installation and Adjustment 3126
Tractor Pin Feed Belts 3127
Tractor Belt Grounding Brushes 3131
Lower Tractor Guide Plates 3132
Upper Tractor Guide Plates 3134
Upper Tractor Positioning Cable A 3136
Lower Tractor Positioning Cable B 3140
Tractor Alignment 3142
Tractor Control Knob Resistance 3145
Lower Tractor Timing 3146
Upper Tractor Timing 3150
Upper Tractor Jam Sensor (Q301) 3152
Transfer Corona Shield 3154
Transfer Station Discharge Brush 3156
Transfer Station Open Sensor (S302) 3158
Transfer Station Adjustment Sequence 3160

Chapter 6. Parts Catalog 3162
How to Use this Parts Catalog 3165
Mechanism Locators 3166
Mechanism Locator 1 3167
Mechanism Locator 2 3169
Mechanism Locator 3 3171
Mechanism Locator 4 3173
Mechanism Locator 5 3175
Mechanism Locator 6 3177
Assembly 1: Printer Covers 3179
Assembly 2: Service Access Covers 3189
Assembly 3: No Assembly 03 for this Printer 3195
Assembly 4: Process Hardware 3197
Assembly 5: Corona and Erase Lamp Hardware 3207
Assembly 6: Cleaner Hardware 3219
Assembly 7: Developer Hardware 3227
Assembly 8: Developer Hardware 3237
Assembly 9: Developer Hardware 3243
Assembly 10: Developer Hardware 3253
Assembly 11: Photoconductor Drum Hardware 3259
Assembly 12: Printhead 3263
Assembly 13: Air System 3305
Assembly 14: Transfer Station 3315
Assembly 15: Transfer Station 3349
Assembly 16: Input Hardware, Splicing Table 3355
Assembly 17: Urge Unit - Black, Fixed Top 3371
Assembly 18: No Assembly 18 for this Printer 3375
Assembly 19: No Assembly 19 for this Printer 3377
Assembly 20: Fuser Hardware 3379
Assembly 21: Autoload/Bridge Hardware 3419
Assembly 22: Preheat Platen, Back-up Roll Hardware 3427

Assembly 23: Oiler Hardware 3443
Assembly 24: No Assembly 24 for this Printer 3451
Assembly 25: Stacker 3453
Assembly 26: Pendulum 3461
Assembly 27: Stacker 3465
Assembly 28: Stacker 3475
Assembly 29: Stacker 3481
Assembly 30: Stacker Table 3485
Assembly 31: B1 Boards 3493
Assembly 32: Fuser Control Box 3499
Assembly 33: No Assembly 33 for this Printer 3503
Assembly 34: No Assembly 34 for this Printer 3505
Assembly 35: AC Power Supply 200V 3507
Assembly 36: AC Power Supply 400V 3509
Assembly 37: No Assembly 37 for this Printer 3511
Assembly 38: Preheat Platen Control 3513
Assembly 39: No Assembly 39 for this Printer 3515
Assembly 40: Control Unit Covers 3517
Assembly 41: Control Unit Covers and CRT 3519
Assembly 42: Control Unit Service Access Covers 3523
Assembly 43: Control Unit AC, DC Power Supply Fans 3535
Assembly 44: Control Unit Power Control Asm, Attention Lamp 3537
Assembly 45: No Assembly 45 for this Printer 3541
Assembly 46: No Assembly 46 for this Printer 3543
Assembly 47: No Assembly 47 for this Printer 3545
Assembly 48: No Assembly 48 for this Printer 3547
Assembly 49: Controller 7013 Model 595 3549
Assembly 50: Controller 7025 Model F50 3559
Assembly 51: No Assembly 51 for this Printer 3565
Assembly 52: Control Unit Cables 3567
Assembly 53: Buffer/Flipper 3593

Assembly 54: Kits and Their Quantities . . . 3597
Assembly 55: No Assembly 55 for this Printer . . . 3613
Assembly 56: Installation Kit . . . 3615

Chapter 7. Preventive Maintenance . . . 3617
Types of Preventive Maintenance . . . 3618
Operator Maintenance . . . 3619
Service Maintenance . . . 3620
Service Tasks – PM Procedures . . . 3625
Specially Tracked Parts . . . 3638
PM Checklist . . . 3639

Appendix A. Installation Procedures . . . 3649
Introduction . . . 3652
How to Use the Installation Procedures Sections . . . 3653
Installation Responsibilities . . . 3654
Space Requirements . . . 3658
Temperature and Humidity Requirements . . . 3661
Power Requirements . . . 3662
Branch Circuit CB Turned Off Check . . . 3664
Branch Circuit CB Turned On Check . . . 3665
Verify the Shipment . . . 3665
Installing a Simplex Printer or Duplex System Printer 2 . . . 3666
Distinguishing Printer 1 from Printer 2 . . . 3666
Check the Printer and Control Unit for Damage . . . 3667
Remove the Packing Tape . . . 3670
Remove Input Bin and Shipping Brace . . . 3673
Connect the AC Power Cord . . . 3674
Level the Printer . . . 3679
DIP Switch Settings . . . 3686
Check the Voltage Jumpers . . . 3687
Install Preheat Control . . . 3688

Install Stacker Switch Cover . . . 3691
Install Side 1/Side 2 Verification Function . . . 3695
Install Operator Panel. . . . 3696
Remove Printer Right Top Cover . . . 3698
Install the Controller in the Control Unit. . . . 3699
Change the Fuser Oil Filter Screen. . . . 3720
Install Labels and IBM Logo . . . 3721
Power On the Printer In Diagnostic Mode . . . 3725
Check the Drum Gaps and Install the PC Drum . . . 3729
Check the Printhead Alignment . . . 3735
Check Vacuum System . . . 3735
Check and Set NVS Memory . . . 3735
Check the Toner Control Program . . . 3735
Continue Installation Procedures . . . 3735
Install the Display/Touch Screen on the Control Unit . . . 3736
Install the Operator Alert Assembly on the Control Unit . . . 3740
Attach Control Unit Frame to Printer . . . 3743
Installing a Duplex System Printer 1 . . . 3749
Install Oil Pan. . . . 3751
Installing Additional Duplex System Hardware . . . 3753
Install the Buffer/Flipper Unit . . . 3754
Install the Urge Unit (Hinged-Top, Pearl White Unit Only) . . . 3761
Install the Urge Unit (Fixed-Top Black Unit Only) . . . 3764
Install the Remote Power Cable . . . 3765
Install MIC SCSI Cable . . . 3766
Configure and Test Printer/System Operations . . . 3767
Set the Power Switches and Power On the System . . . 3768
Install the Microcode . . . 3769
Special Features Passwords . . . 3769
Configuring the system . . . 3769
Configure the Printer - Duplex System . . . 3770

Configure the Attachments . . . 3774
Configure the Pre/Postprocessors . . . 3774
Define Forms . . . 3775
Configuration for Side 1/Side 2 Verification Checking . . . 3776
Verify Printer Operation . . . 3777
Save the Configuration Settings . . . 3780
Test the Operator Alert Assembly . . . 3781
Install the Host Attachment Cables . . . 3782
Make the Printer System Ready for Use . . . 3788
Install Features . . . 3788
Complete the Installation . . . 3788
Discontinue Use . . . 3789
Relocate the Printer . . . 3794
Reinstall the Printer . . . 3796

Appendix B. Tools . . . 3797
Infoprint 4000 Tools . . . 3798
Branch Office Tools . . . 3800
Features Tools . . . 3800
Other Tools . . . 3800
Items from the CE Catalog . . . 3801
Tool Usage Descriptions . . . 3802

Fru List . . . 3822

Part Number Index . . . 3844

Search Index . . . 3895

General Safety Guidelines

Attention: Do not connect the printer to any 380-415 volt 50 Hz IT power distribution system (impedance grounded neutral system). Verify the power system by using the “Grounded Neutral Verification” on page 3664.

Use these safety inspection guidelines to help identify unsafe areas in the printer. As the printer was being manufactured, many necessary safety items were installed to protect the owners, operators, and service personnel from injury. Only these items are included in the Safety Checks section of this inspection.

When A Safety Inspection Is Required

A Safety Inspection of the printer is required under the following circumstances:

- The printer has not been serviced under the IBM Maintenance Agreement and is being considered for an IBM Maintenance Agreement.
- The printer has been serviced by non-IBM service personnel and IBM service is now required.

If you find a discrepancy while you perform this inspection procedure, you must correct the discrepancy before any other service can be performed by the IBM service representative.

All repairs made as a result of this inspection procedure are billable to the customer.

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Other Safety Hazards

When you perform the Safety Inspection, use good judgment to identify other safety hazards. Specifically remember the following conditions and the possible safety hazards of each:

- Electrical conditions, specifically primary power sources, that could cause serious injury or fatal electrical shock.
- Grounding conditions, such as frame grounds that are not installed correctly, that can cause an electrically-charged machine frame.
- Wiring conditions, such as damaged or frayed insulation on AC or DC cables.
- Explosive conditions, such as bulging capacitors, that can cause serious injury.
- Unsafe mechanical devices and hot surface conditions in the operator and service areas, such as those that are not protected by safety covers.
- Fire hazards, such as forms or consumables being stored too close to the printer

How to Perform the Safety Checks

Attention: All service representatives must complete the current level of the *Electrical Safety Student Guide* (70750) self-study course, prior to performing a safety inspection.

Preparation

Before you perform the Safety Checks:

1. Disable any enabled host attachments using the Display Touch Screen.
2. Perform the **Shutdown** procedure.
3. Switch the **Control Unit Local/Remote** switch on the power control panel to **Local**.
4. Press **Control Unit Power Off if in Local** switch on the power control panel.

   Note: On a duplex printing system, the above two steps refer to the control unit attached to Printer 2.
5. Switch the **Printer Local/Remote** switch on the control unit power control panel to **Local**.
   (For duplex printing systems, do this to both printers.)
6. **Disconnect the printer line cord.**
7. Open the control unit front cover.
8. Set the Power Switch on the front of the RS/6000 Controller to **Off**.

References

Refer to the following items while you perform the Safety Inspection:

- Current SMs and ECAs, with all the safety updates included
- Current machine history
- *Electrical Safety for IBM Customer Engineers*, S229-8124
- Minimum space requirements.

Safety Checks

Now, perform the Safety Checks ensuring that all of the safety requirements have been met.

Covers

1. Check all external covers for sharp edges, burrs, and damage.
2. Check all cover hinges to ensure that they are not loose or broken.
3. Verify that all service covers are in place, especially the printhead cover.

Line Cord

1. Open the right and left rear covers.
2. Remove the blower cover.
3. Check the line cord to ensure that it is correctly fastened to the frame with a cord clamp and that the insulation is not frayed.

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Primary Safety Grounds

1. Open the control unit rear cover and open the printer rear doors. Remove the safety cover from the power supply.
2. Verify visually that the printer primary safety ground is connected. The safety ground for the printer is next to PSTB1.
3. Measure the resistance between the ground pin on the line cord and the printer primary safety ground. The resistance reading should be ≤ 0.1 ohm.
4. Verify visually that the control unit primary safety ground is connected. It is located below the interface connections between the control unit and the printer.
5. Measure the resistance between the ground pin on the line cord and the control unit primary safety ground. The resistance reading should be ≤ 0.1 ohm.

Fuses

1. Verify that all fuses are in place and are the correct rating. See “Wiring Diagrams” on page 1780.

Cables

1. Check all cables visually for worn, pinched, or frayed areas. Install cable ties as necessary.

Printer Safety Grounds

- Verify visually that all grounds within the printer are correctly fastened. The ground connection on each end must have a star washer or a paint-free surface to guarantee a good ground connection. Some covers have to be removed to verify these connections.
- Visually inspect each ground wire for abrasion or cuts.
- Make all resistance measurements to the printer primary safety ground.
- Verify that all ac components have safety grounds.
- Long lead lengths are required for some resistance measurements. Measure the lead resistance and subtract it from the measurements.

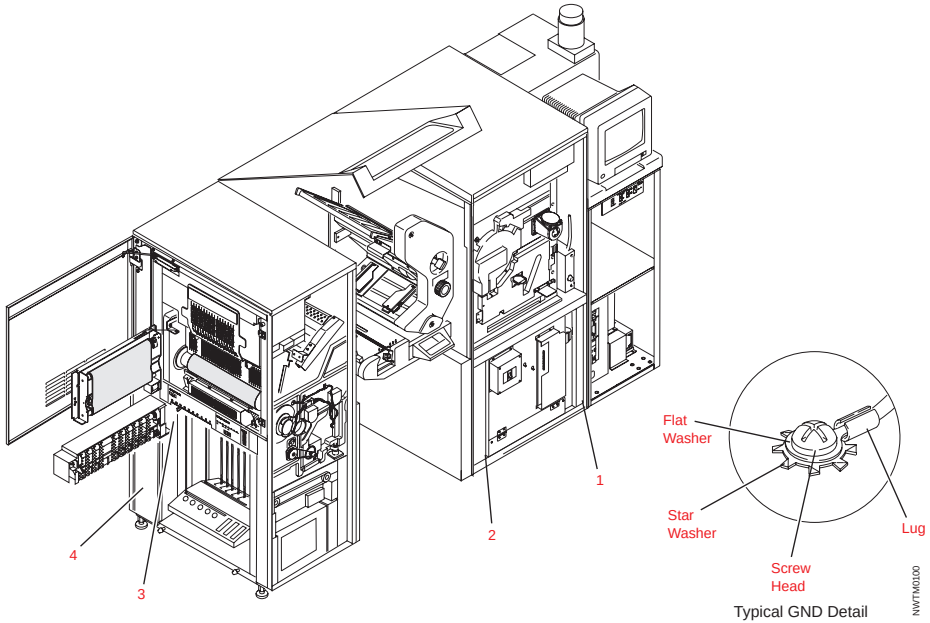
Cover Grounds

1. Verify visually that each hinged printer cover has safety grounds.
2. Reference one lead of the digital voltmeter to the printer primary safety ground point. All the cover safety grounds are referenced from this point.
3. Scratch through the paint on the inside of the following covers (in an area that will not be noticed), to check the resistance between the cover and the frame. All resistance readings should be ≤ 0.1 ohm.

- Left top cover
- Center top cover
- Right top cover
- Left front cover
- Center front cover
- Right front cover
- Left rear cover
- Center rear cover
- Right rear cover

Table 1. Main Power Supply Grounds

Main Power Supply Grounds



All the resistance readings should be ≤ 0.1 ohm.

Power Supply Cover

1. Open the power supply hinged cover.
2. At the inside bottom right corner of the hinged cover, measure the resistance at the screw holding the green and yellow wire **(1)** and at the printer frame.

Power Supply Ground (ac)

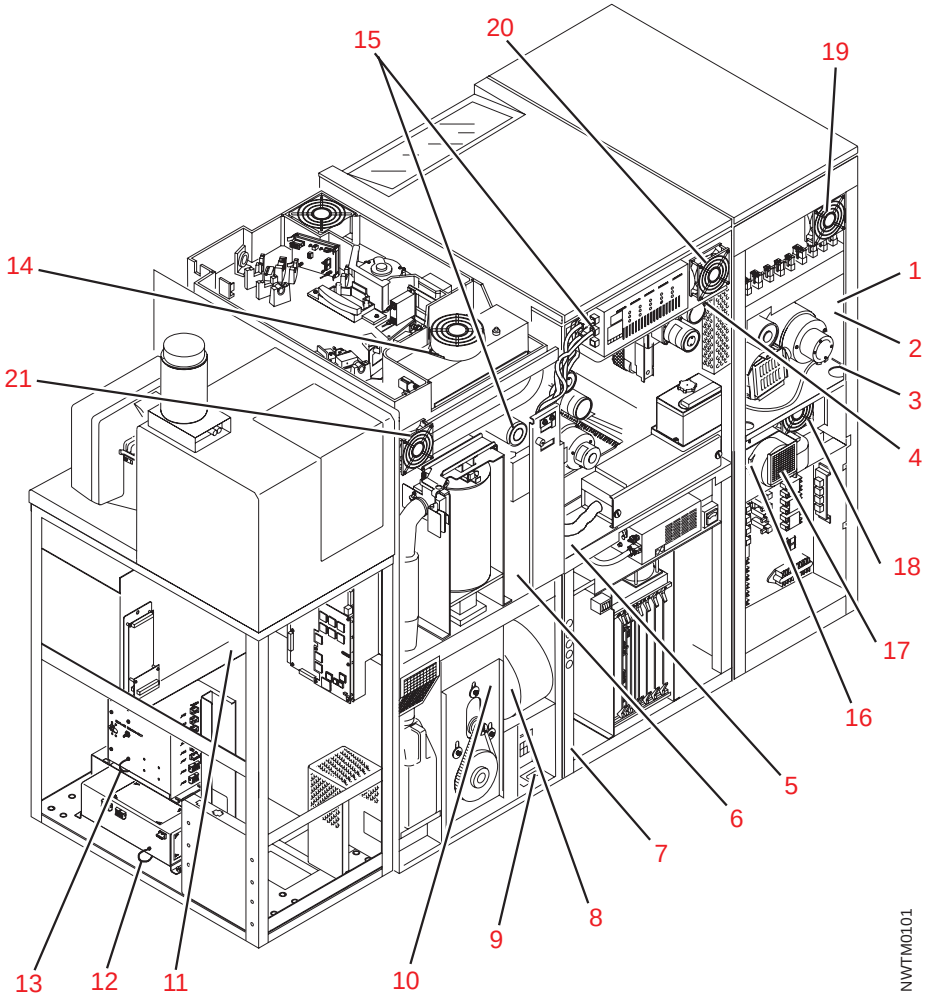
3. At the bottom left side of the main power supply, measure the resistance at the screw holding the green and yellow wire **(2)** and at the printer frame.

Power Supply Cooling Fans

4. Disconnect the connectors on both sets of fans.
5. Measure the resistance at both pin and jack number 3 on both connectors.
6. Reconnect the connectors and close the power supply hinged cover.

Table 2. High Voltage Power Supply Grounds

High Voltage Power Supply Grounds



All the resistance readings should be ≤ 0.1 ohm.

High Voltage Supply

1. The ground wire and connector are on the lower left side of the supply **(15)**.
2. Disconnect the ground connector from the high voltage power supply.
3. Measure the resistance at the high voltage power supply ground terminal and at the printer frame.
4. Reconnect the ground connector.

High Voltage Supply Shelf

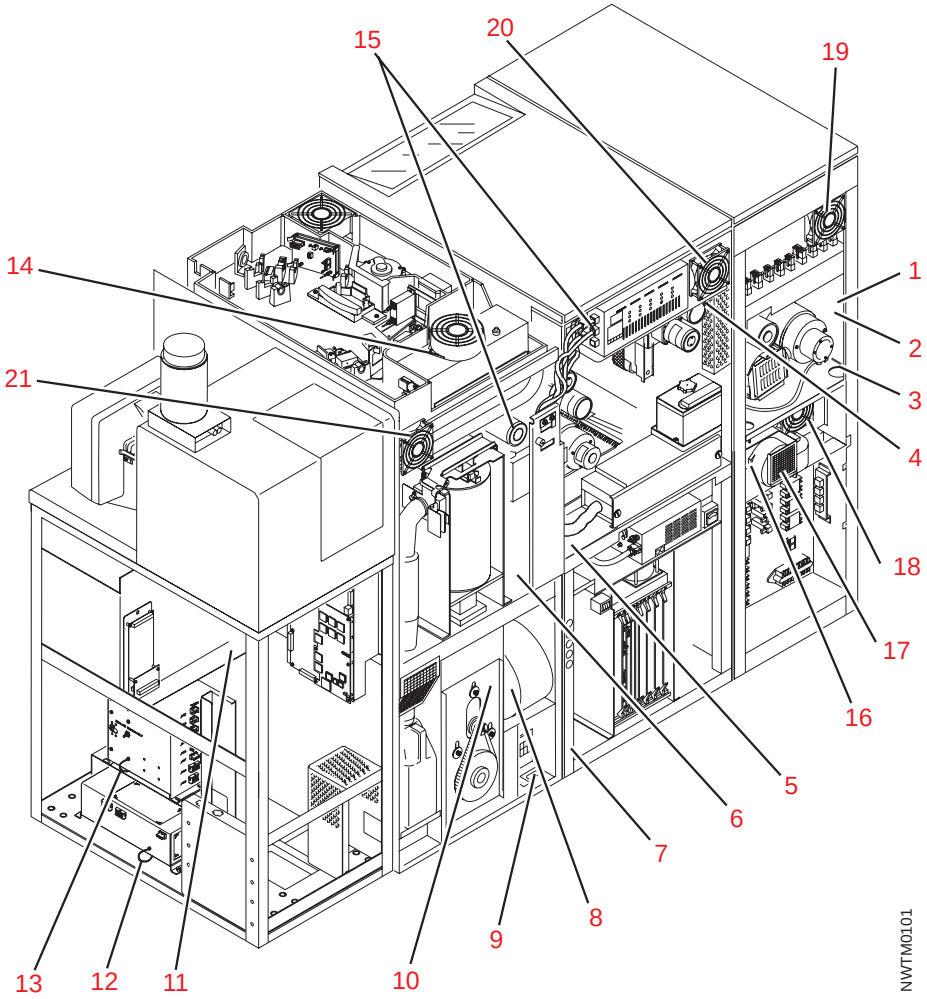
1. Measure the resistance at the screw holding the black, braided safety ground at the lower left side of the high voltage power supply and at the opposite end of the ground wire.

High Voltage Power Supply and Fuser Exhaust Fan (B604 and B605)

1. Disconnect connector PJ676, located behind or under fan B605 **(19)**.
2. Measure the resistance at pins 3, 6, and 9.
3. Reconnect connector PJ676.

Table 3. Printhead and Laser Power Supply Grounds

Printhead and Laser Power Supply Grounds



All the resistance readings should be ≤ 0.1 ohm.

Printhead

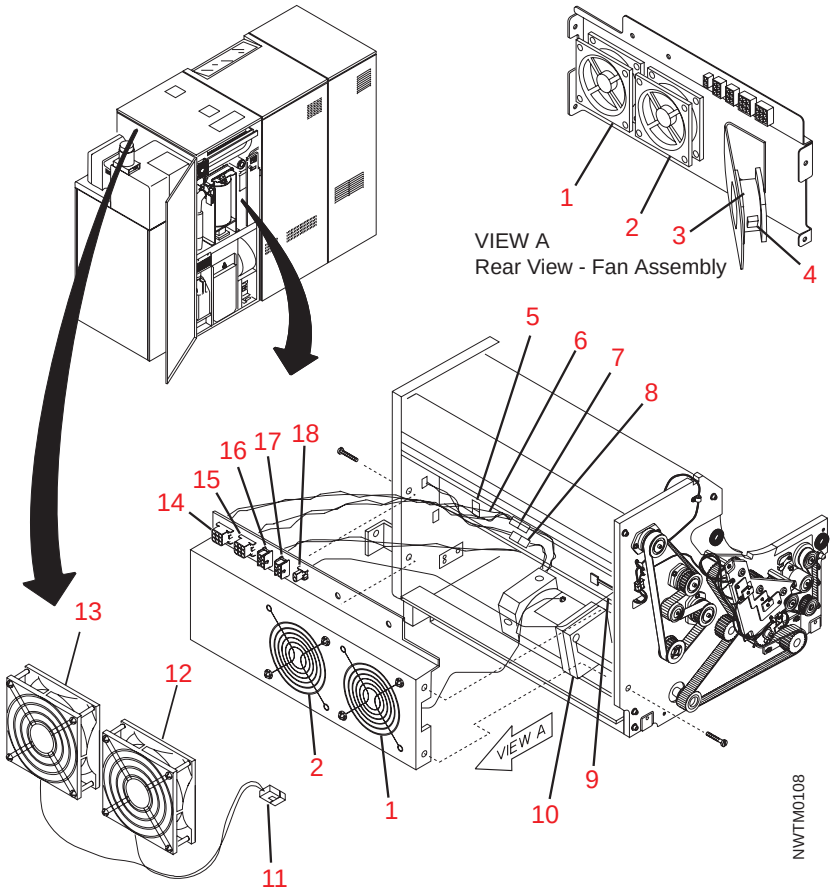
1. At the rear of the printhead, measure the resistance at the frame and at the black, braided safety ground near the screw fixing the ground to the frame **(14)**.

Laser Power Supply

1. At the bottom left side of the B-1 gate, measure the resistance at the end of the safety ground (which runs from the laser power supply cord) and at the printer frame **(6)**.

Table 4. Developer Grounds

Developer Grounds



All the resistance readings should be ≤ 0.1 ohm.

Developer Grounds

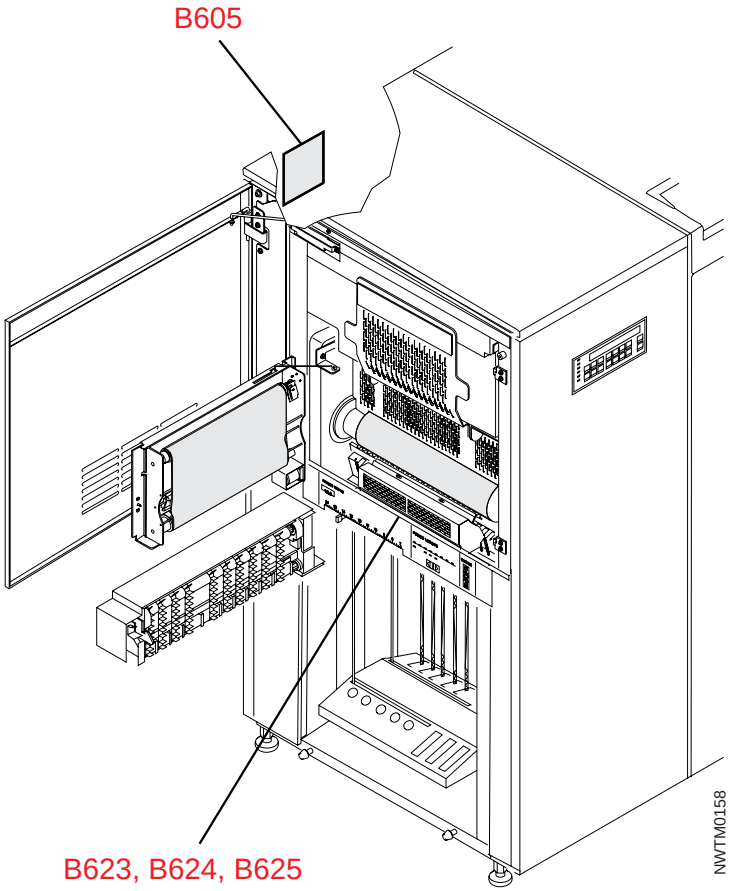
1. Remove the mirror motor amplifier internal service cover from the right front side of the developer area.
2. Disconnect connector PJ196 **(17)**.
3. Measure the resistance from jack number 3 to the printer frame.
4. Reconnect connector PJ196.

Developer Fans

1. Remove the developer unit.
2. There are eight developer fans: five at the back of the developer unit itself; two below the developer unit; and one at the bottom left side of the PC drum cavity.
3. Disconnect connectors PJ192 (beneath the developer), and PJ165 (at the bottom left side of the drum cavity).
4. Measure the resistance from jack number 3 of PJ193 (at the back of the developer), PJ192, and PJ165 connectors to the printer frame.
5. Reconnect connectors PJ192, and PJ165.
6. Replace the developer unit..

Table 5. Paper Cooling Fan Grounds

Paper Cooling Fan Grounds



All the resistance readings should be ≤ 0.1 ohm.

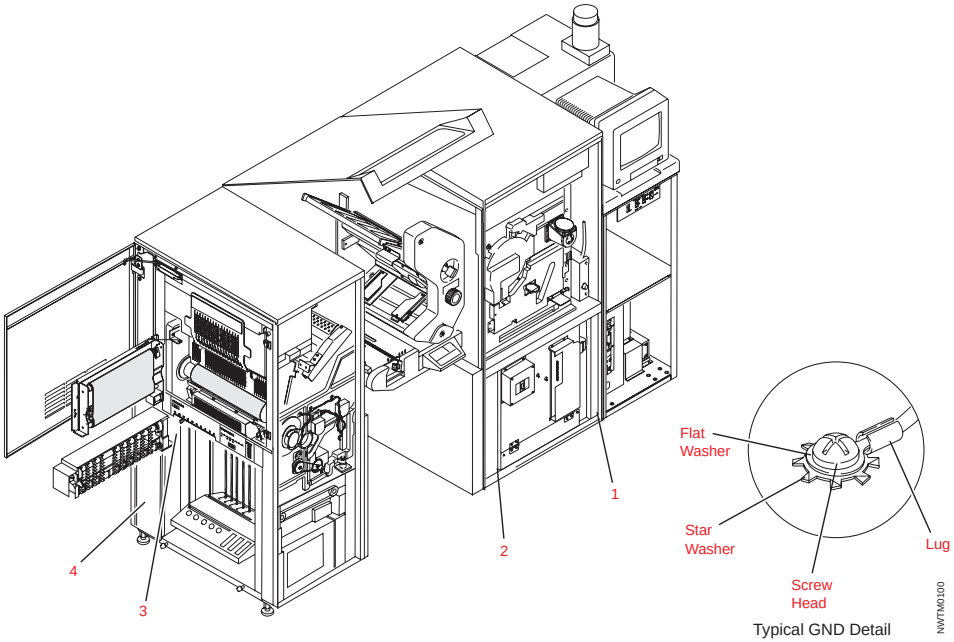
Paper Cooling Fans

These fans are located beneath the oiler belt/roll.

1. Disconnect connector P650 and J650A
2. Measure the resistance at both the pin and the jack number 3 on both connectors.
3. Measure the resistance at both the pin and the jack number 2 on both connectors.
4. Reconnect connectors P650, and J650A.
5. Close the stacker gate.

Table 6. Stacker Gate Ground

Stacker Gate Ground



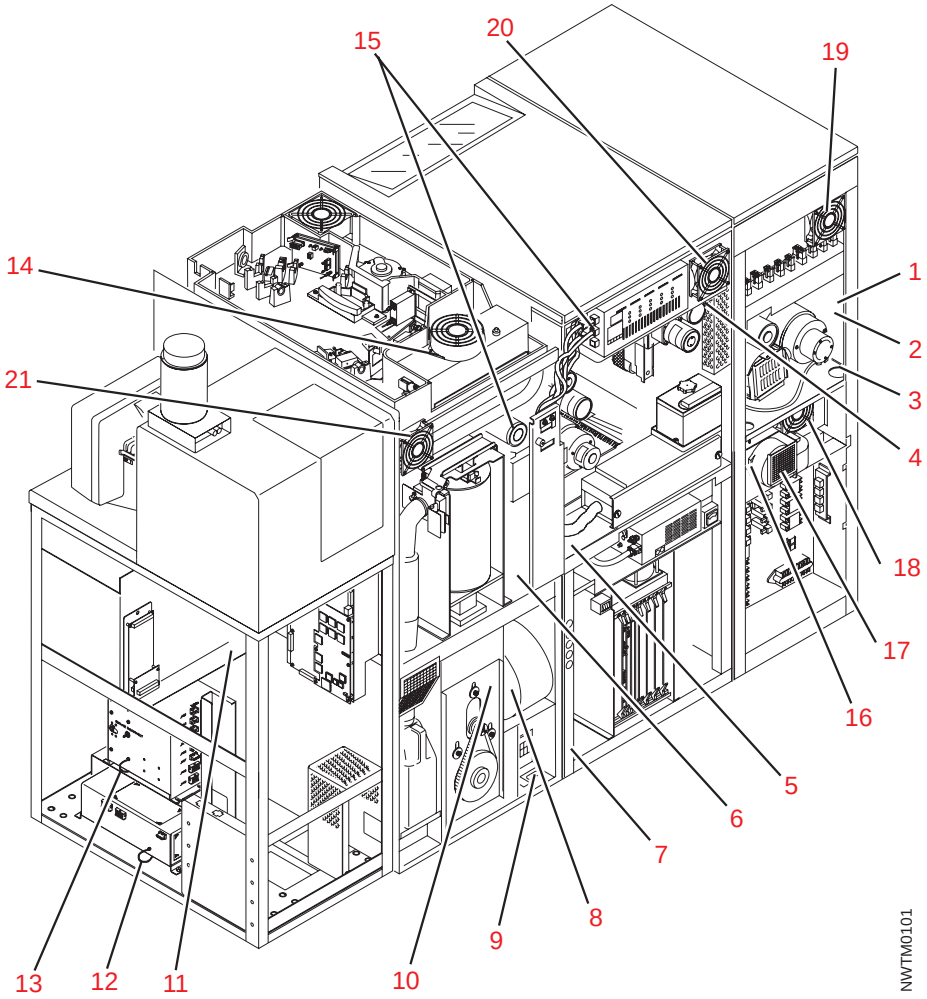
All the resistance readings should be ≤ 0.1 ohm.

Stacker Gate Ground

1. Open the stacker gate. Check the safety ground around the hinge point **(3)**.
2. Measure the resistance at any bare metal point on the stacker gate and at the printer frame ground.
3. Close the stacker gate.

Table 7. Printer Left Side Grounds

Printer Grounds



All the resistance readings should be ≤ 0.1 ohm.

1. Remove the rear left and right covers.
2. Verify that the ground strap is connected between the fuser unit and the printer **(3)**.

Stacker Cooling Blower (B703)

3. Verify that there is a safety ground wire **(16)** between the stacker cooling blower **(17)** and the printer frame.
4. Verify that there are star washers installed at both ends of the safety ground wire.

Printer Logic Gate Grounds (Gate B1)

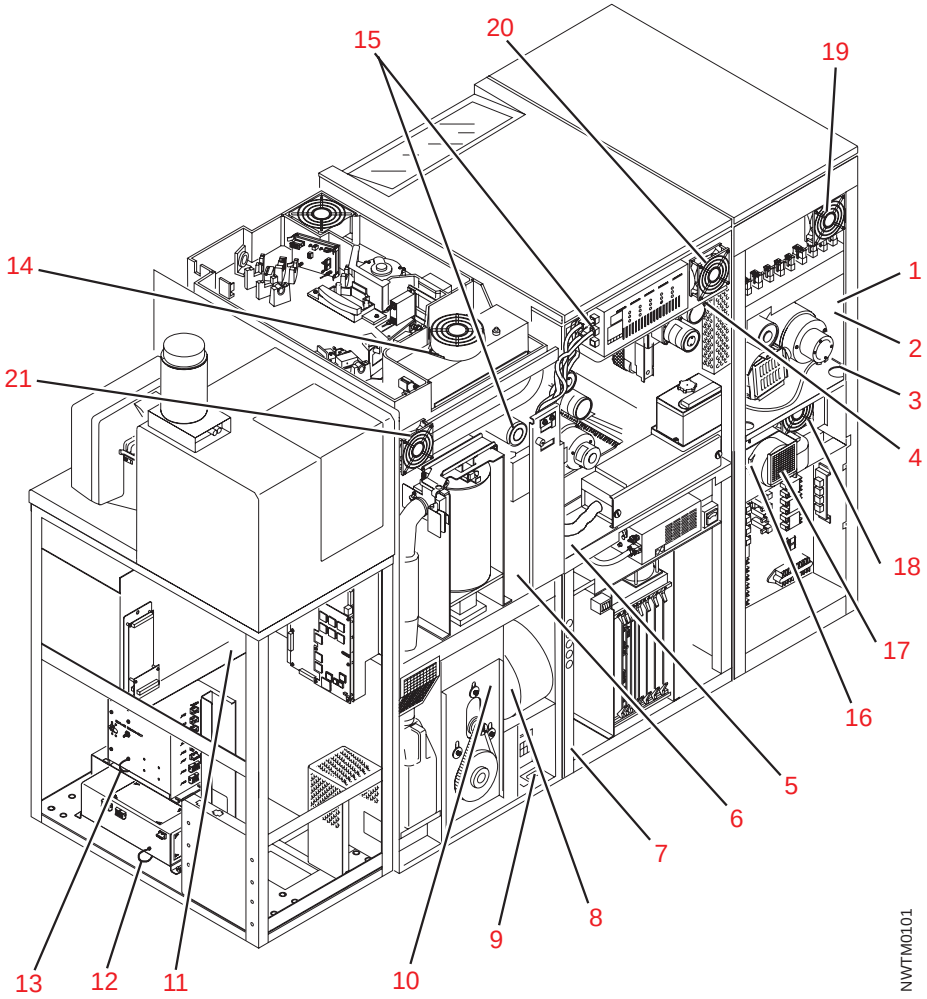
5. Remove the cover over the logic card area. Verify that the ground wires are attached to the frame ground. Ensure that the star washers are installed.
6. Measure the resistance at the logic board and at the ground terminal attached to the lower left corner of the logic board.
7. Measure the resistance at the logic cage and at the printer frame ground attached to the lower left corner of the logic cage.

Printer Logic Gate Fan (B403)

8. Disconnect connector PJ439.
9. Measure the resistance at both the pin and at jack number 3.
10. Reconnect connector PJ439.
11. Close the printer logic gate, and replace the logic gate cover.

Table 8. Cyclone Blower Motor Ground

Cyclone Blower Motor Ground



All the resistance readings should be ≤ 0.1 ohm.

Cyclone Blower Motor (M104) Ground

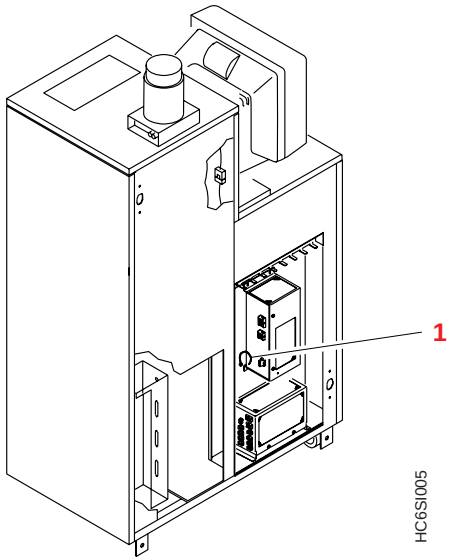
1. Remove the left rear cover.
2. Disconnect connector PJ123.
3. Measure the resistance at jack number 7.
4. Reconnect connector PJ123.
5. Replace the cover.

Vacuum Blower Motor (M105) Ground

1. Remove the left rear cover.
2. Verify that the ground wire is attached to the blower **(8)**. Ensure that the star washer is installed.
3. Measure the resistance at the star washer connection and at the printer frame ground.
4. Replace the cover.

Control Unit Safety Grounds

Table 9. Control Unit Grounds



- Verify visually that all grounds within the control unit are correctly fastened. The ground connection on each end must have a star washer or a paint-free surface to guarantee a good ground connection. Some covers have to be removed to verify these connections.
- Visually inspect each ground wire for abrasion or cuts.
- Make all resistance measurements to the control unit primary safety ground.

All the resistance readings should be ≤ 0.1 ohm.

Cover Grounds

1. Verify visually that the control unit front and rear covers have safety grounds and that each is connected to the frame, and star washers are in place.
2. Measure the resistance between the cover and the frame.

Power Supply Ground

3. Disconnect the green and yellow safety wire from the power supply.
4. Measure the resistance from the wire-end and at the point of the disconnect to primary ground.
5. Reconnect the power supply safety wire, making sure that you replace the star washer.

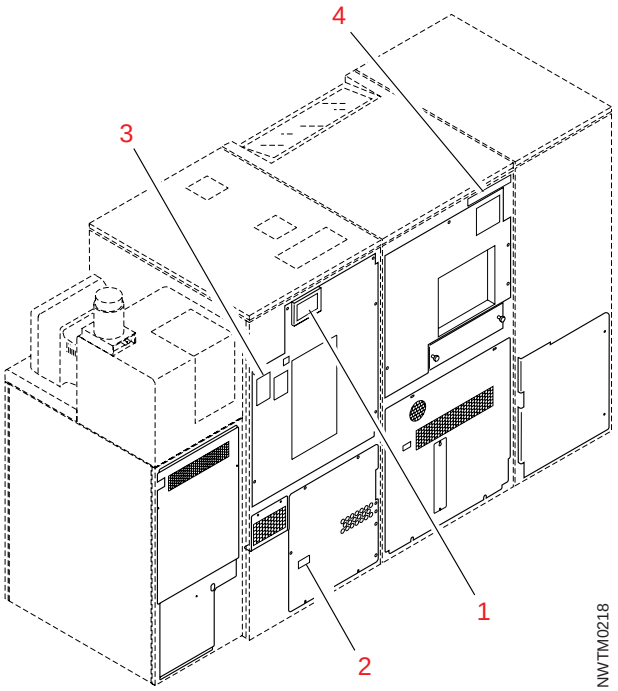
AC Control Box Ground

6. Measure the resistance from the cover screw to primary ground.

Safety Labels

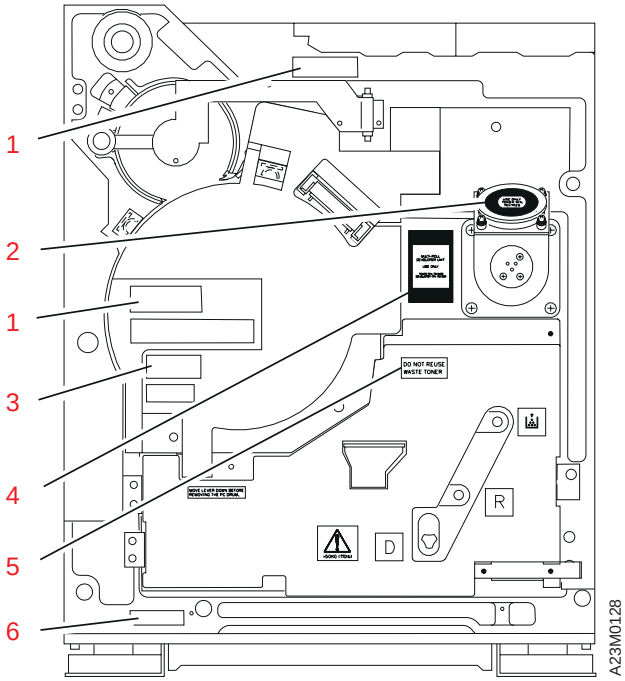
Verify that all safety labels are in place and are readable.

Table 10. Safety Labels (Rear)



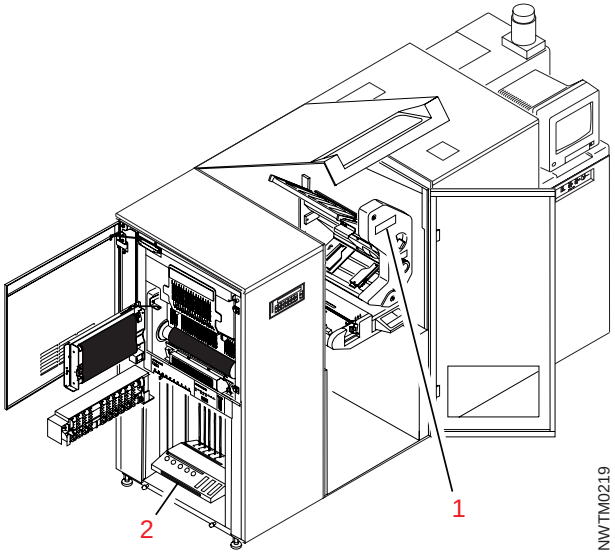
- **(1)** Caution! Laser radiation when open. Avoid exposure to beam.

Table 11. Safety Labels (Process Area)



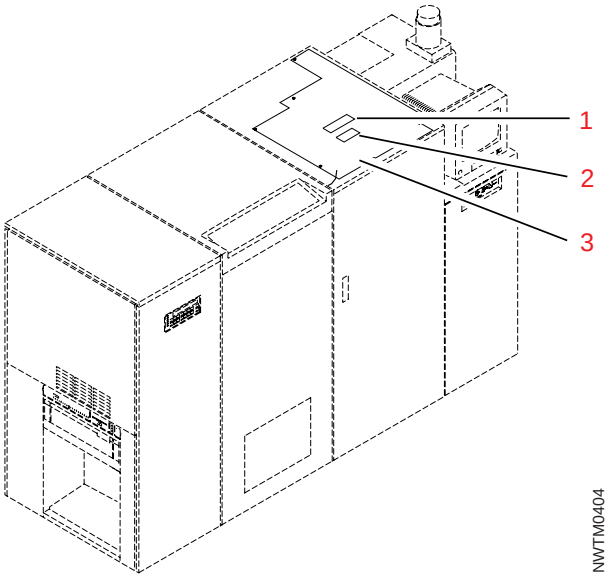
- (Two Labels) **(1)** Caution! Laser radiation when open. Avoid exposure to beam.
- **(3)** Hazardous Area! Trained personnel only. Follow service instructions.

Table 12. Safety Labels (Front View)



- **(1)** Hazardous Area! Fast moving paper.
- **(2)** Caution! Paper weight in the stacker can exceed 20 kg.

Table 13. Safety Label Installation (Top View)



- **(1)** Caution! Laser radiation when open. Avoid exposure to beam.
- **(2)** Laser Radiation.

Fuser Over-Temperature Safety Interlock

Check the fuser over-temperature safety interlock (S613) as follows:

1. Reconnect the printer line cord.
2. Power on the printer by pressing the **Printer Power On** switch on the power control panel
3. Remove the fuser front cover.
4. Verify that the fuser lamp is on.
5. Disconnect connector PJ645.
6. Verify that the fuser lamp goes off.
7. Press the **Printer Power Off if in Local** switch on the power control panel.
8. Reconnect connector PJ645.
9. Replace the fuser front cover.
10. Power on the printer by pressing the **Printer Power On** switch on the power control panel. Ensure that power comes up.
11. Press the **Printer Power Off if in Local** switch on the power control panel.
12. Set the **Printer Local/Remote** switch on the control unit power control panel to **Remote**.
13. Set the Power Switch on the front of the Controller to On.

Unit Emergency Power Off Switch

Test the **Unit Emergency** switch on the power control panel by doing the following:

1. Move the Unit Emergency switch to the **Power Off** position.
2. Press the **Control Unit Power On** switch and ensure that the printer and the control unit do not power up.
3. Move the Unit Emergency Switch to the **Power Enable** position.
4. Press the **Control Unit Power On** switch and ensure that power does come up on both the printer and the control unit.
5. Perform a **Shutdown** procedure from the Display/Touch Screen.
6. Press the **Control Unit Power Off if in Local** switch on the power control panel.

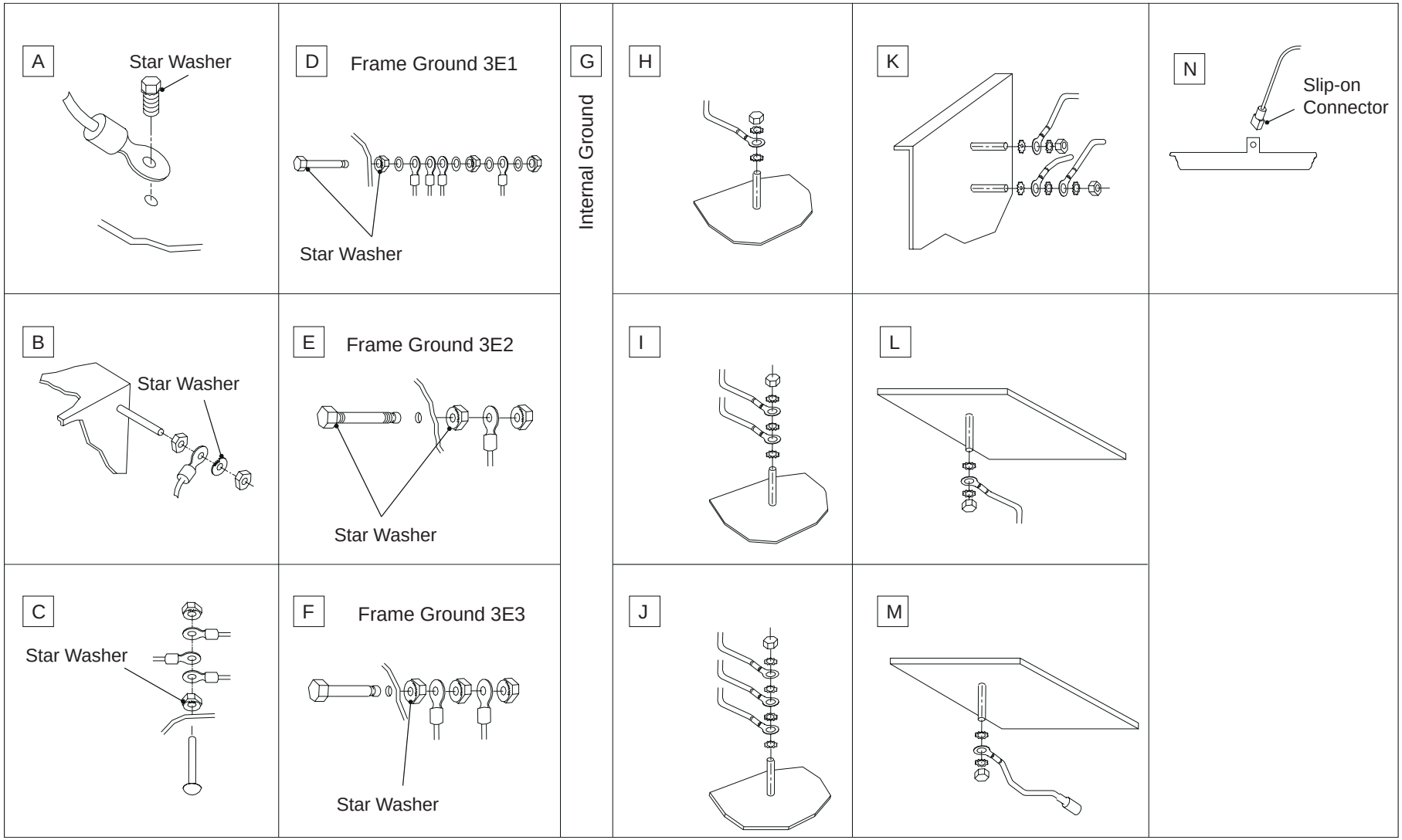
Circuit Breaker (CP1)

1. Open the control unit cover which allows access to CP1.
2. Turn off the machine circuit breaker CP1 located on the ac control box (access can be from the front or the side of the control unit depending on the type of printer).
3. Press the **Control Unit Power On** switch and ensure that the printer and control unit do not power up.
4. Turn on circuit breaker CP1 located on the ac control box.
5. Power on the printer system (printer and control unit) by pressing the **Control Unit Power On** switch on the power control panel. Ensure that power comes up.

End of Inspection

1. If the customer is using the remote power feature, set the **Control Unit Local/Remote** switch to **Remote**.
2. Enable the host attachments.
3. Close the control unit covers. Ensure that the covers latch correctly.
4. Install all the covers on the printer.
5. Perform the normal end-of-call procedures. See MAP 0003: End Of Call Procedure.

Table 14. Types of Grounds



Chapter 1. Diagnosing Problems

MAPS 68
MAP 0001: Introduction 69
Terms Used In the MAPS 70
MAP 0002: Start Of Call Procedure 77
MAP 0003: End Of Call Procedure 80
MAP 0010: Symptom Start MAP 85
Entry. 85
System Reference Codes 88
Generate an SRC 100
Messages That Cannot Be Cleared or Occur Too Often 103
Display, Indicator, Switch, or Pushbutton Problems 106
Forms Feeding Problems 116
Maintenance Panel Error Codes 119
Host Attachment Problems 121
Visually Detected Problems 123
Print Speed (Start/Stop) Problem 127
Print Application or Forms Problems 128
Printer Will Not Run 129
Other Failures 130
Supplies Life Too Short 131
Image Missing or PEMs (Bars) Near Edge 132
Power Problem. 133
End of Forms LED 135
MAP 0070: Printer Logic Unit Map 136
B1 Logic Unit Parts Replacement 136
B1 Logic Unit MAP Table Start Point. 137
MAP 0102: Retractor Speed Error 148
MAP 0103: Retractor Is Extended During NPRO 152

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MAP 0104: Retractor Is Retracted During Print 156
MAP 0113: Tractor Motor Encoder Phase Error 160
MAP 0114: Tractor Motor Overcurrent 166
MAP 0115: Retractor Seek Error 169
MAP 0116: Retractor Motor Overcurrent 173
MAP 0117: Forms Width Sensor 177
MAP 0118: Forms Width Sensor Fuse 180
MAP 0119: Upper Tractor Forms Jam 185
MAP 011B: Tractor Drive Signal Always On 202
MAP 011C: Tractor Detent Signal Error 204
MAP 011D: Tractor Motor Overspeed 208
MAP 011E: Tractor Motor Initial Position Error 211
MAP 0122: Drum Motor Overcurrent 216
MAP 0123: Drum Timeout Error 218
MAP 0124: Drum Overspeed 223
MAP 0125: Drum Position Error 226
MAP 0131: Tension Arm Down 229
MAP 0132: Tension Arm Up 235
MAP 0133: Skew Error 244
MAP 0134: Fuser Wrap 264
MAP 0135: Backup Roll Motor Thermal 280
MAP 0136: Backup Roll Position Error 285
MAP 0137: Steering Motor Driver 291
MAP 0138: Hot Roll Overspeed 292
MAP 0139: Backup Roll Overtravel Error 295
MAP 013A: Backup Roll Drive Signal On 299
MAP 013B: Backup Roll Open Error 305
MAP 013C: Hot Roll Underspeed 311
MAP 013D: Hot Roll Motor Blower Stopped 318
MAP 0141: Felt Oiler Belt Driver Error 324
MAP 0142: Oil Pump Driver Error 328

MAP 0143: Felt Oiler Belt Motor Always Driven 332
MAP 0144: Felt Oiler Belt Motor Never Driven 336
MAP 0145: Oil Pump Always Driven 340
MAP 0146: Oil Pump Never Driven 343
MAP 0152: Scuff Roll Motor Thermal 346
MAP 0153: Backup Idler Roll Not Closed 351
MAP 0154: Backup Idler Roll Not Open 359
MAP 0155: Backup Idler Roll Motor Thermal 366
MAP 0156: Backup Roll Lift Motor (M610) Position Error 371
MAP 0157: Backup Roll Lift Motor (M610) Overcurrent 373
MAP 0161: Stacker Jams (Light Never Sensed) 375
MAP 0162: Pendulum Motor Overcurrent 391
MAP 0163: Pendulum Initial Position Error 394
MAP 0164: Stacker Jams (Light Always Sensed) 400
MAP 0165: Pendulum Control Error 410
MAP 0166: Pendulum Interface Error 413
MAP 0167: Pendulum Motor Overcurrent 416
MAP 0169: Stacker Cooling Blower Rotation Error 419
MAP 0171: Stacker Table Motor Thermal 424
MAP 0172: Stacker Table Timeout 428
MAP 0174: Stacker Safety Switch On 437
MAP 0175: Stacker Table Motor Runs Too Long 441
MAP 0176: Stacker Forms Length Sensor 453
MAP 0177: Stacker Length Motor Timeout 459
MAP 0178: Stacker Length Motor Driver Error 469
MAP 0182: Capstan Pinch Roll Cannot Be Lowered 472
MAP 0183: Bridge Cannot Be Raised (Autoload) 479
MAP 0184: Transfer Station Forms Jam During Autoload 484
MAP 0185: Upper Fuser Jam (Autoload) 505
MAP 0186: Capstan Pinch Roll Cannot Be Raised (Autoload) 523
MAP 0187: Bridge Cannot Be Lowered (Autoload) 531

MAP 0188: Capstan Pinch Roll Initial Position Error 536
MAP 0189: Bridge Home Position Error (Autoload) 543
MAP 018A: Autoload Reset Error 548
MAP 0190: Autoload Error 550
MAP 0211: Charge Corona Voltage Error 553
MAP 0212: Transfer Corona Voltage Error 561
MAP 0213: Preclean Corona Voltage Error 567
MAP 0214: Precharge Corona Voltage Error 572
MAP 0221: Mirror Motor Operating Error 579
MAP 0222: Video Data Active 584
MAP 0223: Mirror Motor Drive Error 589
MAP 0224: Mirror Motor Start-Up Error 602
MAP 0225: Resolution Lens Initial Position Error 614
MAP 0226: Resolution Lens Motor Overcurrent 617
MAP 022A: PC Drum Cover Is Open 620
MAP 022B: Laser Power Dropped 624
MAP 022C: Laser Power-Up Error 628
MAP 022D: Laser Power Supply Error 632
MAP 0231: Mag Brush Bias Error 639
MAP 0232: Conveyor Roll Rotation Error 644
MAP 0233: Mag Roll Motor Thermal 651
MAP 0234: Toner Overfeed Error 656
MAP 0235: Toner Underfeed Error 664
MAP 0241: Primary Erase Lamp Never On 677
MAP 0242: Secondary Erase Lamp Never On 683
MAP 0243: Primary Erase Lamp Always On 689
MAP 0244: Secondary Erase Lamp Always On 695
MAP 0251: Cleaner Brush Rotation Error 701
MAP 0252: Cleaner Brush Motor Thermal 706
MAP 0253: Cleaner Housing Never Homes 712
MAP 0254: Cleaner Housing Motor Driver 715

MAP 0256: Cleaner Housing Always At Home 716
MAP 0261: Vacuum Blower Thermal 720
MAP 0262: Shutter Control Motor Driver 724
MAP 0263: Vacuum Shutter Cannot Home 725
MAP 0264: Cyclone Blower Motor Thermal 730
MAP 0265: Vacuum Shutter Always Home 734
MAP 0266: Cyclone Blower Rotation Error 738
MAP 0281: Preheat A/B Over Temperature 744
MAP 0282: Preheat A/B Under Temperature 750
MAP 0283: Preheat C/D Over Temperature 754
MAP 0284: Preheat C/D Under Temperature 760
MAP 0285: Preheat Control Signal Disconnected 764
MAP 0286: Preheat Element 'A' Lost Temperature 767
MAP 0287: Preheat Element 'B' Lost Temperature 770
MAP 0288: Preheat Element 'C' Lost Temperature 773
MAP 0289: Preheat Element 'D' Lost Temperature 776
MAP 028A: Thermistor 1 Over Temperature 779
MAP 028B: Thermistor 2 Over Temperature 783
MAP 028C: Thermistor 3 Over Temperature 787
MAP 028D: Thermistor 1 Under Temperature 791
MAP 028E: Thermistor 2 Under Temperature 795
MAP 028F: Thermistor 3 Under Temperature 799
MAP 0291: Hot Roll Over Temperature 803
MAP 0292: Hot Roll Lamp Drive On Too Long 810
MAP 0293: Fuser Soft Start Thermal Open 813
MAP 0294: Hot Roll Over Current 820
MAP 0295: Hot Roll Does Not Reach Operating Temperature 823
MAP 0296: Hot Roll Lamp 1 Relay Always Off 826
MAP 0297: Hot Roll Lamp 1 Filament Open 832
MAP 0298: HOT ROLL LAMP 2 RELAY ALWAYS OFF 837
MAP 0299: Hot Roll Lamp 2 Filament Open 843

MAP 029A: Hot Roll Lamp Drive Signal Off Too Long 848
MAP 029C: Hot Roll Lamp 3 Filament Open. 853
MAP 029D: Hot Roll Lamp 3 Relay Always Off 860
MAP 029E: Hot Roll Lamp 4 Filament Open. 866
MAP 029F: Hot Roll Lamp 4 Relay Always Off 875
MAP 0300: Operator Panel Start Map 880
MAP 0321: Operator Alert Light Problem 885
MAP 0322: Operator Alert Alarm Problem 892
MAP 0323: Operator Alert Accessory Contacts Problem. 898
MAP 0330: Display/Touch Screen Start Map. 903
Controls 904
MAP 0331: Display/Touch Screen Is Blank 905
MAP 0331 BEGINS 905
MAP 0500: Power Control – Simplex Printing System. 909
Power Requirements. 913
MAP 0501: Power Control – Duplex Printing System 925
Power Requirements. 929
MAP 0511: Printer Power Error 947
PRINTER POWER SUPPLY PROBLEM START TABLE. 951
MAP 0514: B1 Logic Gate Thermal Problem 1015
MAP 0515: 24 VD Power Supply Is Off. 1018
MAP 0516: PJ136 Disconnected 1024
MAP 0600: Printer Interface Map. 1026
MAP 0782: Splice Station Vacuum Switch 1032
MAP 0783: Transfer Station Open 1036
MAP 0784: Vacuum Is Off 1040
MAP 0785: Toner Collector Full. 1044
MAP 0786: Add Toner 1048
MAP 0787: Toner Collector Not Set. 1051
MAP 0788: Change Developer Mix. 1055
MAP 0789: Developer Drain Open 1059

MAP 078A: End Of Forms Sensor 1 1064
MAP 078B: Developer Running 1069
MAP 078C: Forms Loading 1074
MAP 078D: Toner Loading 1078
MAP 0791: Change Fine Filter 1086
MAP 0792: Fuser Oil Empty 1093
MAP 0793: End Of Oiler Belt Reached 1098
MAP 0794: Fuser Oiler Gate Open 1103
MAP 0795: Set Forms Direction 1107
MAP 0796: Stacker Full 1112
MAP 0797: Stacker Gate Open 1119
MAP 0798: Stacker Table Down 1123
MAP 0799: Fine Filter Not Installed 1132
MAP 079A: Tension Arm Position Incorrect 1136
MAP 079C: Toner Supply Low 1147
MAP 07A0: Toner Loading With Enhanced Toner Loading System 1150
MAP 0800: Pre/Postprocessing Interface Start Map 1155
MAP 0810: Coupled Pre/Processing Interfaces 1157
MAP 0820: Intelligent Pre/Processing Interfaces 1167
MAP 1000: Print Quality Start Map 1174
How to Use 1174
Guided Maintenance (MAPs) 1174
Print Quality Symptoms 1175
Recommendations 1175
Print Quality Checklist 1182
MAP 1001: Repeating Spots Or Marks 1185
MAP 1002: Random Spots Or Marks 1194
MAP 1003: Light Streaks 1211
MAP 1004: Dark Streaks Or Black Lines 1219
MAP 1004 BEGINS 1222
MAP 1005: Background Or Dirty Prints 1229

MAP 1006: Black Prints. 1247
MAP 1007: Blank Prints 1251
MAP 1008: Residual Images 1256
MAP 1009: Fuser Offset Or Forms Sticking Together. 1266
MAP 100A: Voids, Missing Print, Or Poor Contrast. 1282
MAP 1010: Poor Fusing 1290
MAP 1011: Registration Or Skew. 1301
MAP 1012: Altered Characters Or Images 1306
MAP 1013: Characters Too Dark Or Stoke Width Too Wide 1312
MAP 1014: Background Shadows (Bleeding). 1318
MAP 1018: Light Print 1321
MAP 1020: Poor Solid Area Fill Or Images. 1331
MAP 1021: Bar Code Problems 1339
MAP 1022: Label Problems. 1345
MAP 2000: Controller Start Map 1348
MAP 2002: Problem Determination Procedure 1349
MAP 2004: Intermittent Problems. 1360
Hardware 1360
Software 1361
MAP 2010: Service Request Number (SRN) 1362
How to Use the SRN List. 1363
MAP 2011: Failing Function Code (FFC) 1444
MAP 2152: Controller Power Problems. 1455
MAP 2154: Minimum Configuration. 1464
MAP A000: Host Attachment Detected Errors 1473
MAP B000: Printer Detected Errors. 1488
MAP C000: AFCCU Detected Errors 1491
MAP D000: Mechanism Interface Card (MIC) Detected 1494
MAP D706: Beam Detect Missing (For Single-Beam Printhead) 1509
MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads). 1525
MAP D706A BEGINS. 1528

MAP D70B: Printhead Underrun 1538

MAPS

MAP 0001: Introduction

Use this MAP for help in using all of the other MAPs.

The items in Table 15 are in alphabetical order. Find the item for which you need more information.

Table 15. System Reference Codes

For information on:	Go to page:
Connector Checks	70
Continuity Measurement	70
Fix Verification	70
Intermittent Failures	70
MAP Did Not Fix	71
Open Circuits	71
Parts Replacement	71
Possible Failing Parts	71
Power Off	71
Power-On Reset	73
Problem Description	73
Quick Checks	73
References	73
Service Condition	74
Short Circuits	74
Symptoms That Change	74
System Reference Codes	88
Voltage Measurement	76

Table 15. System Reference Codes (continued)

For information on:	Go to page:
Voltage Ranges	76

Terms Used In the MAPS

Connector Checks: When a MAP step asks you to check a connector, the following steps are recommended:

1. Turn off the power and unplug the power cord if necessary.
2. Check the connector for correct fit between the pin and socket housings.
3. Measure continuity through a connector by placing a meter probe on both sides of the connector.
4. If the failure remains, check both the pin and the socket housings for:
   a. Contamination such as corrosion or other foreign materials
   b. Bent or damaged pins
   c. Pushed pins

Continuity Measurement: A circuit with good continuity will measure zero ohms or the indicated resistance.

Fix Verification: This portion of the MAPs provides a quick check for problems fixed only in that MAP. There may be other problems. Use MAP 0003: End Of Call Procedure for a complete verification procedure.

Intermittent Failures: An intermittent failure is one that cannot always be re-created. The fix MAP questions cannot be used unless the failure is present, so you must install new parts to make a repair.

Perform the following steps. When you have completed a step, go on to the next one.

1. Try to cause the failure with the steps in MAP 0002: Start Of Call Procedure. If a failure occurs, go to MAP 0010: Symptom Start MAP.
2. If no failure occurs, read the summary log from the last setting of the book mark. See Service Actions and use the reported problem that caused you to make the service call. Go to MAP 0010: Symptom Start MAP, find the correct fix MAP, and fix the problem with the steps listed below:
   a. Perform any **QUICK CHECKS** in the fix MAP.
   b. See the list of **POSSIBLE FAILING PARTS** in the fix MAP.

c. See Parts Replacement for the procedure to replace parts from a list.

MAP Did Not Fix: If the MAP did not fix the problem, the symptom may have changed. See Symptoms That Change.

Open Circuits: An open circuit will measure infinity.

When the MAPs indicate that the machine may have an open circuit, they may refer you to the Wiring Diagrams. Perform the following steps:

1. Turn off the power and unplug the power cord if directed to do so.
2. Locate the circuit in the wiring diagrams.
3. Perform connector checks at the end points given in the MAP. See Connector Checks. If you find no problem, disconnect the connectors at the end points and check for continuity through the cable.
4. If you find an open circuit, choose a connector in the middle of the circuit, and check for continuity through the two cable halves. Continue to divide the circuit until you find the open circuit.
5. Repair the open circuit or install new parts as needed.
6. Be aware that back circuits may affect the meter readings. Disconnect any circuits that may affect the readings.

Parts Replacement: When the MAPs provide a list of parts to check or replace, the parts are listed in order of probable failure. Start at the top of the list and check or replace the parts one at a time. Run a verification test after each replacement to determine if the problem is fixed. If the problem is not fixed, remove the new part and reinstall the original part. Then continue through the list, one part at a time, until the machine is fixed.

Possible Failing Parts: This table lists parts or adjustments that may be causing the problem fixed by the individual MAP. It provides references to other areas of the maintenance documentation, including Locations, Parts Catalog, and Removals & Adjustments.

Power Off: When the MAPs tell you to power off, power off only the failing printer. Do not power off the control unit unless you are specifically told to do so. Powering off the AFCCU without doing a shutdown procedure first can permanently damage the data on the disk drive.

For safety reasons, be aware that pressing **Power Off** leaves certain voltages present in the machine, usually on the input side of the primary relays and the power control switches. If the MAPs do not specify otherwise, it is safe to work on the machine after you press Power Off.

When the MAPs say to power off the printer, use the **Power Off If In Local** pushbutton for the failing printer. If the printer does not power off, ensure that the Local/Remote switch is in the local position.

When the MAPs say to power off the AFCCU, be sure to perform a **Shutdown** procedure first. If the shutdown procedure is not possible, for example, when there is a microcode abort, press the reset pushbutton on the front of the RS/6000 Controller and then immediately press the Power Off switch for the control unit. Do not power off the RS/6000 Controller when numbers are being displayed on its 3-digit LED display, except for the first ten seconds after pressing its reset pushbutton.

Hint

Refer to Power-On and Power-Off Procedures.

The safest condition is to disconnect the line cord or remove power from the outlet with a circuit breaker. You may also switch off the primary circuit breakers in **both** the control unit and the printer, or the Emergency Power-Off Switch, except when working on a power control problem. Be alert and use the documentation when working on the power distribution.

Be aware of the following items. Do not use this list as a procedure. See MAP 0002: Start Of Call Procedure for the complete power-off procedures for both the normal and the failure conditions.

- Always ask the customer's permission before you power off the printer.
- Always try to disable the channels so that the error log and trace data will be saved.
- The printer portion only may be powered down after the channels have been disabled.
- To power off the AFCCU control unit, perform the shutdown procedure.
- During normal operation, power off the control unit only when the message `Shutdown is complete` is displayed.

- It is possible to use the **Power Off If In Local** pushbutton only when the LOCAL/REMOTE Switch is in the LOCAL position.

Power-On Reset: Power-on reset (POR) is a procedure used to reset the machine to a known condition.

The following steps are required for a Power-on Reset (POR).

1. Perform the **Shutdown** procedure on the Display/Touch Screen.
2. Wait for a `Shutdown Complete` message on the Display/Touch Screen.
3. Power off the entire printing system.
4. Power on the printing system.

It is important to power off the printing system before you press **Power On**, for the following reasons:

- The printer does not run its initialization tests unless it has been powered off.
- The control unit memory remains loaded unless it has been powered off, which causes unreliable results when the initialization tests are run.

Problem Description: This field in the fix MAPs describes the system reference codes and what the MAP will fix.

Quick Checks: This portion of the MAPs lists common causes of problems that can be checked without tools, often by the operator. Many of these items are in the *Operator's Guide*. If possible, discuss these with the customer on the telephone before making a service call.

It is important that you perform these checks before you enter the MAP questions. The MAP assumes that you have performed the **QUICK CHECKS**, so the questions will not be asked again.

References: This portion of the MAPs directs you to other sections in the maintenance library that will be helpful as you answer the MAP questions.

Service Checks: This portion of the MAPs lists causes of problems that require in-depth checking and may require tools. Usually, these checks cannot be erformed by the customer.

Service Condition: The service condition is a condition of the machine such that you can use the MAPs and safely perform maintenance operations.

Do not use this list as a procedure. See MAP 0002: Start Of Call Procedure for the complete procedures for placing the machine in the service condition.

- To prevent the machine from suddenly printing, disable the host attachments.
- To prevent the host from suddenly powering on the machine, always place the control unit **Local/Remote** switch in the Local position.
- To diagnose a problem using the MAP questions, ensure that the failure is present in the disabled state. For example:
  - You run a print quality sample and find a defect.
  - An SRC is displayed during a diagnostic test.

Short Circuits: When the MAPs indicate that a machine may have a short circuit, they refer you to the Wiring Diagrams. Perform the following steps:

1. Turn off the power and unplug the power cord if directed to do so.
2. Locate the circuit in the wiring diagrams.
3. If the circuit has several connectors, select a connector near the middle of the circuit. Disconnect the connector and measure to a ground point on both sides of the connector to find the side with the short circuit (zero ohms).
4. Continue this procedure until the short circuit is isolated.
5. Repair or install new parts as needed. Examine the wiring for loose connections or damaged insulation. On circuit boards, check for burned or discolored lands or components. The burned part may not be where the short has occurred. Thoroughly check the entire circuit before powering on so that the new parts will not be damaged.

Symptoms That Change: Perform exactly the same steps each time when re-creating the problem. Work in the service condition if possible, and power off each time before you press **Power On**. Make a note of what you did and the results at each step.

If you have just installed parts, be aware of possible problems with:

- **A defective part** Use precautions to avoid static discharge when handling circuit boards.
- **Incorrect installation** Ensure that parts are mounted correctly, all connectors are firmly connected, and all adjustments have been performed. Several of the printer logic cards have adjustments and/or jumpers. Connectors are usually keyed, but two identical connectors could be crossed, or else a polarizing key could be missing. Connectors usually have identifying marks on the housings and the sockets. Check the wiring diagrams for the correct connections.
- **EC levels** The recently installed part may require that other parts or a microcode diskette be changed.
- **Short circuits** If a short circuit is present, it may have damaged the new part just installed. See Short Circuits.

If the symptoms change and you have not replaced parts, be aware of possible problems with:

- **Arcing** Check the coronas and high-potential areas in the developer.
- **Over-temperature condition** Check fans, particularly near the logic cards.
- **Voltage regulation** Check voltages to the logic units.

Voltage Measurement: All voltages indicated as V dc are to be measured to green-wire ground with all connectors connected, unless the MAP instructs you differently.

When a line voltage measurement is required, the voltage on U.S. machines should be between 180 V ac and 220 V ac three-phase. World Trade voltages differ by country.

Voltage Ranges: In general, the MAPs are asking if there is or if there is not a voltage. The voltage is mentioned only so that you can set your meter correctly. Use the following guidelines when the MAPs ask for a single voltage number, not a range:

- **Over-voltage** Be aware that you may be on the wrong test point. Do not answer No to a question because the voltage measured was too high. If the MAPs fail, try them again, and answer Yes to the question. Over-voltages are significant only in the areas of PC drum charging, logic cards, and where the voltage can be adjusted. Look at the **Yes** and **No** columns to see where the MAP is leading.
- **Under-voltage** Be aware that you may be on the wrong test point. Under-voltage is usually critical only in measuring the output of a transistor-type sensor receiver. For example, the receiver of a phototransistor or a hall effect sensor.
- **0 V dc** In general, answer Yes to any voltage that is 0 ±1 V dc. The MAPs are checking for an open circuit, a low logic level, or a failed driver.

Voltage readings will be approximate because of the power supply and component tolerances. Some of the voltages may vary as much as 15%.

MAP 0002: Start Of Call Procedure

Perform the following steps when making a service call:

Table 16. Start of Call Procedure

Step	What to do:	How to do it:
Step 1.	Inform the customer that you want to perform maintenance on the printer.	Discuss the following: • Ask for the symptoms of any problems the machine may be having. • Ask that the printer be varied offline. • You will need to power the machine off and on several times. Ask the customer to make the necessary arrangements. • Ask to be informed when the printer has been successfully varied offline, and when you may begin maintenance.

Table 16. Start of Call Procedure (continued)

Step	What to do:	How to do it:
Step 2.	Place the printer in the service condition. The printer will be in the service condition after you have completed all of these items:	• If the machine is in a failure condition, note what is in the operator panel and maintenance panel displays. • Do not proceed until all printing has stopped. Ensure that the machine has been varied offline. The customer must inform you when this has happened, because there is no change in the operator panel display or indicators. Be aware that the machine may have more than one host attachment and that all of them must be varied offline. • Press the **Stop** button on the **Printer Status** window or on the Operator Panel. • Disable the host attachment by selecting the **Enable/Disable Attachments** procedure from the **Options** pull-down menu. Wait for the status change to appear on the Display/Touch Screen. • Select the **Shutdown/Restart** procedure from the **Operate** pull-down menu on the Display/Touch Screen. • Select the **Shutdown** push button on the **Shutdown/Restart** window. Wait for a `Shutdown Complete` message to appear on the Display/Touch Screen. • Set the **Local/Remote** Switch for the Control Unit Power in the Local position; make note of the original position. • Press the Control Unit **Power Off If In Local** pushbutton. • Press the Control Unit **Power On** pushbutton. • Wait for a failure condition to occur.
Step 3.	Determine if there was a failure during the power-on sequence.	If a **Printer Status** window is not displayed on the Display/Touch Screen, a failure has been detected. Enter MAP 0331: Display/Touch Screen Is Blank. See RS/6000 Controller for the normal sequence of messages that appear on the controller 3-digit display.

Table 16. Start of Call Procedure (continued)

Step	What to do:	How to do it:
Step 4.	If there was no power-on sequence failure, use diagnostics to re-create the failure.	If a **Printer Status** window is displayed on the Display/Touch Screen, no power-on sequence failure has been detected. However, a Printer Error may have occurred. If a **Printer Error** window is displayed on the Display/Touch Screen, go to Step 5. It is possible that a failure will occur while running the following tests: a. Perform an autoload operation. The MAPs assume that you do this first. b. Run **Print Samples** or **Print Pack** to obtain some print samples. c. Run **Print Logs** to print an error log. d. Loop any test or perform any customer operation needed to recreate the failure.
Step 5.	Use the MAPs.	• Use any problem that occurred in Step 2 to enter MAP 0010: Symptom Start MAP. When you have finished, or if you are unable to repair the problem, go to MAP 0003: End Of Call Procedure. • If no problem occurred, see Intermittent Failures. When you have finished, or if you are unable to repair the problem, go to MAP 0003: End Of Call Procedure.

MAP 0003: End Of Call Procedure

Table 17. MAP 0003

Step	Questions/Actions	Yes	No
Step 1.	You are here because you used the MAPs to fix a problem. **Were you able to recreate the problem?**	Go to Step 3.	Go to Step 2.
Step 2.	You may choose to attempt to fix the problem or to do nothing and make a return call if the problem occurs again. If you are not sure, answer yes to the following question. **Do you want to attempt to fix this intermittent failure?**	Go to Intermittent Failures.	Go to Table 20.
Step 3.	**Is there still a problem with the machine?**	Go to Table 18.	Go to Table 19.

Table 18. Problem Still Exists

Step	What to do:	How to do it:
Step 1.	If the same symptom is occurring, recheck the MAPs.	• Ensure that parts were installed correctly. Leaving a connector disconnected or an adjustment undone may cause the same symptom as the failing part. See further hardware causes in Symptoms That Change. • Try the MAP again, answering differently to any questions that were unclear the first time. • Go to MAP 0010: Symptom Start MAP, and see if there may be another MAP for this symptom.
Step 2.	If the symptom is changing, you cannot use MAPs.	See Symptoms That Change.
Step 3.	Contact your next level of support.	
Step 4.	When the problem is fixed, go to Table 19.	

Table 19. Fix Verification

Step	What to do:	How to do it:
Step 1.	Use this procedure to verify the correct operation of the machine if you have not already done so.	• Check that the host attachments are disabled by viewing the **Printer Status** window. If necessary, disable the attachments by selecting the **Enable/Disable Attachments** procedure from the **Options** pull-down menu. Wait for the status change to appear on the Display/Touch Screen. • Select the **Shutdown/Restart** procedure from the **Operate** pull-down menu on the Display/Touch Screen. Wait for a `Shutdown Complete` message to appear on the Display/Touch Screen. • Set the Local/Remote Switch for the Control Unit Power in the Local position. • Press the Control Unit **Power Off If In Local** pushbutton. • Press the Control Unit **Power On** pushbutton. • Wait for a failure condition to occur. – If a **Printer Error** window appears on the Display/Touch Screen, a failure has been detected. Use the MAPs. – If a **Printer Status** window appears on the Display/Touch Screen, no **Printer Error** window is displayed, no failure has been detected. Run **Print Samples** or **Print Pack** to obtain some print samples, followed by **Print Logs** for a copy of the error log. It is possible that a failure will occur while running these tests. – If no **Printer Status** window appears, a failure has been detected. See RS/6000 Controller for the normal sequence of messages that appear on the controller 3-digit display.
Step 2.	Check for print quality problems.	Look closely at the print sample for defects.

Table 19. Fix Verification (continued)

Step	What to do:	How to do it:
Step 3.	Use any test or customer operation needed to verify the fix.	See Chapter 2. Diagnostics and the *Operator's Guide.*
Step 4.	Go to MAP 0010: Symptom Start MAP if you find any problems.	
Step 5.	Go to Table 20.	

Table 20. Returning the Machine to the Customer

Step	What to do:	How to do it:
Step 1.	Check the error log for possible future failures.	• Use Chapter 2. Diagnostics after you read the error log to determine if there are enough failures to justify a repair. • If a repair is required, locate the fix MAP in Table 23. • See the list of **POSSIBLE FAILING PARTS** in the fix MAP. • See Parts Replacement for the procedure to replace parts from a list.
Step 2.	Perform or schedule any needed preventive maintenance activity.	Check the preventive maintenance log. See Chapter 2. Diagnostics for help in determining if any PM items are due. See Chapter 7. Preventive Maintenance for the list of PM items and their schedules.
Step 3.	Record the usage count.	Use the mechanical usage counter in the printer logic unit. The usage count in the error log may be incorrect.
Step 4.	Reset or clear the PM log counters.	See PM Log.
Step 5.	Install all covers that were previously removed.	
Step 6.	Return the **Local/Remote** switches to their position at the beginning of the call.	
Step 7.	Enable the attachments that were disabled at the beginning of the call.	
Step 8.	Notify the customer that servicing is complete, and that the printer should be varied online.	
Step 9.	Ask the customer to run a print job. Wait to see if it runs successfully.	
Step 10.	Perform the necessary administrative details.	

MAP 0010: Symptom Start MAP

Entry

Use MAP 0002: Start Of Call Procedure before you enter this MAP.

Use this step to isolate a failure. The symptoms are listed in the order of their importance. Be aware that sometimes more than one symptom may be present.

Start at the top and use the entries in the order they are given so that you are guided to the correct MAP.

Table 21. Entry Table for MAP 0010

If the failure is indicated by:	Go to:
System Reference Codes SRCs are displayed on the Display/Touch Screen, logged, or reported by the customer.	System Reference Codes
Printer Not Available	Generate an SRC, Step 3
Displayed Message This is an intervention message that cannot be corrected or that occurs too often.	Messages That Cannot Be Cleared or Occur Too Often
Sleeping This message is displayed on the Display/Touch Screen and the printer will not respond.	Generate an SRC, Step 3
Hard Program Check Message • Contact your next level of support to determine if you have a known problem, if a trace is needed, and if so, how and where to send the trace. • Create the problem again; then deactivate the traces. • Contact your next level of support.	
Controller Display Number	MAP 2000: Controller Start Map
Print Quality Defect	MAP 1000: Print Quality Start Map
Power Problem	Power Problem

Table 21. Entry Table for MAP 0010 (continued)

If the failure is indicated by:	**Go to:**
Blank Display/Touch Screen	MAP 0330: Display/Touch Screen Start Map
Display, Indicator, Switch, Button, or Alarm Problem	Display, Indicator, Switch, or Pushbutton Problems
Maintenance Panel Error Code	Maintenance Panel Error Codes
Forms Feeding or Stacking Problem No SRC is displayed.	Forms Feeding Problems
Preprocessing and Postprocessing Related Problems	Forms Feeding Problems
Host Attachment Problem	Host Attachment Problems
Supplies Life Too Short	Supplies Life Too Short
Message Displayed Too Long (Hanging) Ensure that you understand printer operations, refer to the *Operator's Guide*. This could be a possible microcode problem. • Contact your next level of support to determine if you have a known problem, if a trace is needed, and if so, how and where to send the trace. • Create the problem again; then deactivate the traces. • Contact your next level of support.	
Intermittent Failure	Intermittent Failures
Symptoms That Change	Symptoms That Change
Printer Will Not Run No error is posted.	Printer Will Not Run

Table 21. Entry Table for MAP 0010 (continued)

If the failure is indicated by:	Go to:
Suspected Microcode Problem • Contact your next level of support to determine if you have a known problem, if a trace is needed, and if so, how and where to send the trace. • Create the problem again; then deactivate the traces. • Contact your next level of support.	
Print Speed (Start/Stop) Problem	Print Speed (Start/Stop) Problem
Image Missing or PEMs (Bars) Near Edge	Image Missing or PEMs (Bars) Near Edge
Visually Detected Problem	Visually Detected Problems
System Management Services (SMS) Screen (Icon) Appears on the Display/Touch Screen	Diagnostics: Redirect System Management Services (SMS) Screen
Print Application or Forms Problem	Print Application or Forms Problems
Any Other Failure No MAP is available.	Other Failures

System Reference Codes

This step lists the System Reference Code (SRC) sources in the order of importance. Start at the top and perform the action indicated for the first condition you have.

Table 22. MAP 010 - System Reference Codes Sources

Source of the SRC	**Go to:**
Displayed on the Display/Touch Screen	SRC - MAP Locations
Reported by the customer with no failure currently displayed	Generate an SRC
Logged in the error log with no failure currently displayed	Generate an SRC, Step 2
Logged in an EREP Report with no failure currently displayed	Generate an SRC
Any other source Not a System Reference Code. Return to Entry and continue through the table from the location you stopped at, until you find another possibility.	

SRC - MAP Locations: Table 23 provides a cross reference between the SRCs and the fix MAPs. If the System Reference Code you have is not in these MAPs, check the documentation located in the **RPQs and FEATURES** section of the published Maintenance Information manual.

Table 23. MAP 010 - SRC - MAP Locations

SRC	**Go to:**
0191 through 019B	MAP 0190: Autoload Error
0600 through 0656	MAP 0600: Printer Interface Map
0666	Generate an SRC, Step 3
0841 through 0847	MAP 0800: Pre/Postprocessing Interface Start Map
A001 through AFFF This may be a microcode problem. Contact your next level of support before you replace any components.	MAP A000: Host Attachment Detected Errors
B001 through BFFF This may be a microcode problem. Contact your next level of support before you replace any components.	MAP B000: Printer Detected Errors
C0001 through CFFF This may be a microcode problem. Contact your next level of support before you replace any components.	MAP C000: AFCCU Detected Errors
D706	Single Beam Printhead – MAP D706: Beam Detect Missing (For Single-Beam Printhead)
D706	MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads)
D70B	Single Beam Printhead – MAP D000: Mechanism Interface Card (MIC) Detected

Table 23. MAP 010 - SRC - MAP Locations (continued)

SRC	**Go to:**
D70B	
D70F	MAP D000: Mechanism Interface Card (MIC) Detected
D001 through DFFF This may be a microcode problem. Contact your next level of support before you replace any components.	MAP D000: Mechanism Interface Card (MIC) Detected
Any other code **Note:** If you do not find a MAP that matched the SRC in System Reference Codes, check the information in *RPQs and Features*.	System Reference Codes

This list cross references the system reference codes (SRCs) that appear on the Display/Touch Screen with the E0XX codes that appear on the maintenance panel.

The Maintenance Panel displays **b** and **d** in place of **B** and **D**; do not confuse **b** with **6**.

SRC Code	Description	MAP Link	E0XX Code
0102	Retractor Speed Error	148	E088
0103	Retractor is Extended During NPRO	152	E089
0104	Retractor is Retracted During Print	156	E08A
0113	Tractor Motor Encoder Phase Error	160	E084
0114	Tractor Motor Overcurrent	166	E0d8
0115	Retractor Seek Error	169	E08b
0116	Retractor Motor Overcurrent	173	E0d9
0117	Forms Width Sensor	177	E0CE
0118	Forms Width Sensor Fuse	180	E05A
0119	Upper Tractor Forms Jam	185	E07b
011B	Tractor Drive Signal Always On	202	E082
011C	Tractor Detent Signal Error	204	E083
011D	Tractor Motor Overspeed	208	E085
011E	Tractor Motor Initial Position Error	211	E086
0121	Drum Rotation Error		E030
0122	Drum Motor Overcurrent	216	E0dA
0123	Drum Timeout Error	218	E033
0124	Drum Overspeed	223	E031
0125	Drum Position Error	226	E032

SRC Code	Description	MAP Link	E0XX Code
0131	Tension Arm Down	229	E078
0132	Tension Arm Up	235	E077
0133	Skew Error	244	E07d
0134	Fuser Wrap	264	E07E
0135	Backup Roll Motor Thermal	280	E0d1
0136	Backup Roll Position Error	285	E098
0137	Steering Motor Driver	291	E094
0138	Hot Roll Overspeed	292	E08d
0139	Backup Roll Over-Travel Error	295	E095
013A	Backup Roll Drive Signal On	299	E096
013B	Backup Roll Open Error	305	E097
013C	Hot Roll Underspeed	311	E09C
013D	Hot Roll Motor Blower Stopped	318	E0d6
0141	Felt Oiler Belt Driver Error	324	E08F
0142	Oil Pump Driver Error	328	E099
0143	Felt Oiler Belt Motor Always Driven	332	E090
0144	Felt Oiler Belt Motor Never Driven	336	E091
0145	Oil Pump Always Driven	340	E09A
0146	Oil Pump Never Driven	343	E09b
0152	Scuff Roll Motor Thermal	346	E0C7
0153	Backup Idler Roll Not Closed	351	E0F0
0154	Backup Idler Roll Not Open	359	E0EF

SRC Code	Description	MAP Link	E0XX Code
0155	Backup Idler Roll Motor Thermal	366	E0d2
0156	Backup Roll Lift Motor (M610) Position Error	371	E0EE
0157	Backup Roll Lift Motor (M610) Overcurrent	373	E0d5
0161	Stacker Jams (light never sensed)	375	E080
0162	Pendulum Motor Overcurrent	391	E0dd
0163	Pendulum Initial Position Error	394	E0C5
0164	Stacker Jams (light always sensed)	400	E081
0165	Pendulum Control Error	410	E0C2
0166	Pendulum Interface Error	413	E0C3
0167	Pendulum Motor Overcurrent	416	E0C4
0171	Stacker Table Motor Thermal	424	E0C9
0172	Stacker Table Timeout	428	E0CA
0174	Stacker Safety Switch On	437	E015
0175	Stacker Table Motor Runs Too Long	441	E0Cb
0176	Stacker Forms Length Sensor	453	E0CF
0177	Stacker Length Motor Timeout	459	E02d
0178	Stacker Length Motor Driver Error	469	E0C6
0182	Capstan Pinch Roll Cannot Be Lowered (Autoload)	472	E021
0183	Bridge Cannot Be Raised (Autoload)	479	E022
0184	Transfer Station Forms Jam During (Autoload)	484	E024
0185	Upper Fuser Jam (Autoload)	505	E025
0186	Capstan Pinch Roll Cannot Be Raised (Autoload)	523	E026

SRC Code	Description	MAP Link	E0XX Code
0187	Bridge Cannot Be Lowered (Autoload)	531	E027
0188	Capstan Pinch Roll Initial Position Error (Autoload)	536	E029
0189	Bridge Home Position Error (Autoload)	543	E02A
018A	Autoload Reset Error	548	E02b
0191	Upper Tractor Forms Jam (Autoload)	550	E0E1
0192	Stacker Forms Jam (Autoload).	550	E0E2
0193	Developer Running (Autoload)	550	E0E3
0195	Check Reset Pressed (Autoload)	550	E0E5
0196	Splice Lever Down (Autoload)	550	E0E6
0197	Transfer Station Open (Autoload)	550	E0E7
0198	End Of Forms (Autoload)	550	E0E8
0199	Stacker Table Down (Autoload)	550	E0E9
019A	Stacker Safety Switch On (Autoload)	550	E0Eb
019B	Autoload Stopped	550	E0EC
019C	Stacker Gate Open (Autoload)	550	E0EA
0211	Charge Corona Voltage Error	553	E038
0212	Transfer Corona Voltage Error	561	E039
0213	Preclean Corona Voltage Error	567	E036
0214	Precharge Corona Voltage Error	572	E03A
0221	Mirror Motor (M201) Operating Error	579	E048
0222	Video Data Active	584	E04d
0223	Mirror Motor (M201) Drive Error	589	E04A

SRC Code	Description	MAP Link	E0XX Code
0224	Mirror Motor (M201) Start-Up Error	602	E04b
0225	Resolution Lens Initial Position Error	614	E054
0226	Resolution Lens Motor (M202) Overcurrent	617	E055
022A	PC Drum Cover Is Open	620	E035
022B	Laser Power Dropped	624	E056
022C	Laser Power-Up Error	628	E057
022D	Laser Power Supply Error	632	E058
0231	Mag Brush Bias Error	639	E037
0232	Conveyor Roll Rotation Error	644	E03b
0233	Mag Roll Motor Thermal	651	E03E
0234	Toner Over-Feed Error	656	E03C
0235	Toner Under-Feed Error	664	E03d
0241	Primary Erase Lamp Never On	677	E0d3
0242	Secondary Erase Lamp Never On	683	E0CC
0243	Primary Erase Lamp Always On	689	E0d4
0244	Secondary Erase Lamp Always On	695	E0Cd
0251	Cleaner Brush Rotation Error	701	E040
0252	Cleaner Brush Motor Thermal	706	E046
0253	Cleaner Housing Never Homes	712	E044
0254	Cleaning Housing Motor Driver	715	E0db
0256	Cleaner Housing Always At Home	716	E043
0261	Vacuum Blower Thermal	720	E0d0

SRC Code	Description	MAP Link	E0XX Code
0262	Shutter Control Motor Driver	724	E09d
0263	Vacuum Shutter Cannot Home	725	E093
0264	Cyclone Blower Motor Thermal	730	E045
0265	Vacuum Shutter Always Home	734	E092
0266	Cyclone Blower Rotation Error	738	E041
0281	Preheat A/B Over-Temperature	744	E0Ab
0282	Preheat A/B Under-Temperature	750	E0AE
0283	Preheat C/D Over-Temperature	754	E0AC
0284	Preheat C/D Under-Temperature	760	E0AF
0285	Preheat Control Signal Disconnected	764	E0b0
0286	Preheat Element ’A’ Lost Temperature	767	E0b8
0287	Preheat Element ’B’ Lost Temperature	770	E0b4
0288	Preheat Element ’C’ Lost Temperature	773	E0b2
0289	Preheat Element ’D’ Lost Temperature	776	E0b1
028A	Thermistor 1 Over-Temperature	779	E0bA
028B	Thermistor 2 Over-Temperature	783	E0bb
028C	Thermistor 3 Over-Temperature	787	E0bC
028D	Thermistor 1 Under-Temperature	793	E0A8
028E	Thermistor 2 Under-Temperature	795	E0A9
028F	Thermistor 3 Under-Temperature	799	E0AA
0291	Hot Roll Over-Temperature	803	E0A3
0292	Hot Roll Lamp Drive On Too Long	810	E0A4

SRC Code	Description	MAP Link	E0XX Code
0293	Fuser Soft Start Thermal Open	813	E0A2
0294	Hot Roll Overcurrent	820	E0dC
0295	Hot Roll Does Not Reach Operating Temperature	823	E0A6
0296	Hot Roll Lamp 1 Relay Always Off	826	E09E
0297	Hot Roll Lamp 1 Filament Open	832	E09F
0298	Hot Roll Lamp 2 Relay Always Off	837	E0A0
0299	Hot Roll Lamp 2 Filament Open	843	E0A1
029A	Hot Roll Lamp Drive Signal Off Too Long	848	E0A5
029C	Hot Roll Lamp 3 Filament Open	853	E0C0
029D	Hot Roll Lamp 3 Relay Always Off	860	E0C1
029E	Hot Roll lamp 4 Filament Open	866	E0bE
029F	Hot Roll Lamp 4 Relay Always Off	875	E0bF
0514	B1 Logic Gate Thermal Problem	1015	E0dE
0515	24 VD Power Supply Is Off	1018	E0dF
0516	PJ 136 Disconnected	1024	E0E0
0631	Cancel received at PRINT=0	1026	E05b
0632	ACT is received during COOL	1026	E05C
0632	CHK RESET received at PRINT=1	1026	E05d
0632	DORMANT received at PRINT/WAIT=1	1026	E05E
0633	CPF/CNP received when COOL/WAIT|DORM=1	1026	E05F
0633	CNP received without PH DRV	1026	E060
0634	CPF and CNP both on	1026	E074

SRC Code	Description	MAP Link	E0XX Code
0634	CPF or CNP on too long	1026	E075
0631	Cancel received at PRINT=0	1026	E05b
0632	ACT is received during COOL	1026	E05C
0632	CHK RESET received at PRINT=1	1026	E05d
0632	DORMANT received at PRINT/WAIT=1	1026	E05E
0633	CPF/CNP received when COOL/WAIT|DORM=1	1026	E05F
0633	CNP received without PH DRV	1026	E060
0634	CPF and CNP both on	1026	E074
0634	CPF or CNP on too long	1026	E075
0782	Splice Station Vacuum Switch	1032	E011
0783	Transfer Station Open	1036	E010
0784	Vacuum is Off	1040	E01b
0785	Toner Collector Full	1044	E005
0786	Add Toner	1048	E006
0787	Toner Collector Not Set	1051	E00E
0788	Change Developer Mix	1055	E007
0789	Developer Drain Open	1059	E00F
078A	End of Forms Sensor 1	1064	E001
078B	Developer Running	1069	E01F
078C	Forms Loading	1074	E019
078D	Toner Loading	1078	E01d
0791	Change Fine Filter	1086	E00C

SRC Code	Description	MAP Link	E0XX Code
0792	Fuser Oil Empty	1093	E00A
0793	End of Oiler Belt Reached	1098	E009
0794	Oiler Gate Open	1103	E01E
0795	Set Forms Direction	1107	E02C
0796	Stacker Full	1112	E004
0797	Stacker Gate Open	1119	E01C
0798	Stacker Table Down	1123	E016
0799	Fine Filter Not Installed	1132	E018
079A	Tension Arm Position Incorrect	1136	E01A
0841	Postprocessor Not Ready	1155	E0F3
0842	Postprocessor STOP Line Active	1155	E0F4
0847	End Of Forms Always Displayed	1064	E0F2

Generate an SRC

At this point you should IML the printer and run a print to generate an SRC.

Table 24. Map 010 - Generate an SRC

Step	Questions/Actions	Yes	No
Step 1.	If you have not already done so, perform the following steps: • Use the precautions in MAP 0002: Start Of Call Procedure and place the printer in Service mode. • Print the error log. **Did a failure occur?**	The failure appears to be solid. Use this symptom and go to Table 23.	There may be an intermittent problem. Do the following: • Use the Diagnostic section on reading the error log to determine if there are failures that should be repaired. • Locate the MAP in Table 23. • Perform any **QUICK CHECKS** in that MAP. • Check the list of **POSSIBLE FAILING PARTS**. – Perform any adjustments listed. – See Parts Replacement for the procedure to replace parts.

Table 24. Map 010 - Generate an SRC (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Have you just printed the error log?**	Because the log printed successfully, there is no solid problem with the printer. There may be an intermittent problem. Do the following: • After you read the error log, use Chapter 2. Diagnostics to determine if there are failures that should be repaired. • Locate the MAP in Table 23. • Perform any **QUICK CHECKS** in that MAP. • Check the list of **POSSIBLE FAILING PARTS OR ADJUSTMENTS**. – Perform any adjustments listed. – See Parts Replacement for the procedure to replace parts.	The error log may no longer be valid. You need to verify printer operation and print a current log. Return to Step 1.
Step 3.	PRINTER NOT AVAILABLE, SLEEPING, or PRINTER INTERFACE ERROR (SRC 0666) is displayed. **Is the Diagnostic function Switch set to 0 (zero)?**	Go to Step 4.	The printer is in a diagnostic mode. • Set the Diagnostic Function switch to **0** (zero) and raise the Reset switch.

Table 24. Map 010 - Generate an SRC (continued)

Step	Questions/Actions	Yes	No
Step 4.	When no error is present, the Maintenance Panel displays **00-00**. **Is 00-00 displayed on the Maintenance Panel?**	The printer has powered up normally, but this has not been sensed by the control unit. There is no communication between the printer and the control unit. Go to MAP 0600: Printer Interface Map.	Go to Step 5.
Step 5.	**Is the Maintenance Panel blank?**	The printer has dropped power. Go to MAP 0500: Power Control – Simplex Printing System. **or** Go to MAP 0501: Power Control – Duplex Printing System.	An error is present in the printer. Go to Maintenance Panel Error Codes.

Messages That Cannot Be Cleared or Occur Too Often

This step lists the messages in alphabetic order. If the messages on the printer do not appear in English, use the **Language** window under **Options** to select English.

Refer to the *Operator's Guide* for normal operator actions. If the problem remains, go to the MAP indicated in the message you have.

Table 25. MAP 010 - Messages That Cannot Be Cleared or Occur Too Often

Message	**Go to:**
Add Fuser Oil	MAP 0792: Fuser Oil Empty
Add Toner	MAP 0786: Add Toner
Change Developer Mix	MAP 0788: Change Developer Mix
Change Fine Filter	MAP 0791: Change Fine Filter
Change Oiler Belt	MAP 0793: End Of Oiler Belt Reached
Change Toner Collector	MAP 0785: Toner Collector Full
Check Fine Filter	MAP 0799: Fine Filter Not Installed
Check Tension Arm	MAP 079A: Tension Arm Position Incorrect
Check Toner Collector	MAP 0787: Toner Collector Not Set
Developer Drain Open	MAP 0789: Developer Drain Open
Developer Running	MAP 078B: Developer Running
Developer Running (Autoload)	MAP 078B: Developer Running
End of Forms	MAP 078A: End Of Forms Sensor 1
End of Forms (Autoload)	MAP 0190: Autoload Error
End of Forms on Preprocessor	MAP 0800: Pre/Postprocessing Interface Start Map

Table 25. MAP 010 - Messages That Cannot Be Cleared or Occur Too Often (continued)

Message	**Go to:**
Forms Length Mismatch	MAP D000: Mechanism Interface Card (MIC) Detected
Forms Loading	MAP 078C: Forms Loading
Forms Width Mismatch	MAP D000: Mechanism Interface Card (MIC) Detected
Fuser Wrap (SRC 134)	MAP 0134: Fuser Wrap
Oiler Gate Open	MAP 0794: Fuser Oiler Gate Open
Pre/Postprocessor Message	MAP 0800: Pre/Postprocessing Interface Start Map
Set Forms Direction	MAP 0795: Set Forms Direction
Skew Error (SRC 133)	MAP 0133: Skew Error
Splice Lever Down	MAP 0782: Splice Station Vacuum Switch
Splice Lever Down (Autoload)	MAP 0190: Autoload Error
Stacker Forms Jam	MAP 0161: Stacker Jams (Light Never Sensed)
Stacker Full	MAP 0796: Stacker Full
Stacker Gate Open	MAP 0797: Stacker Gate Open
Stacker Gate Open (Autoload)	MAP 0190: Autoload Error
Stacker Forms Jam (Autoload)	MAP 0190: Autoload Error
Stacker Safety Switch On	MAP 0174: Stacker Safety Switch On
Stacker Safety Switch On (Autoload)	MAP 0190: Autoload Error
Stacker Table Down	MAP 0798: Stacker Table Down

Table 25. MAP 010 - Messages That Cannot Be Cleared or Occur Too Often (continued)

Message	**Go to:**
Stacker Table Down (Autoload)	MAP 0190: Autoload Error
Tension Arm Down	MAP 0131: Tension Arm Down
Tension Arm Up	MAP 0132: Tension Arm Up
Toner Loading (Without Enhanced Toner Loading System Installed)	MAP 078D: Toner Loading
Toner Loading (With Enhanced Toner Loading System Installed)	MAP 07A0: Toner Loading With Enhanced Toner Loading System
Toner Supply Low (Only With Enhanced Toner Loading System Installed)	MAP 078D: Toner Loading
Transfer Station Forms Jam (Autoload)	MAP 0184: Transfer Station Forms Jam During Autoload
Transfer Station Open	MAP 0783: Transfer Station Open
Transfer Station Open (Autoload)	MAP 0190: Autoload Error
Upper Fuser Forms Jam (Autoload)	MAP 0185: Upper Fuser Jam (Autoload)
Upper Tractor Forms Jam	MAP 0119: Upper Tractor Forms Jam
Upper Tractor Forms Jam (Autoload)	MAP 0190: Autoload Error
Vacuum Is Off	MAP 0784: Vacuum Is Off
Any Other Message Not covered in this step. Return to Table 21 and continue down the list from the place where you left until you find another possibility.	

Display, Indicator, Switch, or Pushbutton Problems

Do not use Table 26 for suspected power problems. Power problems are addressed in Power Problem.

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems

Problem	**Go to:**
Accessory contacts on Operator Alert Assembly: not operating	MAP 0323: Operator Alert Accessory Contacts Problem
Alarm tone on Operator Alert Assembly: always on, never on, or there is a volume problem	MAP 0322: Operator Alert Alarm Problem
Attention light on Operator Alert Assembly: always on, never on, or there is a flash rate problem	MAP 0321: Operator Alert Light Problem
Autoload Start Key: **Load** LED is Always OFF	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Printer Control Panel (SW721) – YS011 Card • Repair an open circuit between one of the following pairs of connectors: – PJ138-10 and PJ1010-10 (contrast down)
Autoload Start Key: no response	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Printer Control Panel (SW721) – YS011 Card • Repair an open circuit between one of the following pairs of connectors: – PJ138-8 and PJ1010-8 (contrast down)

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	Go to:
Autoload Stop Key: no response	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Printer Control Panel (SW721) – YS011 Card • Repair an open circuit between one of the following pairs of connectors: – PJ138-7 and PJ1010-7 (contrast down)
Display/Touch Screen: brightness, touch response, focus, color, etc.	MAP 0330: Display/Touch Screen Start Map
Contrast Control: LEDs off or do not change	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Printer Control Panel (SW721) – YS011 Card • Repair an open circuit between one of the following pairs: – PJ138-15 and PJ1010-15 (contrast up) – PJ138-16 and PJ1010-16 (contrast down)
Contrast Control: no change to print quality	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between PJ138 and PJ1010. • Install the new parts listed below, one at a time, until the problem is corrected: – B1J9 Card – High Voltage Power Supply – Printer Control Panel (SW721)

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	**Go to:**
Controller Display: number displayed	MAP 2000: Controller Start Map
Developer Run Switch: no response	MAP 078B: Developer Running
Diagnostic Function Switch: no response	Raise the Reset Switch (toggle) on the B1J11 Card or power off and power on the printer to start the function. No MAP is available. • Install a new B1J11 Card if the problem continues.
Fine Filter Switch: no message displayed	MAP 0799: Fine Filter Not Installed
Forms Feed Buttons: no response	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Printer Control Panel (SW721) – YS011 Card • Repair an open circuit between one of the following pairs: – PJ138-3 and PJ1010-3 (reverse) – PJ138-4 and PJ1010-4 (forward)
Forms Length Display: blank, altered, or incorrect length indicated	MAP 0176: Stacker Forms Length Sensor

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	**Go to:**
Forms Select LEDs: off	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Printer Control Panel (SW721) – YS011 Card • Repair an open circuit between the following pairs: – PJ138-25 and PJ1010-25 (A setting) – PJ138-24 and PJ1010-24 (B setting) – PJ138-23 and PJ1010-23 (C setting)
Forms Select Key: no response	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Printer Control Panel (SW721) – YS011 Card • Repair an open circuit between PJ138-13 and PJ1010-13.
Forms Set Switch (folding direction): improper response	MAP 0795: Set Forms Direction
Laser Current Meter: no indication The fix is only for the current meter. It is assumed that no SRC is displayed, which would indicate a Laser or Laser Power Supply problem.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check connector PJ599 for correct contact. • Install the new parts listed below, one at a time, until the problem is corrected: – Laser Current Meter (L102) – Laser Power Supply

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	Go to:
Maintenance Panel: display or key pad problem	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Maintenance Panel (MP021) – B1J11 Card • Repair an open circuit between one of the following pairs: – PJ402-1 and PJ470-1 – PJ448-34 and PJ402-1 – PJ448-32 and PJ402-3 – PJ448-30 and PJ402-5 – PJ448-28 and PJ402-7 – PJ448-26 and PJ402-9 – PJ448-24 and PJ402-11 – PJ448-22 and PJ402-13 – PJ448-20 and PJ402-15 – PJ448-18 and PJ402-17 – PJ448-16 and PJ402-19 – PJ448-14 and PJ402-21 – PJ448-12 and PJ402-23 – PJ448-10 and PJ402-25 – PJ448-8 and PJ402-27 – PJ448-6 and PJ402-29 – PJ448-4 and PJ402-31 – PJ448-2 and PJ402-33
Operator Panel: display or keyboard problem	MAP 0300: Operator Panel Start Map
Pressure Roll Release Lever: will not release	No MAP. • See Scuff Roll Release Cable.

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	**Go to:**
Power Control Panel on Control Unit: improper response to switches or pushbuttons	MAP 0500: Power Control – Simplex Printing System
Remote/Local Switch: no response	MAP 0500: Power Control – Simplex Printing System
Reset Switch on the B1J11 Card: no response	No MAP. • Install a new B1J11 Card.
Splice lever: no message displayed	MAP 0782: Splice Station Vacuum Switch
Stacker Forms Length Control Keys: no response	MAP 0177: Stacker Length Motor Timeout
Stacker Forms Length Display: blank, altered or incorrect length is indicated	MAP 0176: Stacker Forms Length Sensor
Stacker Safety Switch: no response	MAP 0174: Stacker Safety Switch On
Stacker Table Up, Stop, or Down Switch: no response	MAP 0798: Stacker Table Down

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	**Go to:**
Stacker Forms Width Display: blank or altered	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Forms Width Display (LD091) – FSxxx Card • Repair an open circuit between one of the following pairs: – PJ605-1 and PJ6013-1 – PJ605-2 and PJ6013-2 – PJ605-3 and PJ6013-3 – PJ605-4 and PJ6013-4 – PJ605-5 and PJ6013-5 – PJ605-6 and PJ6013-6 – PJ605-7 and PJ6013-7 – PJ605-8 and PJ6013-8 – PJ605-9 and PJ6013-9 – PJ605-10 and PJ6013-10 – PJ605-11 and PJ6013-11 – PJ605-12 and PJ6013-12 – PJ605-13 and PJ6013-13 – PJ605-14 and PJ6013-14 – PJ605-15 and PJ6013-15 – PJ605-16 and PJ6013-16

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	Go to:
Stacker Forms Length Key: no response Use Driver Routine 3C. If the mechanism moves, then the problem is with the key circuits. If the mechanism does not move, then there is a problem with Stacker Length Motor (M707), its driver circuits, or the mechanism.	If the mechanism moves, do the following: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Stacker Control Panel (SW511) – FSxxx Card • Repair an open circuit between one of the following pairs of connectors: – PJ6012-14 and PJ728-14 – PJ6012-15 and PJ728-15 – PJ6012-16 and PJ728-16 – PJ6012-17 and PJ728-17 If the mechanism does not move, do the following: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Stacker Length Motor (M707) – B1J5 Card – B1J9 Card • Repair an open circuit between one of the following pairs of connectors: – PJ479-1 and PJ742-1 – PJ479-2 and PJ742-2 – PJ479-3 and PJ742-3 – PJ479-4 and PJ742-4 – PJ479-5 and PJ742-5 – PJ479-6 and PJ742-6
Toner Collector Not Seated: no message displayed	MAP 0787: Toner Collector Not Set
Toner Supply Button: no response	MAP 078D: Toner Loading if Enhanced Toner Loading is not installed, MAP 07A0: Toner Loading With Enhanced Toner Loading System if Enhanced Toner Loading is installed

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	**Go to:**
Toner Supply Low message does not clear after loading toner	MAP 079C: Toner Supply Low (only if Enhanced Toner Loading is installed)
Display/Touch Screen: no response	MAP 0330: Display/Touch Screen Start Map
Usage Meter: does not advance	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Usage Meter (L401) – B1J9 Card • Repair an open circuit between one of the following pairs: – PJ318-1 and PJ477-11 – PJ318-2 and PJ477-12
Vacuum Button: no response	MAP 0784: Vacuum Is Off
Vacuum Off Indicator LED D602: will not light	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between one of the following pairs: – PJ637-1 and PJ6009-30 – PJ637-2 and PJ6009-31 Install the new parts listed below, one at a time, until the problem is corrected: • Vacuum LED (D602) • HR091 Card
Volume control for alarm tone on Operator Alert Assembly: no response	MAP 0322: Operator Alert Alarm Problem

Table 26. MAP 010 - Display, Indicator, Switch, or Pushbutton Problems (continued)

Problem	**Go to:**
Any Other Device	No MAP. Do the following: • Use the Wiring Diagrams to inspect the wiring. • Install a new device for the one that is having the problem; then install any other devices to which it is wired.

Forms Feeding Problems

Table 27 lists the forms feed problems in order of importance. Start at the top of the list and go to the MAP that is indicated for the first condition you have.

Table 27. MAP 010 - Forms Feeding Problems

Problem	**Go to:**
Stacker: misfolds or stacks loosely	MAP 0161: Stacker Jams (Light Never Sensed)
Pin feed holes in forms: distorted	No MAP. • Check the Transfer Station adjustment, especially the Upper and Lower Tractor Timing Adjustments.
End of Forms: not detected or stopping in the wrong place	MAP 078A: End Of Forms Sensor 1
Fuser wraps or forms jams in the fuser of printers that have a backup idler roll installed	MAP 0134: Fuser Wrap
Perforations: stop at the wrong place	• Perform the Upper and Lower Tractor Timing Adjustments
Stacker Table is always down when it should not be	• Ensure that connector PJ229 is connected. • Ensure that the “Stacker Enabled” configuration item in **Configure Printer** is set to **Yes** and that all pre/postprocessor ports are disabled when boxed paper is used.
Stacker Table is always up when using a pre/postprocessing interface	• Ensure that the pre/postprocessor port is enabled and configured as a postprocessor. • MAP 0800: Pre/Postprocessing Interface Start Map

Table 27. MAP 010 - Forms Feeding Problems (continued)

Problem	Go to:
Forms: flow onto the floor and the Stacker Table is up	Do the following, one step at a time, until the problem is corrected: • Ensure that several sheets of forms are in the stacker before you feed forms. You may find it useful to increase the NPRO length. See **Configuring the System** in the *Operator's Guide*. • Ensure that the Stacker Gate Finger Belts are installed so that the fingers are in a random order.
Stacker Control Panel keys: no response	Display, Indicator, Switch, or Pushbutton Problems
Forms Feed Buttons: no response	Display, Indicator, Switch, or Pushbutton Problems
Forms Set Switch does not work	Display, Indicator, Switch, or Pushbutton Problems
Tractors: constantly running forward soon after an IML	The Forward Forms Feed Key (S5) circuit is always on. No MAP. Use WD62 - Switches and Sensors (YS011 Card).
Tractors are constantly running backward soon after an IML	The Reverse Forms Feed Key (S6) circuit is always on. No MAP. Use WD62 - Switches and Sensors (YS011 Card).
Preprocessing/postprocessing: related problem	MAP 0800: Pre/Postprocessing Interface Start Map
Preprocessing equipment: causing a false End of Forms condition	MAP 0800: Pre/Postprocessing Interface Start Map

Table 27. MAP 010 - Forms Feeding Problems (continued)

Problem	**Go to:**
NPRO: length incorrect	See **Configuring the System** in the *Operator's Guide*.
Any Other Problem	• Check the Maintenance Panel to see if any error codes are displayed. If you find any, enter this MAP again. • Any other problem is not covered by this step. Return to Table 21 and continue down the table from the place where you left until you find another possibility.

Maintenance Panel Error Codes

Table 28 lists the codes in ascending order. Go to the MAP step indicated for the error code you have.

Table 28. MAP 010 - Maintenance Panel Error Codes

Code	Go to:
E0XX **Important** E0XX Codes and SRC Cross-References provides a cross-reference between the E0XX codes that appear on the Maintenance Panel and the System Reference Code (SRC) that appears on the Display/Touch Screen. Use E0XX Codes and SRC Cross-References when an E0XX code appears on the Maintenance Panel, when no SRC is displayed, or when you were sent here from another MAP. This may occur when there is an error following a power-on procedure, and the Control Unit is still initializing. Some printer errors prevent the control unit microcode from completing the power-on sequence. The printer may power up with **Printer Not Available** or **Sleeping** or, **no SRC** is displayed on the Display/Touch Screen. In general, you can go directly to the MAP with the same number as the SRC. If you do not find a MAP with that number, go to SRC - MAP Locations to find the correct MAP for that SRC. **Note:** The Maintenance Panel displays of **b** and **6** look similar. Do not confuse them with each other.	XX may be any number. An error occurred while the printer was in a normal operational mode. Go to E0XX Codes and SRC Cross-References. Go to the MAP listed for the error code.

Table 28. MAP 010 - Maintenance Panel Error Codes (continued)

Code	Go to:
E1XX	XX may be any number. Go to the Diagnostic Section. An error occurred while the printer was running a test routine.
.. XX	XX may be any number. Go to MAP 0070: Printer Logic Unit Map.
Any message displayed too long: not covered in this step. To ensure that you understand printer operations, refer to the *Operator's Guide*. This could be a possible microcode problem. • Contact your next level of support to determine if you have a known problem, if a trace is needed, and if so, how and where to send the trace. • Create the problem again; then deactivate the traces. • Contact your next level of support.	
Any Other Code	The printer is probably in a diagnostic mode. This MAP does not support entry from this mode in all cases. You should create the error again while printing is in process. Use this method: • Set the Diagnostic Function Switch to **0** (zero). Toggle the Reset Switch on the B1J11 Card. • Use MAP 0002: Start Of Call Procedure to correctly create the error again for use in MAPs.

Host Attachment Problems

Table 29. MAP 010 - Host Attachments

Step	Questions/Actions	Yes	No
Step 1.	Try to determine if the other devices on the attachment or channel are also having this problem. If only the printer has this problem, continue with this procedure. • Print the Configuration Data. • Ensure that the address and other parameters are correct. **Are the attachment configuration items correct?**	Go to Step 2.	• Correct the configuration items as necessary.
Step 2.	• Run the appropriate attachment wrap test. **Was a System Reference Code displayed?**	Locate the MAP in Table 23.	Go to Step 3.
Step 3.	• Reconnect the cables to the printer. • Install the wrap connectors at the other end of the cables that are directly attached to the printer. • Run the appropriate wrap test. **Was a System Reference Code displayed?**	The problem is in the cables directly attached to the printer.	This is not a printer problem. • Print the long form of the error log. It may be useful to your next level of support. Go to Step 4.

Table 29. MAP 010 - Host Attachments (continued)

Step	Questions/Actions	Yes	No
Step 4.	Do the following, one at a time, until the problem is corrected: • Contact your next level of support to determine if you have a known problem, if a trace is needed, and if so, how and where to send the trace. • Create the problem again; then deactivate the traces. • Contact your next level of support.		

Visually Detected Problems

Table 30 lists in alphabetic order the problems that you can detect visually.

Use this table only if there are no errors displayed on the Display/Touch Screen or Maintenance Panel.

Perform the actions indicated for the first condition that you have.

Table 30. MAP 010 - Visually Detected Problems

Problem	**Go to:**
Fan: not running	No MAP. See the Wiring Diagrams.
Mechanical problem: parts loose or binding	No MAP. See Chapter 5. Removals and Adjustments.
Fuser oil: on machine or floor	Oil on Printer or Floor, Step 1.
Toner Collector bag: overfull	**Note:** The operator may have removed and reinstalled a partially full collector bag. If there is a print quality problem in addition to the collector bag being too full, use the appropriate MAP to fix the problem. Several different print quality problems could cause the collector bag to fill too soon. Do the following, one step at a time, until the problem is corrected: • Clean all the coronas. • Check and adjust the following as necessary: – Retractor to Drum clearance – Transfer Corona voltage – Charge Corona voltage • Install a new PC Drum.

Table 30. MAP 010 - Visually Detected Problems (continued)

Problem	Go to:
Toner contamination inside the printer or on the covers	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check the developer air system. – Ensure that the large air hose at the rear of the printer is attached to the fitting near the top rear of the developer casting. – If the hose is not attached, clean the inside of the end of the hose and the outside of the fitting. – Apply RTV to the outside of the fitting and push the end of the hose firmly onto the fitting. – Ensure the other end of the hose is attached to the cyclone air system. – Check for loose fittings and cracks or breaks in the hose. • Ensure the drum pin is fully seated into the hole of the PC drum support. See Drum Drive and Photoconductor (PC). • Ensure the front developer seal is mounted correctly and not damaged. • Ensure the rear developer seal is mounted correctly and not damaged. • Check that the air deflector plate, which is mounted directly under the ESV holder, is present and adjusted correctly. The plate should be adjusted for a drum gap of 1.0 ±0.2 mm. • Consider that the toner may have been spilled when it was added. If necessary, ensure that the operator knows the correct procedure for adding toner.
Any Other Problem	Look for the problem description in Display, Indicator, Switch, or Pushbutton Problems. If the problem is not described, go to Table 21 and find another possibility.

Table 31. MAP 010 - Visually Detected Problems - Fuser Oil on Printer or Floor

Step	Questions/Actions	Yes	No
Step 1.	**Is the printer idle for long periods of time (up to several days with little or no printing)?**	Go to Step 2.	Go to Step 3.
Step 2.	The fuser oiling rate during idle periods is too high for low print usage. Do the following: • Set printer memory address FF0C to the current value plus 10 more initially. The standby oiling rate will decrease when this value is increased. See Read From or Write to Memory (Position 2). • SHUTDOWN AND POWER OFF THE PRINTER. • Check for loose fittings and cracks or breaks in the Fuser Oil Tank Assembly and tubing. Repair or replace as necessary. • Clean the machine and floor with isopropyl alcohol as necessary. Allow the alcohol to dry and the vapors to disperse before you power on the machine to avoid a fire hazard in the fuser area. • Remove the Oiler Belt and manually advance it to a dry spot. • Reinstall the Oiler Belt. • Order and install an oil pan to catch excess oil. • Check the print quality for the next month for fuser offsetting or a residual image on the prints. This can be caused by the Hot Roll having too little oil. If this happens, reduce the value in address **FF0C** (minutes between oil feeds) within the range of the value set in Item 1 to the default value. • If the oil problem appears again in the future, set address **FF0C** to a higher value (the maximum is 99). Watch for the offsetting problem described above.		

Table 31. MAP 010 - Visually Detected Problems - Fuser Oil on Printer or Floor (continued)

Step	Questions/Actions	Yes	No
Step 3.	Do the following, one step at a time, until the problem is corrected: • Ensure that printer memory address FF0C is set to the default value. The standby oiling rate will decrease when this value is increased. See Read From or Write to Memory (Position 2). Remove the Oiler Belt and advance it to a dry spot if it has become excessively oiled. • SHUTDOWN AND POWER OFF THE PRINTER. • Check for loose fittings and cracks or breaks in the Fuser Oil Tank Assembly and tubing. Repair or replace as necessary. • Clean the machine and floor with isopropyl alcohol as necessary. Allow the alcohol to dry and the vapors to disperse before you power on the machine to avoid a fire hazard in the fuser area. • Consider that the oil may have been spilled when it was added. If necessary, ensure that the operator knows the correct procedure for adding fuser oil. • If the problem appears again in the future, answer Yes to Step 1.		

Print Speed (Start/Stop) Problem

The ability of the Infoprint 4000 to print at the full-rated speed is called “performance”. For more information on performance, see “Preparing the Processing Environment” in the *Infoprint 4000 and 3900 Introduction and Planning Guide*.

Table 32. MAP 010 - Print Speed (Start/Stop) Problem

Actual performance in this installation is affected by such conditions as: • Configuration of the printer • Number of characters per page • Number of imbedded control commands • Number of fonts and images per page • Speed of the computer system • Amount of available system storage • Priority of tasks assigned in the system • Control program used to drive the printer • Channel priority • Channel activity • Non-IBM equipment that may not fully support the Infoprint 4000.	Do the following: • If a parallel channel adapter is installed, check the configuration for the channel transfer rate being used. The best performance is obtained when Data Streaming (4.5MB per second), is selected. However, be aware that not all channels support data-streaming mode. Also, data chaining with data-streaming mode can cause an overrun condition. The system engineer (SE) should know the correct transfer rate to use. Have the engineer consult the Systems Assurance Product Review (SAPR) guide for further information. • Check the error log for any AXXX-type errors, where XXX can be any hexadecimal number. This would indicate a host attachment problem. • Ensure that the latest level microcode is installed. • Ask the systems engineer (SE) to research known software problems. Also, the SE should discuss efficient coding methods with the application programmer. • Ask the marketing representative to discuss additional memory with the customer. • Collect a sample of the print application and contact your next level of support.

Print Application or Forms Problems

No MAP is available. You are here because the printer runs normally with plain white forms, but the customer is dissatisfied with the print quality on one application, for example:

- Bar codes
- Labels
- Printing near the perforation
- Fusing quality
- Forms sticking together in the stacker
- Black-fill areas
- Character formation

See the following documents for suggestions on designing successful forms and applications. These documents also have procedures for testing forms, and what to do if the testing fails:

- *Forms Design Guide*
- *Introduction and Planning Guide*

Printer Will Not Run

Arcing coronas can cause the printer to stop or to fail without posting any errors.

Hint

The preclean corona and the transfer corona can be exchanged with each other. Installing the arcing corona in a new location may cause an SRC to be displayed.

Clean all corona assemblies and carefully inspect them for any signs of corrosion or arcing. Clean or replace any corona wires that appear contaminated. If you are in doubt about the condition of a corona assembly, replace or swap the complete corona assembly.

Other Failures

No MAP is available. Use the following to be sure that you understand the correct operation, and for service checks and recovery procedures:

- *Operator's Guide*
- Chapter 5. Removals and Adjustments
- Wiring Diagrams

Supplies Life Too Short

Table 33 lists problems that can cause the customer to complain about short supplies life.

Table 33. Supplies Life Too Short

Supplies	Action
Oiler Belt/Oiler Wick Roll	• Ensure that the printer memory address **FF21** is set to **08** (the default value). The speed of the oiler belt increases when this value decreases. See Read From or Write to Memory (Position 2).
Fuser Oil	• Ensure that the printer memory address **FF20** is set to **64**. (The default value for all printers **except printer 1** with the 229 PPM feature (DW1/DW2 only) installed.) The oil feed rate increases when this value decreases. See Read From or Write to Memory (Position 2).
Fine Filter	• Check the cyclone air system for clogs and disconnected hoses. See Air System for details.

Image Missing or PEMs (Bars) Near Edge

Whole characters, lines, or complete images are missing at the top, bottom, left, or right edges. A black bar (PEM) may be printed where text or an image is closest to the edge.

The problem is most likely caused by the application attempting to print outside of the printable area and being truncated.

If portions of characters or image are missing in a distinct process direction line, there may be an obstruction in the printhead, developer, or coronas. This problem will occur on all customer applications and test masters. Ensure that the laser is properly adjusted.

If there is not a print quality problem, do the following:

- Ensure that the width and length values entered for this form exactly match the outer dimensions of the form. The customer may have these values saved with a form ID which may need to be corrected.
- Perform the registration adjustments. Attempt to set the mechanical adjustments perfectly so that:
  - The horizontal registration is perfect when the operator horizontal adjustment value is set to **0** and the scan factory adjust value is set to **40**.
  - The vertical registration is perfect when the operator vertical adjustment value is set to **0** and the process factory adjust value is set to **15**.

Power Problem

You suspect there is a power problem. Do not reset any circuit breaker or press any **Power On** or **Power Off** keys unless the MAP specifically tells you to do so. There are four primary indicators of power, they are the LEDs on:

- Display/Touch Screen
- Stacker Forms Width Display
- LEDs on the Operator Panel
- RISC Controller

Note: Make sure the Power On pushbutton on the Display/Touch Screen is on.

Observe which LEDs are off and go the MAP or Step indicated.

Table 34. Power Indicators Off

Number of Indicators Off	Operator Panel LED	Display/ Touch Screen LED	Stacker Forms Length LED	RISC Controller LED	Go to:	
					Simplex	Duplex
4	Off	Off	Off	Off	909	925
3	Off	Off		Off	909	925
2	Off	Off			909	925
2	Off		Off		909	925
2	Off			Off	909	925
2		Off		Off	909	925
1	Off				880	880
1		Off			880	880
1			Off		135	135
1				Off	1348	1348
0					Not a power problem	Not a power problem

End of Forms LED

Table 35. Step 14: MAP

Step	Questions/Actions	Yes	No
Step 1.	**Is the End of Forms LED in the input area off also?**	Go to MAP 0500: Power Control – Simplex Printing System for simplex printers. **or** Go to MAP 0501: Power Control – Duplex Printing System for duplex printer printing systems.	This is not a power problem. The problem is with the display. Go to Display, Indicator, Switch, or Pushbutton Problems.

MAP 0070: Printer Logic Unit Map

This MAP fixes power-on sequence problems with the Printer and Fuser Logic Units. The Display/Touch Screen Printer Status window displays a status of `Printer not available` or SRC 0666, `Printer Interface Error` is displayed, and the error indication is on the Maintenance Panel.

B1 Logic Unit Parts Replacement

Before you install new parts, ensure that the B1 Logic Unit cards and cables listed in the following table are seated properly.

With many failures, the Logic Unit B1 Board can be the failing FRU. However, because this is a low probability, the Logic Board will usually not be listed in the MAP Table. If the MAP does not fix the problem, the B1 Logic Board should be considered as a possible failing FRU.

Before you install a new Logic Board, do the following:

Notes:

1. Check all cables to ensure that they are connected correctly.
2. Check the seating of all cards in the B1 Board.

B1 Logic Unit MAP Table Start Point

Table 36. MAP 0070

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	A solid failure is one that occurs every time diagnostics are run. The Logic Unit diagnostics run when the printer is powered on and before **0000** is displayed on the Maintenance Panel. See Chapter 2. Diagnostics for additional diagnostics that can loop the power-on sequence tests and test the Printer/Control Unit interface. **Is the failure solid?**	Perform the following procedure: • Go to the following MAP Tables and look for the error indicated on the Maintenance Panel. • Reseat the FRUs listed in the table. • Check all of the listed Cables for damage and correct plugging. • Power on the printer to see if the condition has been fixed. If the problem still is present, continue with the next step. • Install the FRUs from the MAP Table, one at a time, in the order listed. • Verify the fix after each FRU is replaced. • Reinstall any old FRUs that did not fix the problem.	Go to Table 37.

Logic Unit MAP Table:

Note: The following cards have adjustments that need to be made or checked before installing in the machine. In the following table, these cards will be designated by an asterisk (*) beside the card number in the FRU list.

- B1J11 Card
- B1J10 Card

Refer to Printer Power Supplies for procedures.

Table 37. Power-On Sequence Error Codes

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..11	• B1J11 Card (*) • B1J7 Card • B1J8 Card • B1J9 Card • B1J10 Card (*) • Fuser Control Card (FSxxx) • Toner Control Card (PCxxx) • Stacker Control Card (SCxxx) • YS011 Card • Interface Cable PJJ6 to PJ202 (WD76 - MIC to Printer Control Cable (1 of 2), WD77 - MIC to Printer Control Cable (2 of 2)) • Signal Interface Cable (PJ201 to PJ401) (WD76 - MIC to Printer Control Cable (1 of 2), WD77 - MIC to Printer Control Cable (2 of 2)) • Mechanism Interface Card (MIC) • Printer Interface Card (IFxxx)	Address bus parity error. This error can be caused by static discharge.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..12	• B1J11 Card (*) • B1J7 Card • B1J8 Card • B1J9 Card • B1J10 Card (*) • Fuser Control Card (FSxxx) • Toner Control Card (PCxxx) • Stacker Control Card (SCxxx) • YS011 Card • Interface Cable PJJ6 to PJ202 (WD76 - MIC to Printer Control Cable (1 of 2), WD77 - MIC to Printer Control Cable (2 of 2)) • Signal Interface Cable (PJ201 to PJ401) (WD76 - MIC to Printer Control Cable (1 of 2), WD77 - MIC to Printer Control Cable (2 of 2)) • Mechanism Interface Card (MIC) • Printer Interface Card (IFxxx)	Data bus parity error. This error can be caused by static discharge.
..13	See comment in next column. • Battery on B1J11 card • B1J11 Card (*)	ROM/RAM data parity error. This error can be caused by static discharge destroying the contents of the NVS Memory. This may be caused when changing the Diagnostic Function Switch position on the B1J11 Card. Before you install a new B1J11 Card, clear the memory on the old card and then rewrite the correct values. If this does not fix the problem, install a new battery or a new card. Refer to Read From or Write to Memory (Position 2).
..15	• B1J11 Card (*)	Program loop error.
..17	• B1J9 Card	The B1J9 Card is not plugged in or is not seated correctly.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..18	• B1J8 Card	The B1J8 Card is not plugged in or is not seated correctly.
..19	• B1J10 Card (*)	The B1J10 Card is not plugged in or is not seated correctly.
..1A	• B1J7 Card	The B1J7 Card is not plugged in or is not seated correctly.
..1D	• B1J11 Card (*)	RAM READ/WRITE error.
..30	• B1J11 Card (*)	Bus error on the B1J11 Card.
..31	• B1J9 Card	Bus error on the B1J9 Card.
..32	• B1J8 Card	Bus error on the B1J8 Card.
..33	• B1J10 Card (*)	Bus error on the B1J10 Card.
..34	• B1J7 Card	Bus error on the B1J7 Card.
..35	• Toner Control Card (PCxxx) • Interface cable PJ1003 to PJ464	Bus error on the Toner Control Card (PCxxx).
..36	• YS011 Card • Interface cable PJ1000 to PJ465	Bus error on the YS011 Card.
..37	• Fuser Control Card (FSxxx) • Interface cable PJ6005 to PJ466	Bus error on the Fuser Control Card (FSxxx).
..38	• Stacker Control Card (SCxxx) • Interface Cable PJ749 to PJ467 • +5 VDC to PJ6006	Bus error on the Stacker Control Card (SCxxx).

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..40	• B1J11 Card (*) • B1J8 Card • B1J9 Card • Stacker Control Card (SCxxx)	B1J11 Card time-out error.
..41	• B1J11 Card (*) • B1J8 Card	B1J11 Card time-out error.
..42	• B1J11 Card (*) • B1J8 Card	B1J11 Card time-out error.
..43	• B1J8 Card (*)	B1J8 Card time-out error.
..45	• B1J8 Card (*)	B1J8 Card time-out error.
..46	• B1J8 Card (*)	B1J8 Card time-out error.
..47	• B1J8 Card (*)	B1J8 Card time-out error.
..50	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 0 error.
..51	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 1 error.
..52	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 2 error.
..53	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 3 error.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..54	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 4 error.
..55	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 5 error.
..56	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 6 error.
..57	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 7 error.
..58	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 8 error.
..59	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 9 error.
..5A	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 10 error.
..5B	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 11 error.
..5C	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 12 error.
..5D	• B1J10 Card (*) • B1J8 Card	B1J10 Card time-out 13 error.
..60	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..61	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.
..62	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.
..63	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.
..64	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.
..65	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.
..66	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.
..67	• B1J9 Card • B1J8 Card	B1J9 Card time-out error.
..68	• B1J8 Card	B1J8 Card time-out error.
..69	• B1J8 Card	B1J8 Card time-out error.
..6A	• B1J8 Card	B1J8 Card time-out error.
..6B	• B1J8 Card	B1J8 Card time-out error.
..6C	• B1J9 Card	B1J9 Card time-out error.
..6D	• B1J9 Card	B1J9 Card time-out error.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..71	• B1J8 Card	B1J8 Card time-out error.
..73	• B1J8 Card	B1J8 Card time-out error.
..74	• B1J9 Card	B1J9 Card time-out error.
..75	• B1J9 Card	B1J9 Card time-out error.
..77	• B1J8 Card	B1J8 Card time-out error.
..78	• B1J9 Card • B1J3 Card	B1J9 Card time-out error.
..79	• B1J9 Card • B1J3 Card	B1J9 Card time-out error.
..80	• B1J3 Card • B1J9 Card • Shutter Control Motor (M602) Cable	Shutter Control Motor (M602) driver does not turn off.
..81	• B1J1 Card • B1J9 Card • Cleaner Housing Motor (M106) Cable	Cleaner Housing Motor (M106) driver does not turn off.
..82	• B1J1 Card • B1J9 Card • Steering Motor (M601) Cable	Steering Motor (M601) driver does not turn off.
..83	• B1J3 Card • B1J9 Card • Oiler-Belt Motor (M706) Cable	Oiler-Belt Motor (M706) driver does not turn off.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..84	• B1J5 Card • B1J9 Card • Oil Pump Cable	Oil Pump driver does not turn off.
..85	• B1J3 Card • B1J9 Card • Shutter Control Motor (M602) Cable	Phase A for the Shutter Control Motor (M602) driver has failed.
..86	• B1J3 Card • B1J9 Card • Shutter Control Motor (M602) Cable	Phase B for the Shutter Control Motor (M602) driver has failed.
..87	• B1J3 Card • B1J9 Card • Shutter Control Motor (M602) Cable	Phase C for the Shutter Control Motor (M602) driver has failed.
..88	• B1J3 Card • B1J9 Card • Shutter Control Motor (M602) Cable	Phase D for the Shutter Control Motor (M602) driver has failed.
..89	• B1J5 Card • B1J9 Card	Oil Pump 1 (L701) driver fails.
..8A	• B1J5 Card • B1J9 Card	Oil Pump 2 (L702) driver fails.
..8B	• B1J5 Card • B1J9 Card	Oil Pump 3 (L703) driver fails.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..90	• B1J3 Card • B1J9 Card	Phase A for Oiler-Belt Motor (M706) has failed.
..91	• B1J3 Card • B1J9 Card	Phase B for Oiler-Belt Motor (M706) has failed.
..92	• B1J3 Card • B1J9 Card	Phase C for Oiler-Belt Motor (M706) has failed.
..93	• B1J3 Card • B1J9 Card	Phase D for Oiler-Belt Motor (M706) has failed.
..94	• B1J1 Card • B1J9 Card	Phase A for the Cleaner Housing Motor (M106) driver has failed.
..95	• B1J1 Card • B1J9 Card	Phase B for the Cleaner Housing Motor (M106) driver has failed.
..96	• B1J1 Card • B1J9 Card	Phase C for the Cleaner Housing Motor (M106) driver has failed.
..97	• B1J1 Card • B1J9 Card	Phase D for the Cleaner Housing Motor (M106) driver has failed.
..98	• B1J1 Card • B1J9 Card	Phase A for the Steering Motor (M601) driver has failed.
..99	• B1J1 Card • B1J9 Card	Phase B for the Steering Motor (M601) driver has failed.
..9A	• B1J1 Card • B1J9 Card	Phase C for the Steering Motor (M601) driver has failed.

Table 37. Power-On Sequence Error Codes (continued)

Maintenance Panel Display	Possible Failing FRUs (Location)	Error Description (Most Likely Cause)
..9B	• B1J1 Card • B1J9 Card	Phase D for the Steering Motor (M601) driver has failed.
..A8	• Stacker Control Card (SCxxx) • Interface Cable PJ749 to PJ467 • B1J8 Card	The Stacker Control Card (SCxxx) processor does not start.
..A9	• Stacker Control Card (SCxxx) • Interface Cable PJ749 to PJ467 • B1J8 Card	Stacker Control Card (SCxxx) RAM READ/WRITE error.
..AA	• Stacker Control Card (SCxxx) • Interface Cable PJ749 to PJ467 • B1J8 Card	Stacker Control Card (SCxxx) time-out error.
..AB	• Stacker Control Card (SCxxx) • Pendulum Motor (M704) Cable • B1J8 Card	Pendulum Motor (M704) driver does not change state (always on or always off).
..AC	• Stacker Control Card (SCxxx) • B1J11 Card • Interface Cable PJ749 to PJ467	Interface error between B1J11 Card and Stacker Control Card (SCxxx).

MAP 0102: Retractor Speed Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Retractor Motor (M304) Encoder was too slow in changing from the retracted to the extended positions.	• There is a failure in the Retractor Motor (M304) (electrical or binding) or its drive circuitry. • There is a failure in the Retractor Motor Encoder or its sensing circuitry. • The Retractor mechanism is binding or is locked.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD01 - Retractor Motor (M304)
- Wiring Diagrams - WD48 - Motor M304
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).
  An error is indicated by an SRC 102 on the Display/Touch Screen or by **E088** on the Maintenance Panel.
- Run Driver Routine 11.
  This error is indicated by **E18A** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Check for a binding Retractor mechanism with this procedure:
  1. SHUTDOWN AND POWER OFF THE PRINTER.
  2. Access the Retractor Motor (M304) by removing the cover on the underside of the Transfer Station.
  3. Turn the motor drive shaft by hand. The mechanism should move freely.

The following checks can be used to verify the problem, but they cannot be used to isolate the failing part. This is because the same checking circuits are used in the diagnostic mode as in the print mode.

- Run Driver Routine 11. This routine moves the Retractors between the extended and retracted positions. The possible errors are:
  - E18A – same as SRC 102 or **E088** on the Maintenance Panel.
  - E18b – same as SRC 115 or **E08b** on the Maintenance Panel.
- Run Adjustment Routine C4. This routine allows you to check or adjust the acceleration time of the Retractors. The value should be 18 to 22 milliseconds.
- Test point TP5 on the B1J7 Card may be used to check the encoder position sensing circuit. The voltage readings should be:
  - +2.4 V dc or greater at TP5 with the Retractors in the retracted position.
  - +0.8 V dc or less at TP5 with the Retractors in the extended position.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablility	Locations Link	Parts Link	Removals & Adjustments Link
Retractor Motor (M304)	70%	2122	3349	3057
B1J5 Card	10%	B1 Logic Card Links		
B1J7 Card	10%	B1 Logic Card Links		
B1J10 Card	05%	B1 Logic Card Links		
Retractor mechanism binding	05%	2123	3351	3059 (lower) 3061 (upper)

Notes:

1. **Test Points** - Only TP5 on the B1J7 Card can be reached easily.
   The motor voltage and encoder signals change too quickly to be measured with a voltmeter.
2. **Mechanical Design** - The motor and encoder are a single replaceable unit. This error points to this unit or its circuitry.

MAP 102 BEGINS

Table 38. MAP 0102

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • The coupling on the Retractor Motor (M304) may be loose. Perform the Check procedure under Retractor Detent Position. Perform the Adjustment procedure if necessary. • Check for a binding Retractor mechanism. • Install the following, one at a time, until the problem is corrected: – Retractor Motor (M304) – B1J5 Card – B1J7 Card – B1J10 Card @		

MAP 0103: Retractor Is Extended During NPRO

Symptom Explanation	Conditions That Could Cause This Symptom
The Retractor Motor (M304) Encoder indicates that the Retractor was in the extended position during NPRO.	• There is a failure in the Retractor Motor (M304) (electrical or binding) or its drive circuitry. • There is a failure in the Retractor Motor Encoder or its sensing circuitry. • The Retractor mechanism is binding or is locked.

Note: **Test Points** - Only TP5 on the B1J7 Card can be reached easily.

The motor voltage and encoder signals change too quickly to be measured with a voltmeter.

Mechanical Design - The motor and encoder are a single replaceable unit. This error points to this unit or its circuitry.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD01 - Retractor Motor (M304)
- Wiring Diagrams - WD48 - Motor M304
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Press the NPRO key with the machine in the stopped state.
  An error is indicated by an SRC 103 on the Display/Touch Screen or by **E089** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Check for a binding Retractor mechanism with this procedure:
  1. SHUTDOWN AND POWER OFF THE PRINTER.
  2. Access the Retractor Motor (M304) by removing the cover on the underside of the Transfer Station.
  3. Turn the motor drive shaft by hand. The mechanism should move freely.

The following checks can be used to verify the problem, but they cannot be used to isolate the failing part. This is because the same checking circuits are used in the diagnostic mode as in the print mode.

- Run Driver Routine 11. This routine moves the Retractors between the extended and retracted positions. The possible errors are:
  - E18A – same as SRC 102 or **E088** on the Maintenance Panel.
  - E18b – same as SRC 115 or **E08b** on the Maintenance Panel.
- Run Adjustment Routine C4. This routine allows you to check or adjust the acceleration time of the Retractors. The value should be 18 to 22 milliseconds.
- Test point TP5 on the B1J7 Card may be used to check the encoder position sensing circuit. The voltage readings should be:
  - +2.4 V dc or greater at TP5 with the Retractors in the retracted position.
  - +0.8 V dc or less at TP5 with the Retractors in the extended position.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Retractor Motor (M304)	70%	2122	3349	3057
B1J5 Card	10%	B1 Logic Card Links		
B1J7 Card	10%	B1 Logic Card Links		
B1J10 Card	05%	B1 Logic Card Links		
Retractor mechanism binding	05%	2123	3351	3059 (lower) 3061 (upper)

MAP 0103 BEGINS

Table 39. MAP 0103

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • The coupling on the Retractor Motor (M304) may be loose. Perform the Check procedure under Retractor Detent Position. Perform the Adjustment procedure if necessary. • Check for a binding Retractor mechanism. • Install the new parts listed below, one at a time, until the problem is corrected: – Retractor Motor (M304) – B1J5 Card – B1J7 Card – B1J10 Card @		

MAP 0104: Retractor Is Retracted During Print

Symptom Explanation	Conditions That Could Cause This Symptom
The Retractor Motor (M304) Encoder indicates that the Retractor was in the retracted position during printing.	• There is a failure in the Retractor Motor (M304) (electrical or binding) or its drive circuitry. • There is a failure in the Retractor Motor Encoder or its sensing circuitry. • The Retractor mechanism is binding or is locked.

Note: **Test Points** - Only TP5 on the B1J7 Card can be reached easily.

The motor voltage and encoder signals change too quickly to be measured with a voltmeter.

Mechanical Design - The motor and encoder are a single replaceable unit. This error points to this unit or its circuitry.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD01 - Retractor Motor (M304)
- Wiring Diagrams - WD48 - Motor M304

FIX VERIFICATION

- Print the Alternate Print Sample. An error is indicated by an SRC 104 on the Display/Touch Screen or by **E08A** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Check for a binding Retractor mechanism with this procedure:
  1. SHUTDOWN AND POWER OFF THE PRINTER.
  2. Access the Retractor Motor (M304) by removing the cover on the underside of the Transfer Station.
  3. Turn the motor drive shaft by hand. The mechanism should move freely.

The following checks can be used to verify the problem, but they cannot be used to isolate the failing part. This is because the same checking circuits are used in the diagnostic mode as in the print mode.

- Run Driver Routine 11. This routine moves the Retractors between the extended and retracted positions. The possible errors are:
  - E18A – same as SRC 102 or **E088** on the Maintenance Panel.
  - E18b – same as SRC 115 or **E08b** on the Maintenance Panel.
- Run Adjustment Routine C4. This routine allows you to check or adjust the acceleration time of the Retractors. The value should be 18 to 22 milliseconds.
- Test point TP5 on the B1J7 Card may be used to check the encoder position sensing circuit. The voltage readings should be:
  - +2.4 V dc or greater at TP5 with the Retractors in the retracted position.
  - +0.8 V dc or less at TP5 with the Retractors in the extended position.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Retractor Motor (M304)	70%	2122	3349	3057
B1J5 Card	10%	B1 Logic Card Links		
B1J7 Card	10%	B1 Logic Card Links		
B1J10	05%	B1 Logic Card Links		
Retractor mechanism binding	05%	2123	3351	3059 (lower) 3061 (upper)

MAP 0104 BEGINS

Table 40. MAP 0104

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • The coupling on the Retractor Motor (M304) may be loose. Perform the Check procedure under Retractor Detent Position. Perform the Adjustment procedure if necessary. • Check for a binding Retractor mechanism. • Install the new parts listed below, one at a time, until the problem is corrected: – Retractor Motor (M304) – B1J5 Card – B1J7 Card – B1J10 Card @		

MAP 0113: Tractor Motor Encoder Phase Error

Symptom Explanation	Conditions That Could Cause This Symptom
A phase of the Tractor Motor (M303) encoder is incorrect. This usually indicates that the tractors have slowed down due to a bind or drag.	• The forms have jammed and stalled the tractors. In this case, the tractors stalled before the forms could tear. If a jam has occurred, go to MAP 0119: Upper Tractor Forms Jam. • The urge unit is powered off or is not turning. • There is excessive drag on the forms which has stalled the tractors. This is caused by preprocessor equipment or the forms catching on the box or input area. • The motor or tractor drive mechanism is binding. • The encoder sensing circuit has failed. • Capstan pinch roll adjustment too tight (fails on autoload only).

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD02 - Tractor Motor Encoder (M303)
- Wiring Diagrams - WD47 - Motor M303
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Alternate Print Sample.
  An error is indicated by an SRC 113 on the Display/Touch Screen or by **E084** on the Maintenance Panel.

QUICK CHECKS

- Check that the SW2 Switch on the B1J10 Card is set to **5**.
- This problem may be caused by the forms. Check for any of the following forms problem conditions:
  1. The urge unit is not powered on, or is not turning.
  2. Jamming in the premeasure gap due to an irregularity (piece of wood pulp, metal, or pile of chads), especially if the forms are heavy.
  3. Preprocessor equipment causing excessive drag. Common causes are turn bars and rollers (urge units) between the tractors and the roll feed unit.
  4. Heavy forms
  5. Stiff forms
  6. Damp forms
  7. Binding on the box
  8. Binding on the static brush or splicing station

SERVICE CHECKS

- Run Encoder Routine A2. An error is indicated by **E1EC** on the Maintenance Panel.
- Run Driver Routine 10. An error is indicated by **E186** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Tractor Motor (M303)	97%	2125	3325	3111
B1J10 Card	02%	B1 Logic Card Links		
B1J1 Card	01%	B1 Logic Card Links		
Capstan pinch roll adjustment too tight (fails on autoload only)	---			
Forms jam	---			
Excessive drag caused by preprocessor equipment	---			
Forms or forms installation	---			

MAP 0113 BEGINS

Table 41. MAP 0113

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Perform the QUICK CKECKS. If you find no problems, continue with the MAP. The forms may have jammed, or they may have stopped for no apparent reason. **Have the forms stopped without being jammed?**	Go to Step 2.	A jam has occurred which has stalled the tractors before a tear was detected by the Upper Tractor Jam Sensor (Q301). • Go to MAP 0119: Upper Tractor Forms Jam.
Step 2.	A roll feed or other preprocessor equipment may be stalling the tractors. **Does the problem occur using boxed forms (either in or out of the box)?**	Go to Step 3.	The problem only occurs when preprocessor equipment is being used. Ask the customer to ensure that the preprocessor equipment is adjusted correctly. Some items to check are: • Make the adjustments with the widest, heaviest form that the customer uses. • If possible, ensure that the forms are slack before feeding into the tractors. No tension is permissible above the weight of the forms.

Table 41. MAP 0113 (continued)

Step	Questions/Actions	Yes	No
Step 3.	**Does the problem occur only during autoload?**	Go to Step 4.	Go to Step 5.
Step 4.	• Check the Capstan Pinch Roll adjustment. **Was the adjustment correct?**	Go to Step 5.	• Perform the Capstan Pinch Roll adjustment, and retest the printer.
Step 5.	There may be an electrical problem or bind in the transfer station. Do the following: • Remove the forms. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ308. • Prepare to measure +40 V dc between J308-1 and J308-2. The voltage may be displayed for only a few seconds. You may find it helpful to use the Maintenance Panel extension cable for this check. • Run Driver Routine 10. (Use the Run Option for continuous looping. First press E0, ENTER, FF, ENTER, then START/STOP.) **Was the voltage approximately +40 V dc at any time while the routine was running?**	Go to Step 6.	The drive circuit has failed. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check connector PJ308 for correct contact. • Install the new parts listed below, one at a time, until the problem is corrected: a. B1J1 Card b. B1J10 Card • Repair an open circuit between one of the following pairs of connectors: – PJ308-1 and PJ475-7 on the B1 Board – PJ308-2 and PJ475-9 on the B1 Board @

Table 41. MAP 0113 (continued)

Step	Questions/Actions	Yes	No
Step 6.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Turn the Tractor Drive Shaft by hand and check for a binding condition. If this is difficult, you may also turn the Tractor Drive Pulleys. **Is the Tractor drive mechanism binding?**	• Check for binding in the Tractor Motor (M303), Tractors, bearings, and other parts of the tractor drive mechanism. Repair if necessary. @	Do the following, one step at a time, until the problem is corrected: • Check connectors PJ312 and PJ468 for correct contact. • Install the new parts listed below, one at a time, until the problem is corrected: – B1J10 Card – B1J1 Card – Tractor Motor (M303) • Repair an open circuit between one of the following pairs of connectors: – PJ312-1 and PJ468-24 – PJ312-6 and PJ468-29 @

MAP 0114: Tractor Motor Overcurrent

Symptom Explanation	Conditions That Could Cause This Symptom
The Tractor Motor (M303) is drawing too much current.	• The motor or tractor drive mechanism is binding. • The current sensing circuit has failed.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD02 - Tractor Motor Encoder (M303)
- Wiring Diagrams - WD47 - Motor M303

FIX VERIFICATION

- Print the **Print Pack** (1569). An error is indicated by an SRC 114 on the Display/Touch Screen or by **E0d8** on the Maintenance Panel.

QUICK CHECKS

- This problem may be caused by the forms. Check for any of the following forms problem conditions:
  1. Heavy
  2. Stiff
  3. Damp
  4. Binding on the box
  5. Binding on the static brush or splicing station
  6. Preprocessor equipment causing excessive drag on the forms.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Tractor Motor (M303)	97%	2125	3325	3111
B1J10 Card	02%	B1 Logic Card Links		
B1J1 Card	01%	B1 Logic Card Links		
Forms or forms installation	---			
Binding in the tractors, bearings, or other parts of the tractor drive	---			

Note: This circuit has no usable test points.

MAP 0114 BEGINS

Table 42. MAP 0114

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CKECKS, continue with the questions. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Turn the Tractor Drive Shafts by hand and check for a binding condition. If this is difficult, you may also turn the Tractor Drive Pulleys. **Is the Tractor drive binding?**	• Check for binding in the Tractor Motor (M303), Tractors, bearings, and other parts of the tractor drive mechanism. Repair if necessary. @	Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Tractor Motor (M303) – B1J10 Card – B1J1 Card • Check for a short circuit to ground at PJ308-1 or PJ475-7. Repair if necessary. @

MAP 0115: Retractor Seek Error

Symptom Explanation	Conditions That Could Cause This Symptom
The home position of the Retractor Motor (M304) Encoder disk (extended Retractor position) could not be detected at power-on time or when the printer was activated.	• There is a failure in the Retractor Motor (M304) (electrical or binding) or its drive circuitry. • There is a failure in the Retractor Motor Encoder or its sensing circuitry. • The Retractor mechanism is binding or is locked.

Note: **Test Points** - Only TP5 on the B1J7 Card can be reached easily.

The motor voltage and encoder signals change too quickly to be measured with a voltmeter.

Mechanical Design - The motor and encoder are a single replaceable unit. This error points to this unit or its circuitry.

The retractor linkage and hardware can be the problem only if they are binding. If the hardware is loose or maladjusted, the prints would appear light because of a transfer problem, and no error would be detected.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD01 - Retractor Motor (M304)
- Wiring Diagrams - WD48 - Motor M304
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Power off, and then power on the printer.
  An error is indicated by an SRC 115 on the Display/Touch Screen or by **E08b** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Check for a binding Retractor mechanism with this procedure:
  1. SHUTDOWN AND POWER OFF THE PRINTER.
  2. Access the Retractor Motor (M304) by removing the cover on the underside of the Transfer Station.
  3. Turn the motor drive shaft by hand. The mechanism should move freely.

The following checks can be used to verify the problem, but they cannot be used to isolate the failing part. This is because the same checking circuits are used in the diagnostic mode as in the print mode.

- Run Driver Routine 11. This routine moves the Retractors between the extended and retracted positions. The possible errors are:
  - E18A – same as SRC 102 or **E088** on the Maintenance Panel.
  - E18b – same as SRC 115 or **E08b** on the Maintenance Panel.
- Run Adjustment Routine C4. This routine allows you to check or adjust the acceleration time of the Retractors. The value should be 18 to 22 milliseconds.
- Test point TP5 on the B1J7 Card may be used to check the encoder position sensing circuit. The voltage readings should be:
  - +2.4 V dc or greater at TP5 with the Retractors in the retracted position.
  - +0.8 V dc or less at TP5 with the Retractors in the extended position.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Retractor Motor (M304)	70%	2122	3349	3057
B1J5 Card	10%	B1 Logic Card Links		
B1J7 Card	10%	B1 Logic Card Links		
B1J10 Card	05%	B1 Logic Card Links		
Retractor mechanism binding	05%	2123	3351	3059 (lower) 3061 (upper)
Connector PJ309 disconnected	---	2123		
Connector PJ313 disconnected	---	2123		
Connector PJ468 disconnected	---	2057		

MAP 0115 BEGINS

Table 43. MAP 0115

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Do the following, one step at a time, until the problem is corrected: • Check connectors PJ309, PJ313, PJ468 and PJ475 for correct contact. • Check for a binding Retractor mechanism. See SERVICE CHECKS. • Install the new parts listed below, one at a time, until the problem is corrected: – Retractor Motor (M304) – B1J5 Card – B1J7 Card – B1J10 Card • Repair an open circuit between one of the following pairs of connectors: – PJ309-1 and PJ475-4 – PJ309-2 and PJ475-1 – PJ313-1 and PJ468-10 @		

MAP 0116: Retractor Motor Overcurrent

Symptom Explanation	Conditions That Could Cause This Symptom
The Retractor Motor (M304) is drawing too much current.	• The motor or retractor drive mechanism is binding. • The current sensing circuit has failed.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD03 - Retractor Motor Overcurrent (M304)
- Wiring Diagrams - WD48 - Motor M304
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569). An error is indicated by an SRC 116 on the Display/Touch Screen or by **E0d9** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Check for a binding Retractor mechanism with this procedure:
  1. SHUTDOWN AND POWER OFF THE PRINTER.
  2. Access the Retractor Motor (M304) by removing the cover on the underside of the Transfer Station.
  3. Turn the motor drive shaft by hand. The mechanism should move freely.

The following checks can be used to verify the problem, but they cannot be used to isolate the failing part. This is because the same checking circuits are used in the diagnostic mode as in the print mode.

- Run Driver Routine 11. This routine moves the Retractors between the extended and retracted positions. The possible errors are:
  - E18A – same as SRC 102 or **E088** on the Maintenance Panel.
  - E18b – same as SRC 115 or **E08b** on the Maintenance Panel.

  Note: The above errors have a meaning different from SRC 116, which is fixed in this MAP.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Retractor Motor (M304) assembly	97%	2122	3349	3111
B1J5 Card	01%	B1 Logic Card Links		
B1J7	01%	B1 Logic Card Links		
B1J10	01%	B1 Logic Card Links		
Binding in the driven parts of the retractor mechanism	---			

MAP 0116 BEGINS

Table 44. MAP 0116

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Turn the Retractor Motor (M304) shaft by hand and check for a binding condition. **Is the Retractor mechanism binding?**	• Remove the Retractor Motor (M304) and locate the bind. Repair as necessary. @	Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Retractor Motor (M304) Assembly – B1J5 Card – B1J7 Card – B1J10 Card • Check for a short circuit to ground between one of the following pairs of connectors: – PJ309-2 and PJ475-1 – PJ309-1 and PJ475-4 @

MAP 0117: Forms Width Sensor

Symptom Explanation	Conditions That Could Cause This Symptom
No output from the Forms Width Hall sensors.	• Adjustment of the gap between the Hall sensors and the magnet on the forms tractor. • The Forms Width Sensor Board (PW091) is defective. • The YS011 Card is defective.
Output from three or more of the Forms Width Hall sensors.	• The Forms Width Sensor Board (PW091) is defective. • The YS011 Card is defective.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD04 - Forms Width Hall Sensor
- Wiring Diagrams - WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 65. The Maintenance Panel indicates the forms width setting in inches.
- Turn the Tractor Shift knob to move the forms width from 8 or 9 inches to 18 inches and back to 8 or 9 inches. An error is indicated by an SRC 117 on the Display/Touch Screen or by **E0CE** on the Maintenance Panel.

QUICK CHECKS

- Turn the Tractor Shift knob to change the forms width. Observe the forms width display on the Stacker to verify the correct output from the Hall sensors.

SERVICE CHECKS

- Run Sensor Routine 65. Turn the Tractor Shift knob. The Maintenance Panel indicates the output of the Forms Width Hall sensors in inches.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Magnet-to-sensor gap	50%	- -	- -	3046
Forms Width Sensor Board (PW091)	30%	2123	3333	3046
YS011 Card	20%	2116	3363	2627

MAP 0117 BEGINS

Table 45. MAP 0117

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Visually examine the magnets on the rear tractor assembly for any indication of mechanical problems. Look for loose, broken, or missing parts. • Ensure that the magnet-to-sensor gap is adjusted correctly. See the adjustment procedure in Forms Width Sensor Board (PW091). **Is there a mechanical or adjustment problem with the Forms Width Sensor mechanism?**	• Adjust, repair, or replace the item as necessary. @	There are no test points or diagnostic routines that will isolate among the possible failing parts. Do the following, one step at a time, until the problem is corrected: • Ensure that connectors PJ141 and PJ307 are connected correctly. • Install a new Forms Width Sensor Board (PW091). • Install a new YS011 Card. @

MAP 0118: Forms Width Sensor Fuse

Symptom Explanation	Conditions That Could Cause This Symptom
The Forms Width Sensor Circuit Breaker (CB2) has tripped.	• CB2 on the YS011 Card has tripped. • The Forms Width Sensor Board (PW091) is defective. • The YS011 Card is defective. • The Tension Arm Encoder Board (EN123) is defective. • The Tension Arm Encoder Board (EN122) is defective. • The Upper Tractor Jam Sensor (Q301) is defective.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD05 - Forms Width Sensor Circuit Breaker
- Wiring Diagrams - WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 69. The Maintenance Panel indicates the status of the Circuit Breaker (CB2).
- Switch machine power off then on to run the power-on diagnostics. An error is indicated by an SRC 118 on the Display/Touch Screen or by **E05A** on the Maintenance Panel.

QUICK CHECKS

- Visually check CB2 on the YS011 Card to see if it has tripped.

SERVICE CHECKS

- Run Sensor Routine 69. If CB2 has tripped, the Maintenance Panel indicates **on69** and the buzzer is on. If CB2 is not tripped, the Maintenance Panel indicates **of69** and the buzzer is off.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
CB2 on YS011 tripped because of a short or defect	35%	2116	3363	2627
Forms Width Sensor Board (PW091)	30%	2123	3333	3046
YS011 Card	10%	2116	3363	2627
Tension Arm Encoder Board (EN123)	10%	2125	3321	3090
Tension Arm Encoder Board (EN122)	10%	2125	3321	3090
Upper Tractor Jam Sensor (Q301)	05%	2123	3317	3152

MAP 0118 BEGINS

Table 46. MAP 0118

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the cover below the YS011 Card. This is the metal cover under the Splicing Station. The Forms Width Sensor Circuit Breaker (CB2) is located at the bottom of the YS011 Card. • Measure the resistance from PJ141-1 to ground. **Is the resistance less than 100 ohms?**	Go to Step 2.	• Reset CB2 and test. If the error happens again, install a new YS011 Card. @
Step 2.	• Locate connector PJ305 on the rear of the Forms Width Sensor Board (PW091). • Disconnect P305. • Measure the resistance from PJ141-1 to ground. **Is the resistance less than 100 ohms?**	Go to Step 3.	• Install a new Tension Arm Encoder Board (EN122). @

Table 46. MAP 0118 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Locate connector PJ306 on the rear of the Forms Width Sensor Board (PW091). • Disconnect P306. • Measure the resistance from PJ141-1 to ground. **Is the resistance less than 100 ohms?**	Go to Step 4.	• Install a new Tension Arm Encoder Board (EN123). @
Step 4.	• Locate connector PJ301 on the rear of the Forms Width Sensor Board (PW091). • Disconnect P301. • Measure the resistance from PJ141-1 to ground. **Is the resistance less than 100 ohms?**	Go to Step 5.	• Install a new Upper Tractor Jam Sensor (Q301). @
Step 5.	• Locate connector PJ303 on the Forms Width Sensor Board (PW091). • Disconnect P303. • Measure the resistance from PJ141-1 to ground. **Is the resistance less than 100 ohms?**	Go to Step 6.	• Repair a short circuit to ground in the wiring network described by the following points: – PJ303-1 and PJ314-1

Table 46. MAP 0118 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Disconnect PJ141 on the YS011 Card. • Measure the resistance from PJ141-1 to ground. **Is the resistance less than 100 ohms?**	• Reset CB2 and test. If the error happens again, install a new YS011 Card. @	Do the following, one step at a time, until the problem is corrected: • Check for a short circuit to ground in the cable from PJ141 on the YS011 Card to PJ307 on the Forms Width Sensor Board (PW091). • Install a new Forms Width Sensor Board (PW091). • Install a new YS011 Card. @

MAP 0119: Upper Tractor Forms Jam

Symptom Explanation	Conditions That Could Cause This Symptom
The Upper Tractor Jam Sensor (Q301) has not sensed the passing of the pin feed holes for over 60 milliseconds (2 inches).	• Constant light (reflected from forms) or darkness (torn forms). • The forms are torn, usually caused by a clinging chad that is caught in the pre-measure gap. • The forms have lifted off the tractor pins. This problem has several causes, which are described in this MAP. • The Transfer Station may be out of adjustment. (See POSSIBLE FAILING PARTS OR ADJUSTMENTS.) • The sensor or tractor cover is covered with paper dust, chads, or adhesive. • The Jam sensor voltage is not between 1.7 V and 2.2 V. • The forms are not flat and tight over the sensor. • The detection circuitry has failed. • See the detail below for other causes.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD06 - Upper Tractor Jam Sensor (Q301)
- Wiring Diagrams - WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Alternate Print Sample.

  An error is indicated by UPPER TRACTOR FORMS JAM 119 on the Display/Touch Screen or by **E07b** on the Maintenance Panel.
- Run Sensor Routine 62.

QUICK CHECKS

Important

To reset this error, clear the forms from the machine, then push the **Vacuum Pushbutton**:

1. Once, to turn the vacuum **off**
2. Once again, to turn the vacuum **on**

Then press **Check Reset** or **Ready**.

This error is stored in the printer NVS memory, and cannot be cleared by only powering off.

If the forms or holes are torn, jammed, or lifted off of the tractor pins:

1. Check for clinging chads or other forms irregularities that cause the forms to be torn in the pre-measure gap. Check the torn forms to see if the tear began at a pin feed hole, indicating that the jam was caused by a chad.

   However, if the pin feed holes are being damaged at the Lower Tractor pins and catching in the pre-measure gap:

   - The Lower Tractor timing (forms tension) may be incorrect if the damage is on the trailing edge of the hole.
   - There may be too much resistance in the input area, sometimes caused by roll feed equipment, if the damage is on the leading edge of the hole. Check the preprocessor to ensure that it is not causing too much resistance or drag on the forms. If this is a duplex system, check the Urge Unit and the Buffer/Flipper Unit also, to ensure they are not causing too much resistance or drag on the forms.

2. Ensure that the forms are installed correctly on the tractor pins. Turn the Tractor Width Control Knob as necessary to ensure that the forms are tight between the tractors.
3. Watch the forms during printing to see if there is looseness at the front or rear of the Transfer Station. This problem causes the forms to lift off the Tractor pins or to rise above the sensor. This usually causes a crease along the holes. Use the MAP to determine the cause.
4. If this error occurs only with one form, especially a form that has never run successfully, check for the following:
   - If the tear begins along a perforation, look closely at the points where the perforation meets the edges of the form. The perforation should have ties at the end. If there are cuts at the end, the form may catch at the Lower Forms Guide in the pre-measure gap.

     Additionally, tears beginning along a perforation may indicate weak perforation strength in that form. See “Perforation Strength” in the *Forms Design Reference*
   - The form may be heavy or stiff, it may not lie flat over the sensor.
   - The spacing of the pin feed holes may be imperfect. See the *Forms Design Reference* for ways to check the hole spacing. This problem can cause the forms to lift out of the tractors.

     Form problems cannot be fixed by machine repair. The customer must work with the forms supplier to select a different form for their needs.
5. If the jam occurs after the forms have stopped, the forms may be catching on the pins on the splicing table. On early machines, the front splicing pins should have a cover in place, and the rear pins should be pushed toward the rear of the printer.
6. Ensure that the forms are positioned correctly in the input area. If the stack is too far to the rear or at an angle, the perforations can tear during feeding as the forms are twisted.
7. Check the condition of the forms in the input area for tears or damage before they reach the Transfer Station. This condition indicates a problem in forms quality or handling. For example, the forms box may have been punctured or otherwise damaged, which resulted in defects in the perforated edge of the forms.
8. The forms may not be feeding freely from the box. If there is any resistance to pulling the forms from the box, remove the forms from the box.
9. Roll feed equipment may be stalling the Tractors. Check the error log for 113 or other errors that indicate that the Tractor Motor (M303) is having speed errors.

10. If this is a duplex system, ensure that the Urge Unit and Buffer/Flipper Unit are aligned correctly and operating properly. They may be causing too much resistance or drag on the forms.
11. The forms may not be feeding freely over the chad brushes on the Input Guide and Splicing Table.
12. If the jam message cannot be cleared, check CB2 on the YS011 Card and reset if necessary.

If the forms are not torn (the forms have stopped for no apparent reason):

Note: Intermittent false jams may be the result of more than one of these factors.

1. Ensure that the forms are installed so that they are tight and flat over the sensor.
2. Ensure that the Upper Tractor Jam Sensor (Q301) and the black area on the underside of the Upper Tractor Cover are free of scratches, dust, chads, and adhesive.
3. Clean the Upper Tractor Jam Sensor (Q301). Use a pencil eraser if necessary.
4. There may be stray room light falling on the sensor. This is usually caused by bright, overhead, incandescent lighting. Close the printer top cover.
5. If this error occurs only with one form, especially a form that has never run successfully, check for the following:
   - Printing or dark colors between the pin feed holes on the back of the form. This will appear to the logic, as a torn form.
   - If the form is heavy or stiff, it may not lie flat over the sensor.
   - Poor reflectivity of infrared light. This sometimes occurs with recycled or colored forms.
   - Hole spacing precision. Check if there is damage to the edges of the holes caused by the pins. This indicates that the hole spacing may be varying.

     Form problems cannot be fixed by machine repair. The customer must work with the forms supplier to select a different form for their needs.
6. The Diagnostic Function Switch may have been left in position **9**, which would reduce the tolerance of the circuit, and worsen any of the above problems. Set the Diagnostic Function Switch to position **0**.
7. Roll feed equipment may be stalling the Tractors. Check the error log for 113 or other errors that indicate that the Tractor Motor (M303) is having speed errors.

8. If this is a duplex system, ensure that the Urge Unit and Buffer/Flipper Unit are aligned correctly and operating properly. They may be causing too much resistance or drag on the forms.
9. If the problem occurs on the last sheet of the input forms, the printer has failed to detect End of Forms. (Ensure that a tall forms box is not blocking the EOF sensor.) EOF problems are fixed in MAP 078A: End Of Forms Sensor 1.
10. Watch the forms during printing to determine if they lift off the sensor. Use this MAP to determine the cause.
11. If the jam message cannot be cleared, check CB2 on the YS011 Card and reset if necessary.

SERVICE CHECKS

- LED D3 on the Forms Width Sensor Board (PW091) can be used to check the Upper Tractor Jam Sensor (Q301) and the wiring to the Forms Width Sensor Board (PW091). The LED should be off when the forms are covering the sensor, and on when the forms are removed.
- Run Sensor Routine 62.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Upper Tractor Jam Sensor (Q301)	80%	2123	3317	3152
Forms Width Sensor Board (PW091)	10%	2123	3333	3046
YS011 Card	05%	2116	3363	3019
B1J8 Card	05%	B1 Logic Card Links		
Forms or forms installation	---			
Transfer Station adjustments affecting the forms tension: 1. Tension Arm Parallelism 3105 2. Tractor alignment 3142 3. Path Modifier position 3052 4. Lower Tractor timing adjustment 3146 5. Retractor Detent 3063 6. Retractor to PC Drum gap 3066	---			

MAP 0119 BEGINS

Important

To reset this error, clear the forms from the machine, then push the **Vacuum** pushbutton:

1. Once, to turn the vacuum off
2. Once again, to turn the vacuum on

Then press **Check Reset** or **Ready**.

This error is stored in the printer NVS memory, and cannot be cleared by only powering off.

Notes:

1. The QUICK CKECKS are very important in this MAP.
2. The Transfer Station forms tension adjustments can cause the forms to lift off or fail to autoload onto the Tractor pins. Watch for any looseness, waviness, or wrinkling in the forms when stopped or running.

Table 47. MAP 0119

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• If you are here from MAP 0190: Autoload Error (**E0E1** on the Maintenance Panel), go to Step 4. If you find no problems using the QUICK CKECKS, continue with the questions. This MAP requires that the error be present in order to use the following questions. It is important to use the forms with which the error occurs, and to watch the operator attempt to cause the problem. You may use the procedure in FIX VERIFICATION. **Can you cause the error to happen?**	Go to Step 2.	• Ask the operator to do the following the next time a jam occurs: – Trace the Lower Tractor Covers on the forms. This will help you later determine the position of the jam. – Save the jammed forms for you to analyze. You may need about 3 sheets on either side of the jam. • Ensure that all of the QUICK CKECKS have been done. • Check the adjustments listed in POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Replace the parts listed in POSSIBLE FAILING PARTS OR ADJUSTMENTS. @

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 2.	If the problem occurs on the last sheet of the input forms, the printer has failed to detect End of Forms. (Ensure that a tall forms box is not blocking the EOF sensor.) EOF problems are fixed in MAP 078A: End Of Forms Sensor 1. The perforations, carrier strip, or pin feed holes may be torn. **Are the forms torn or damaged in any way when they stop?**	Go to Step 3.	Go to Step 4.
Step 3.	When forms have lifted off of the Upper Tractor pins, there is often a crease along the holes before the jam. • If you are not sure, answer **No** to this question. **Does it appear that the problem may be caused by the forms lifting off of the Upper Tractor pins?**	Go to Step 7.	Go to Step 8.

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Intermittent false jams may be the result of several factors. For example, poor infrared reflectivity, paper dust on the sensor and tractor cover, and lifting of the form at the sensor can occur at the same time. Continue with the following questions, even if you feel that there is an obvious forms feeding problem. The jam sensor may have failed in the on or off state. Perform the following steps: • Remove the forms from the upper tractors. • Run Sensor Routine 62 using plain white paper. • Cover and uncover the sensor with plain white paper. **Is 'on62' displayed on the Maintenance Panel with sensor covered and is 'oF62' displayed with sensor uncovered?**	Go to Step 5.	• Clean the Upper Tractor Jam Sensor (Q301). Use a pencil eraser if necessary. • Check connector PJ301 for correct contact. • Check and adjust if necessary, the Upper Tractor Jam Sensor Adjustment. Do the following, one step at a time, until the problem is corrected: • Install a new Upper Tractor Jam Sensor (Q301). • Install a new Forms Width Sensor Board (PW091). @

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 5.	The forms may not successfully reflect infrared light. **Is the form made of recycled paper, or does it have any dark colors or printing on the back (sensor side)?**	This form may not run on this printer. Run Sensor Routine 62 to test this, or any other form, with this procedure: • Raise the tractor cover and move the carrier strip over the sensor. • If both on and off states are detected, the form should run. Watch for printing on the back, however, that periodically spans several holes. The operating margin is reduced with this form. Stray light, forms lifting at the sensor due to various tension adjustments, and paper dust could cause intermittent problems. Go to Step 7.	Go to Step 6.

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 6.	The Tractors may not be driving. • Run Driver Routine 10. **Did the Tractors run correctly during the test?**	Check for any of the following problems: • Tractor pins binding on the Tractor Cover channel. • Roll feed equipment stalling the Tractors. Check the error log for 113 or other errors that indicate that the Tractor Motor (M303) is having speed errors. Go to Step 7.	• Inspect the Tractor Drive Belt, pulleys, clamping rings, and bearings, and correct as needed. Check for Tractor pins binding on the Tractor Cover channel. • Especially check the tension of the Tractor Drive Belt, and check that the Tractor Drive Pulleys are tightly clamped to the Tractor Drive Shafts. See Tractor Motor (M303) and Drive Belt.

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 7.	The forms may be rising over the sensor, and possibly lifting off the tractor pins. Extreme cases cause a crease along the holes. False jams can be caused when a tension problem causes a wave or bubble in the forms just past the Upper Front Tractor Cover. Investigate the following possible causes of the lifting forms: • Perform the Check procedures for each of the following items, and adjust if necessary: – Tractor Alignment **Hint** If one Tractor can be moved while the other is held, there may be a tension problem with the Tractor Positioning Cables. If so, see Upper Tractor Positioning Cable A, Lower Tractor Positioning Cable B, and Tractor Control Knob Resistance. – Tension Arm Position 3106 – Tension Arm Parallelism 3105 – Retractor Detent 3063 – Retractor to PC Drum Gap 3066 – Path Modifier Position 3052 – Upper Tractor Timing Adjustment 3150 – Lower Tractor Timing Adjustment 3146 • The tractors may be too close together, causing wrinkling. Instruct the operators on how to correctly set the tension by moving the Rear Tractor. • Skew or steering problems. In this case, a wave or bubble will be seen in the forms when they are running. Check the error log for 133 errors. See MAP 0133: Skew Error for the causes of skew. @ (continued on next page)		

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 7 (cont.)	Investigate the following possible causes of the lifting forms (cont.): • Ensure that the preprocessor is aligned correctly. If this is a duplex system, ensure that the Urge Unit and Buffer/Flipper Unit are aligned correctly and operating properly. They may be causing too much resistance or drag on the forms. • Stiff, heavy forms or strong perforations • Broken tractor pins • Wrinkled forms. • Lower Front Tractor Cover gap (too wide). • Play in the Tractor Pin Feed Belt If the problem continues, perform the following steps: • Clean the Upper Tractor Jam Sensor (Q301). Use a pencil eraser if necessary. • Check for oversized or irregularly spaced pin feed holes. • Ensure that the Diagnostic Function Switch is not in position 9. • Check for a loose or incorrect Upper Tractor Jam Sensor (Q301) mounting. • Roll feed equipment may be stalling the Tractors. Check the error log for 113 or other errors that indicate that the Tractor Motor (M303) is having speed errors. • Recheck all of the items in QUICK CKECKS. • Install a new Upper Tractor Jam Sensor (Q301). If the problem is still not fixed, do the following, one step at a time, until the problem is corrected: • Repair an open circuit or short circuit to ground between one of the following pairs of connectors: – PJ307-37 and PJ141-37 – PJ307-39 and PJ141-39 – PJ1000-51 and PJ465-51 – PJ465-51 and B1J8-B66 @ (continued on next page)		

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 7 (cont.)	• Install the new parts listed below, one at a time, until the problem is corrected: – YS011 Card – B1J8 Card – Forms Width Sensor Board (PW091) @		

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 8.	This step assumes that the tear began before the upper Tractors. This problem could be caused by the forms. This problem is often caused by a chad that is pushed out by the Lower Tractor pins. The double thickness then jams and is torn by the Lower Forms Guide in the pre-measure gap. The tear usually begins at a hole, and causes a tear pattern. Piles of chads in the middle of the form can cause a tear pattern that looks like an inverted “V”. From the jam sample, check if the tear began at a perforation. Look closely at the points where the folding perforation meets the edges of the form. The perforation should have ties at the end. If there are cuts at the end, the form may catch at the Lower Forms Guide in the pre-measure gap. Additionally, tears beginning along a perforation may indicate weak perforation strength in that form. See “Perforation Strength” in the “*Forms Design Reference*”. • Check for damaged holes. If there is damage on the trailing edge of the hole, perform the Check under Lower Tractor Timing. Be aware that the problem could be caused by the following adjustments: – Path Modifier Position 3052 – Upper Tractor Timing Adjustment 3150 – Lower Tractor Timing Adjustment 3146 Other possible forms problems are: – Cut-out portions of the form – Labels – Surface irregularities – Tractor pins binding on the Tractor Cover channel. – Roll feed equipment stalling the Tractors. • Check the error log for 113 or other errors that indicate that the Tractor Motor (M303) is having speed errors. (continued on next page)		

Table 47. MAP 0119 (continued)

Step	Questions/Actions	Yes	No
Step 8 (cont.)	Other possible forms problems (cont.): • If this is a duplex system, ensure that the Urge Unit and Buffer/Flipper Unit are aligned correctly and operating properly. They may be causing too much resistance or drag on the forms. • The premeasure gap is maintained by a shim plate at the end of the shaft. Ensure that the shims are in place.(3055) • If the problem remains, return to Step 7.		

MAP 011B: Tractor Drive Signal Always On

Symptom Explanation	Conditions That Could Cause This Symptom
The printer logic signal PAPER MOVE is on when it should be off.	• The B1J10 Card is turning on the tractor drive signal when it should not be on, or is indicating an error when there is no error.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD02 - Tractor Motor Encoder (M303)
- Wiring Diagrams -
  WD45 - Motor M107
  WD47 - Motor M303
  WD48 - Motor M304
  WD51 - Motor M607

FIX VERIFICATION

- Print the **Print Pack** (1569). An error is indicated by an SRC 11B on the Display/Touch Screen or by **E082** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J10 Card	100%	B1 Logic Card Links		

MAP 011B BEGINS

Table 48. MAP 011B

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Install the new parts listed below, one at a time, until the problem is corrected: • B1J10 Card @		

MAP 011C: Tractor Detent Signal Error

Symptom Explanation	Conditions That Could Cause This Symptom
The detent position of the Tractor Motor (M303) Encoder is incorrect.	• There is a failure in the Tractor Motor (M303) Encoder or its wiring. • There is a failure in the B1J1 Card. • The B1J10 Card is turning on the tractor drive signal when it should not be ON, or is indicating an error when there is no error.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD02 - Tractor Motor Encoder (M303)
- Wiring Diagrams - WD47 - Motor M303
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569). An error is indicated by an SRC 11C on the Display/Touch Screen or by **E083** on the Maintenance Panel.

QUICK CHECKS

- Ensure that the preprocessor is aligned correctly. If this is a duplex system, ensure that the Urge Unit and Buffer/Flipper Unit are aligned correctly and operating properly. They may be causing too much resistance or drag on the forms.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Tractor Motor (M303)	40%	2122	3325	3111
B1J10 Card	40%	B1 Logic Card Links		
B1J1 Card	20%	B1 Logic Card Links		

MAP 011C BEGINS

Table 49. MAP 011C

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 49. MAP 011C (continued)

Step	Questions/Actions	Yes	No
Step 1.	If you find no problem using the QUICK CHECKS, continue with the questions. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ308. • Prepare to measure +40 V dc between J308-1 and J308-2. The voltage may only be displayed for a few seconds. You may find it helpful to use the Maintenance Panel extension cable for this check. • Run Driver Routine 10. (Use the Run Option for continuous looping. First press E0, ENTER, FF, ENTER, then START/STOP.) **Was the voltage approximately +40 V dc at any time while the routine was running?**	Go to Step 2.	The drive circuit has failed. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check connector PJ308 for correct contact. • Install the new parts listed below, one at a time, until the problem is corrected: – B1J1 Card – B1J10 Card • Repair an open circuit between one of the following pairs of connectors: – PJ308-1 and PJ475-7 on the B1 Board – PJ308-2 and PJ475-9 on the B1 Board @

Table 49. MAP 011C (continued)

Step	Questions/Actions	Yes	No
Step 2.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Turn the Tractor Drive Shaft by hand and check for a binding condition. If this is difficult, you may also turn the Tractor Drive Pulleys. **Is the Tractor drive mechanism binding?**	• Check for binding in the Tractor Motor (M303), Tractors, bearings, and other parts of the tractor drive mechanism. • Repair if necessary. @	Install the new parts listed below, one at a time, until the problem is corrected: • B1J10 Card • B1J1 Card • Tractor Motor (M303) @

MAP 011D: Tractor Motor Overspeed

Symptom Explanation	Conditions That Could Cause This Symptom
The Tractor Motor (M303) speed is incorrect.	• There is a failure in the Tractor Motor (M303) Encoder or its wiring. • There is a failure in the B1J1 Card. • The B1J10 Card is turning on the tractor drive signal when it should not be on, or is indicating an error when there is no error.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD02 - Tractor Motor Encoder (M303)
- Wiring Diagrams - WD47 - Motor M303

FIX VERIFICATION

- Print the **Print Pack** (1569). An error is indicated by an SRC 11D on the Display/Touch Screen or by **E085** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J1 Card	60%	B1 Logic Card Links		
B1J10 Card	30%	B1 Logic Card Links		
Tractor Motor (M303)	10%	2125	3325	3111

MAP 011D BEGINS

Table 50. MAP 011D

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – B1J1 Card – B1J10 Card – Tractor Motor (M303) • Repair an open circuit between PJ312 and PJ468. @		

MAP 011E: Tractor Motor Initial Position Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Tractor Motor (M303) cannot seek to its home position at initialization.	• There is a failure in the Tractor Motor (M303) Encoder or its wiring. • There is a failure in the B1J1 Card. • The B1J10 Card is turning on the tractor drive signal when it should not be ON, or is indicating an error when there is no error.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD02 - Tractor Motor Encoder (M303)
- Wiring Diagrams -
  WD47 - Motor M303
  WD24 - Printer DC Power Units and Sequence Card
  WD67 - Printer Speed Control (Single Beam Printhead)
  WD67.1 - Printer Speed Control (Two Beam 240 Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Power on the printer. An error is indicated by an SRC 11E on the Display/Touch Screen or **E086** on the Maintenance Panel.

QUICK CHECKS

- Check to see that the preprocessor is aligned correctly. If this is a duplex system, ensure that the Urge Unit and Buffer/Flipper Unit are aligned correctly and operating properly. They may be causing too much resistance or drag on the forms.

SERVICE CHECKS

- Run Driver Routine 10. An error is indicated by **E186** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probability	Locations Link	Parts Link	Removals & Adjustments Link
Tractor motor brushes	30%	2125	3325	3111
B1J1 Card	30%	B1 Logic Card Links		
B1J10 Card	20%	B1 Logic Card Links		
Tractor Motor (M303)	10%	2125	3325	3111
SQ081/SQ082 Card	05%	2142	3507 (200 V) 3509 (400 V)	2642
DC 1 Power Supply	05%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637

MAP 011E BEGINS

Table 51. MAP 011E

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 51. MAP 011E (continued)

Step	Questions/Actions	Yes	No
Step 1.	If you find no problems using the QUICK CKECKS, continue with the questions. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ308. • Prepare to measure +40 V dc between J308-1 and J308-2. The voltage may be displayed for only a few seconds. You may find it helpful to use the Maintenance Panel extension cable for this check. • Run Driver Routine 10. (Use the Run Option for continuous looping. First press E0, ENTER, FF, ENTER, then START/STOP.) **Was the voltage approximately +40 V dc at any time while the routine was running?**	Go to Step 2.	The drive circuit has failed. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check connector PJ308 for correct contact. • Install the new parts listed below, one at a time, until the problem is corrected: – B1J1 Card – B1J10 Card – SQ081/SQ082 Card – DC 1 Power Supply • Repair an open circuit between one of the following pairs of connectors: – PJ308-1 and PJ475-7 on the B1 Carrier Board – PJ308-2 and PJ475-9 on the B1 Carrier Board – PJ513-1 and PJ591-1 – PJ513-2 and PJ591-2 @

Table 51. MAP 011E (continued)

Step	Questions/Actions	Yes	No
Step 2.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Turn the Tractor Drive Shaft by hand and check for a binding condition. If this is difficult, you may also turn the Tractor Drive Pulleys. **Is the Tractor drive mechanism binding?**	Check for binding in the Tractor Motor (M303), the Tractors, the Tractor Drive Shaft Bearings, and other parts of the Tractor drive mechanism.	Do the following, one step at a time, until the problem is corrected: • Check connectors PJ312 and PJ468 for correct contact. • Install the new parts listed below, one at a time, until the problem is corrected: – Tractor Motor Brushes – B1J10 Card – B1J1 Card – Tractor Motor (M303) • Repair an open circuit between one of the following pairs of connectors: – PJ312 and PJ468 @

MAP 0122: Drum Motor Overcurrent

Symptom Explanation	Conditions That Could Cause This Symptom
The drum drive current as detected by the driver card is beyond error limits.	• The drum drive current as detected by the driver card is beyond error limits. • The drum motor driver circuit is defective. • The Drum Motor (M107) is defective.

REFERENCES

- Circuit Diagrams - CD07 - Drum Drive Motor Overcurrent Detection (M107)

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J5 Card	50%	B1 Logic Card Links		
B1J7 Card	40%	B1 Logic Card Links		
B1J10 Card	05%	B1 Logic Card Links		
Drum Motor (M107)	05%	2053	3259	2479

MAP 0122 BEGINS

Table 52. MAP 0122

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Print the Primary Print Sample for up to a full box of paper to see if the error occurs during printing. **Did an SRC 122 occur?**	Install the following, one at a time, until the problem is corrected: • B1J5 Card • B1J7 Card • B1J10 Card • Drum Motor (M107) @	The problem is intermittent. Go to Intermittent Failures.

MAP 0123: Drum Timeout Error

Symptom Explanation	Conditions That Could Cause This Symptom
The drum speed as detected by the drum encoder circuit failed to reach the specified value after 3 seconds.	• A mechanical resistance is preventing the drum from reaching full speed. • The drum motor (M107) is defective. • The drum motor servo circuitry is defective. • The error detection circuitry is defective. • There is an open/short in the drum drive or in the drum servo wiring.

REFERENCES

- Removals & Adjustments - Drum Drive and Photoconductor (PC)
- Circuit Diagrams - CD08 - Drum Drive Servo Control Time Out (M107)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

- Ensure that the PC Drum is installed correctly.

SERVICE CHECKS

- Run Driver Routine 08 from the Maintenance Panel. Observe the drum to determine if it is turning.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Drum Motor (M107)	70%	2053	3259	2479
B1J7 Card	15%	B1 Logic Card Links		
B1J5 Card	14%	B1 Logic Card Links		
B1J10 Card	01%	B1 Logic Card Links		
Mechanical bind	---			
Developer adjustments • Developer to PC Drum Gap 2446 • Mag Brush Rolls to Doctor Blade 2453	---			2440
Retractor to PC Drum Gap	---			3066

MAP 0123 BEGINS

Table 53. MAP 0123

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Print the Primary Print Sample for up to a full box of paper while you stop and start the printer every 2 to 50 pages. **Did an 0123 SRC occur?**	Go to Step 2.	The problem is intermittent. Go to Intermittent Failures.
Step 2.	• Run Driver Test Routine 08 from the Maintenance Panel. • Observe the drum to determine if it is turning. **Did the drum turn at all?**	Go to Step 4.	Go to Step 3.
Step 3.	• Unplug connector PJ173. Check for +24 V dc between J173-1 and J173-2 while you run Driver Routine 08. The Maintenance Panel extension cable may aid in running the driver routine and measuring the voltage on the back of the printer. • Reconnect PJ173. **Was the voltage +24 V dc?**	Go to Step 4.	• Install a new B1J7 Card. • Install a new B1J5 Card. • Install a new B1J10 Card. • Repair or replace the wiring from the B1J5 Card to the Drum Motor (M107).

Table 53. MAP 0123 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the PC Drum to isolate the drum drive mechanism from other sources of drag. • Turn the drum shaft by hand with the PC Drum removed. **Does the drum drive mechanism turn without binding?**	Go to Step 5.	• Repair or replace whatever is causing drag in the drum drive mechanism. Removing the Drum Drive Belt may aid in isolating the problem.

Table 53. MAP 0123 (continued)

Step	Questions/Actions	Yes	No
Step 5.	Mechanical resistance could be preventing the drum from reaching full speed. Do the following, one at a time, until the problem is corrected: • Check the following adjustments and correct as necessary. – Developer to PC Drum Gap 2446 – Mag Brush Rolls to Doctor Blade 2453 • Too much developer mix in the Developer can cause the drum to bind. This is due to an incomplete mix dump. If the mix was recently changed or you suspect there is too much mix in the developer, dump the developer mix. Ensure that all of the mix is dumped and then install new mix. • Check the Retractor to PC Drum Gap and correct as necessary. • Check these areas for problems: – PC Drum – Transfer Station – Developer mechanism – Cleaner Housing **Were you able to correct the problem by removing a mechanical bind?**	Finished.	Install the following, one at a time, until the problem is corrected: • Drum Motor (M107) • B1J7 Card • B1J5 Card • B1J10 Card @

MAP 0124: Drum Overspeed

Symptom Explanation	Conditions That Could Cause This Symptom
The drum speed, as detected by the drum motor encoder, is 1.4 times the normal speed.	• The Drum Motor (M107) is defective. • The drum driver circuit is defective. • The drum servo control circuit is defective. • The developer or transfer station retractors are not adjusted correctly.

REFERENCES

- Removals & Adjustments -
  Transfer Station
  Drum Drive and Photoconductor (PC)
  Developer
- Circuit Diagrams - CD09 - Drum Drive Servo Control Overspeed (M107)

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Drum Motor (M107)	70%	2053	3259	2479
B1J7 Card	15%	B1 Logic Card Links		
B1J5 Card	14%	B1 Logic Card Links		
B1J10 Card	01%	B1 Logic Card Links		
Mag Brush Rolls to Doctor Blade	---			2453
Developer to PC Drum Gap	---			2446
Retractor to PC Drum gap	---			3066

MAP 0124 BEGINS

Table 54. MAP 0124

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check the following adjustments and correct as necessary. – Mag Brush Rolls to Doctor Blade 2453 – Developer to PC Drum Gap 2446 – Retractor to PC Drum gap 3066 • Print the Primary Print Sample for a full box of paper to see if the error occurs during printing. **Did an SRC 124 occur?**	Install the following, one at a time, until the problem is corrected: • Drum Motor (M107) • B1J7 Card • B1J5 Card • B1J10 Card @	The adjustments in this step corrected the problem.

MAP 0125: Drum Position Error

Symptom Explanation	Conditions That Could Cause This Symptom
The drum position, as detected by the drum motor encoder, is beyond error limits.	• The Drum Motor (M107) is defective. • The drum driver circuit is defective. • The drum servo control circuit is defective. • The developer or transfer station retractors are not adjusted correctly.

REFERENCES

- Removals & Adjustments -
  Transfer Station
  Drum Drive and Photoconductor (PC)
  Developer
- Circuit Diagrams - CD10 - Drum Drive Servo Control Position

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Drum Motor (M107)	70%	2053	3259	2479
B1J7 Card	15%	B1 Logic Card Links		
B1J5 Card	14%	B1 Logic Card Links		
B1J10 Card	01%	B1 Logic Card Links		
Mag Brush Rolls to Doctor Blade	---			2453
Developer to PC Drum Gap	---			2446
Retractor to PC Drum gap	---			3066

MAP 0125 BEGINS

Table 55. MAP 0125

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check the following adjustments and correct as necessary. – Mag Brush Rolls to Doctor Blade 2453 – Developer to PC Drum Gap 2446 – Retractor to PC Drum gap 3066 • Print the Primary Print Sample for up to a full box of paper to see if the error occurs during printing. **Did an SRC 0125 occur?**	Install the following, one at a time, until the problem is corrected: • Drum Motor (M107) • B1J7 Card • B1J5 Card • B1J10 Card @	The adjustments in this step corrected the problem.

MAP 0131: Tension Arm Down

Symptom Explanation	Conditions That Could Cause This Symptom
The Tension Arm is in the down position.	• The Tension Arm Encoder Board (EN123) or the Tension Arm Encoder Board (EN122) has failed. • The Tension Arm or the encoder position is not adjusted correctly. • There is a problem in the vacuum system. • The Skew Sensor (D603) or its circuitry has failed. • The Hot Roll is running too rapidly. • The Tractors are running too slowly. • The forms have preprinted marks between the tractor holes.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD11 - Tension Arm Encoder
  CD12 - Skew Sensor (D604)
- Wiring Diagrams -
  WD63 - Forms Path Sensors (YS011 Card)
  WD51 - Motor M607
  WD47 - Motor M303
  WD49 - Motor M601 and Skew Sensor
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Print Pack (1569).

  An error is indicated by an SRC 131 on the Display/Touch Screen or by **E078** on the Maintenance Panel.

QUICK CHECKS

Important

To reset this error, clear the forms from the machine, then push the **Vacuum** pushbutton:

1. Once, to turn the vacuum off
2. Once again, to turn the vacuum on

Then press **Check Reset** or **Ready**.

This error is stored in the printer NVS memory, and cannot be cleared by only powering off.

- Check the back side of the forms for dark markings between the pin feed holes at the front edge. This dark coloration can cause a false reading by the Skew Sensor (D603).

SERVICE CHECKS

- Run Sensor Routine 64 to display the Tension Arm positions.
- Run Adjustment Routine C6 to display the Tension Arm positions.
- Run Sensor Routine 6E to determine if the Skew Sensor (D603) is working correctly.
- Run Encoder Routine A2 to check the Tractor Motor (M303) encoder. An error is indicated by **E1EC** on the Maintenance Panel.
- Run Driver Routine 10 to run the Tractor Motor (M303). An error is indicated by **E186** on the Maintenance Panel.
- Run Encoder Routine A3 to check the Hot Roll Motor (M607) encoder. An error is indicated by **E1ED** on the Maintenance Panel.
- Run Driver Routine 27 to run the Hot Roll Motor (M607) with the Backup Roll loaded. An error is indicated by rXXX on the Maintenance Panel, where XXX can be any number. You will see three values of XXX repeatedly displayed.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J8 Card	20%	B1 Logic Card Links		
Tension Arm Encoder (EN123)	10%	2125	3321	3090
Tension Arm Encoder (EN122)	10%	2125	3321	3090
Forms Width Sensor (PW091)	10%	2123	3333	3046
YS011 Card	10%	2116	3363	2627
Skew Sensor (D603)	10%	2064	3435	2604
Hot Roll Control Card HR091	10%	2064	3397	2534
Fuser Control Card FSxxx	10%	2131	3499	2528
Miscellaneous causes	10%			
Others from MAP 079A: Tension Arm Position Incorrect	---			

MAP 0131 BEGINS

Important

To reset this error, clear the forms from the machine, then push the **Vacuum** pushbutton:

1. Once, to turn the vacuum off
2. Once again, to turn the vacuum on

Then press **Check Reset** or **Ready**.

This error is stored in the printer NVS memory, and cannot be cleared by only powering off.

Table 56. MAP 0131

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CKECKS, continue with the questions. • Run Sensor Routine 6E. Fully cover and uncover the Skew Sensor (D603) with plain white paper while you watch the Maintenance Panel. **Are the following displayed?** • **rL6E** - with the sensor covered • **6E** - with the sensor uncovered	Go to Step 2.	Go to Step 3.

Table 56. MAP 0131 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Run Encoder Routine A2 to check the M303 encoder. **Did E1EC appear on the Maintenance Panel?**	There is a problem with the Tractor Motor (M303). Go to MAP 0113: Tractor Motor Encoder Phase Error.	Go to Step 4.
Step 3.	• Locate the LEDs on the Hot Roll Control Card HR091 labeled **L SKEW** and **R SKEW**. Fully cover and uncover the Skew Sensor (D603) with plain white paper while you watch the LEDs. **Do you see the following?** • Both LEDs **off** - with the sensor covered • Both LEDs **on** - with the sensor uncovered	Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – B1J8 Card – Hot Roll Control Card HR091 – Fuser Control Card (FSxxx) • Repair an open circuit between one of the following pairs of connectors: – PJ6010-21 and PJ6007-21 – PJ6010-22 and PJ6007-22 – PJ6010-23 and PJ6007-23 – PJ6010-24 and PJ6007-24 @	Do the following, one step at a time, until the problem is corrected: • Clean the Skew Sensor (D603). Use a pencil eraser if necessary. • Check connectors PJ638 and PJ6009 for correct contact. • Install a new Skew Sensor (D603). • Install a new Hot Roll Control Card HR091. • Repair an open circuit between one of the following pairs of connectors: – PJ6009-32 and PJ638-5 – PJ6009-33 and PJ638-4 – PJ6009-34 and PJ638-1 – PJ6009-35 and PJ638-2 – PJ6009-36 and PJ638-3 @

Table 56. MAP 0131 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Run Driver Routine 10 to check the Tractor Motor (M303). **Did E186 appear on the Maintenance Panel?**	There is a problem with the Tractor Motor (M303). Go to MAP 0113: Tractor Motor Encoder Phase Error.	Go to Step 5.
Step 5.	• Run Encoder Routine A3 to check the M607 encoder. **Did E1ED appear on the Maintenance Panel?**	The Hot Roll is turning too fast. Go to MAP 0138: Hot Roll Overspeed.	Go to Step 6.
Step 6.	• Run Driver Routine 27 to check the Hot Roll Motor (M607). An error is indicated by rXXX on the Maintenance Panel, where XXX can be any number. You will see three values of XXX repeatedly displayed. **Did F- 27 (successful end) appear at the end of the test?**	Go to Step 7.	The Hot Roll is turning too fast. Go to MAP 0138: Hot Roll Overspeed.
Step 7.	A loose or broken tractor drive pulley may be causing this problem. • Print the Print Pack (1569). **Does the print registration move towards the top of the page?**	The tractor drive pulley is slipping or broken. • Adjust or replace the tractor drive pulley.	The tractor drive pulley is not slipping. Go to Step 8.
Step 8.	A steering problem may cause this error. • Ask the operator if the forms are skewed when this error occurs. You may observe it yourself, or check the error log for 133 errors. If you are not sure, answer No. **Do the forms seem to be skewing when this error occurs?**	Go to MAP 0133: Skew Error.	The problem may be with the Tension Arm Encoder circuits or the vacuum system. Go to MAP 079A: Tension Arm Position Incorrect.

MAP 0132: Tension Arm Up

Symptom Explanation	Conditions That Could Cause This Symptom
The Tension Arm is in the upper position.	• The forms have broken. • A double-sheet feed has occurred. • The Tension Arm or the encoder positions are not adjusted correctly. • The forms are jamming in the fuser on Printer 2. • The forms are slipping on the Hot Roll. • The Hot Roll is running too slowly. • There is a failure in the Tension Arm Position Encoders Tension Arm Encoder Board (EN123) and Tension Arm Encoder Board (EN122) or their logic. • The tractors are running too rapidly.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD11 - Tension Arm Encoder
- Wiring Diagrams - - WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Print Pack (1569). An error is indicated by a SRC 132 on the Display/Touch Screen or by **EO77** on the Maintenance Panel.

QUICK CHECKS

- Check if the forms have broken.
- A double-sheet may have been fed past the transfer station which then separated, causing the forms to become slack. Check if the forms in the box tend to stick together. Also check the printed output for any blank pages which would indicate that the forms were folded during transfer.
- If the forms are jamming in the fuser on Printer 2 of a duplex system, the jam can work its way back to the Preheat Platen and cause slack in the forms. This will allow the Tension Arm to raise, causing a 132 error. Go to MAP 0134: Fuser Wrap to diagnose the fuser jam problem.
- The problem may be caused by slipping at the Hot Roll. This can be caused by forms that have absorbed moisture or are smooth or coated.
- If running slick-surfaced labels, set the forms control switch to ″C″ (Plastic) setting.
- Excessive vacuum at the Vacuum Plate can cause the forms to drag. This may occur with low porosity forms, such as with plastic labels or coated forms.
- Exposed adhesive backing on the forms can cause the forms to drag, especially at the Preheat Platen.
- Check the Hot Roll area for noises that might indicate a bearing problem.

SERVICE CHECKS

- Run Sensor Routine 64 to display the Tension Arm positions.
- Run Encoder Routine A2 to check the Tractor Motor (M303) encoder. An error is indicated by **E1EC** on the Maintenance Panel.
- Run Driver Routine 10 to run the Tractor Motor (M303). An error is indicated by **E186** on the Maintenance Panel.
- Run Encoder Routine A3 to check the Hot Roll Motor (M607) encoder. An error is indicated by **E1ED** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Tension Arm Encoder (EN123)	20%	2125	3321	3090
Tension Arm Encoder (EN122)	20%	2125	3321	3090
Forms Width Sensor (PW091)	20%	2123	3333	3046
YS011 Card	20%	2116	3363	2627
Hot Roll Collars	04%	2073	3387	2537
Hot Roll Bearings	04%			2535
Scuff Rolls	04%	2073	3405	2590
Backup Roll	04	2073	3431	2503
Forms dragging	04%			

MAP 0132 BEGINS

Table 57. MAP 0132

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CKECKS, continue with the questions. If the forms jam in the hot roll area, the jam may back up onto the Preheat Platen and cause slack in the forms. This causes the Tension Arm to raise, causing an 0132 error. **Are the forms jamming in the fuser on Printer 2 of a duplex system?**	Go to MAP 0134: Fuser Wrap to diagnose the forms jam in the fuser.	Go to Step 2.
Step 2.	• Remove the forms. • Run Sensor Routine 64 to display the Tension Arm positions. • Slowly push the Tension Arm down, and check that each of the displays appear. **Did all of the displays appear?**	Go to Step 3.	Go to Step 10.
Step 3.	• Run Encoder Routine A2. **Did E1EC appear on the Maintenance Panel?**	There is a problem with the Tractor Motor (M303). Go to MAP 011D: Tractor Motor Overspeed.	Go to Step 4.

Table 57. MAP 0132 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Run Driver Routine 10. **Did E186 appear on the Maintenance Panel?**	There is a problem with the Tractor Motor (M303). Go to MAP 011D: Tractor Motor Overspeed.	Go to Step 5.
Step 5.	• Run Encoder Routine A3. **Did E1ED appear on the Maintenance Panel?**	The Hot Roll is turning too slowly. Go to MAP 013C: Hot Roll Underspeed.	Go to Step 6.
Step 6.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** • Remove the Hot Roll. • Inspect the plastic collars for breaks, cracks, or excessive wear. **Are the plastic collars at the ends of the Hot Roll in good condition?**	Go to Step 7.	• Install a new Hot Roll Plastic Collar. @
Step 7.	• Inspect the bearings at the front and rear of the Hot Roll. Check for unusually hard or discolored grease, or any indications of a binding bearing. **Are the Hot Roll bearings in good condition?**	Go to Step 8.	• Grease or repair as necessary. @

Table 57. MAP 0132 (continued)

Step	Questions/Actions	Yes	No
Step 8.	This problem may be caused by too much drag on the Vacuum Plate. • Go to Preheat Platen Vacuum Adjustment and check the vacuum at the Vacuum Plate with the forms that cause the problem. **Is the vacuum correct at the Vacuum Plate?**	Go to Step 9.	• See QUICK CKECKS about the forms dragging because of high vacuum caused by nonporous forms. You may perform the Preheat Platen Vacuum Adjustment, but watch for fusing problems with other forms as a result of reduced contact with the Preheat Platen.

Table 57. MAP 0132 (continued)

Step	Questions/Actions	Yes	No
Step 9.	• See QUICK CKECKS about possible problems with forms dragging because of moisture, adhesive, or vacuum. • Clean any adhesive from the machine, if necessary, particularly at the Preheat Platen. • Try to run plain, white, dry, paper forms. Run several hundred feet of forms, if necessary, to clean and stabilize the machine. **Will the forms run without error using plain paper?**	The problem appears to be caused by the forms. Ask the customer to discuss the problem with the forms supplier.	The forms appear to be slipping in the fuser. Do the following, one step at a time, until the problem is corrected: • Check for poor fusing or smeared print after fusing. This would indicate that there is not enough pressure provided by the Backup Roll. If so, install a new backup roll. • Especially if the problem occurs while feeding the forms with the Forms Feed key (that is, the Backup Roll is not loaded), the forms could be slipping at the Scuff Rolls. If so, install a new Scuff Roll. @

Table 57. MAP 0132 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Do the following, one step at a time, until the problem is corrected: • Check the following connectors for correct contact: – PJ141 – PJ302 – PJ305 – PJ306 • Install the new parts listed below, one at a time, until the problem is corrected: – Tension Arm Encoder Board (EN123) – Tension Arm Encoder Board (EN122) – Forms Width Sensor Board (PW091) – YS011 Card • Repair an open circuit between one of the following pairs of connectors: – PJ307-11 and PJ141-11 – PJ307-12 and PJ141-12 – PJ307-13 and PJ141-13 – PJ307-15 and PJ141-15 – PJ307-29 and PJ141-29 @		

MAP 0133: Skew Error

Symptom Explanation	Conditions That Could Cause This Symptom
The forms are not feeding straight through the fuser.	• Room light is falling on the Skew Sensor (D603). • The printer is not level. • There is a problem in the vacuum system. • The Backup Roll or Hot Roll are worn. • The Skew Sensor (D603) is dirty or has failed. • There is a problem with the steering mechanism. • There is a forms problem. • The Tension Arm is not adjusted correctly. • The Stacker Scuff Rolls are binding • The Preheat Control setting is too high.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD13 - Steering Motor (M601)
  CD12 - Skew Sensor (D604)
- Wiring Diagrams - WD49 - Motor M601 and Skew Sensor
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).
  An error is indicated by 0133 on the Display/Touch Screen or by **E07D** on the Maintenance Panel.

QUICK CHECKS

Important

To reset this error push the **Vacuum Pushbutton**:

- Once, to turn the vacuum off
- Once again, to turn the vacuum on

Then press **Check Reset** or **Ready**.

This error is stored in the printer's NVS memory, and cannot be cleared by only powering off.

1. If the machine has recently been installed or moved, ensure that it has been leveled. If you are certain that it has been, or if the fuser is too hot to check, continue with the remaining checks.
2. Ensure that the Skew Sensor (D603) is not exposed to room light.
3. If the printer is starting and stopping often, the forms can become skewed because it takes about six feet for the steering to stabilize.

   This problem can occur on certain complex print jobs. The forms path may stop on every page while waiting for the Control Unit to prepare the next page. See MAP 0010: Symptom Start MAP for the procedure to follow for a start/stop, or performance, problem.
4. Clean the Manifold Distribution Filter.
5. Inspect the grooves and ports in the Preheat Platen for paper dust and resins. If any are blocked, they must be cleaned.
6. Clean the Skew Sensor (D603). Use a pencil eraser if necessary.
7. Reinstall the forms. They may not have been installed straight.
8. Some forms have a tendency to skew, which is a result of the process by which they were formed. This paper property cannot be measured in the field. The problem can become worse with the higher settings on the Preheat Control. Try printing with the lowest possible Preheat Control setting.
9. Check if the problem only occurs with one form.

- Check the back side of the forms for dark markings between the pin feed holes at the front edge. This dark coloration can cause a false reading by the Skew Sensor (D603).
- The forms may have a curved edge. Take the forms from the box and fluff them so that they assume their natural stacking position. If the stack is leaning, twisting, or has a raised corner, they may have a problem. Also, perform the Perforation Accuracy Test. See the chapter entitled “General Guidelines for Selecting Forms” in the *Forms Design Reference for: Continuous Forms Advanced Function Printers* for details on this and other tests of the form.
- Unusual forms that are thicker or smoother on one half may cause this problem.
- The surface roughness is often different on the two sides of the form. If possible, try printing on the other side of the form.

10. You can disable the steering system by setting the MASW Switch on the B1J11 Card to position **5**. Ensure that the switch was not left in this position.
11. There may be some problem with the Scuff Rollers or the Scuff Pressure rollers.

    Check for missing, worn or binding rollers.

    If you have recently installed the pendulum assembly, check that the upper paper guide is not binding on the Scuff Rollers.

SERVICE CHECKS

- Run Sensor Routine 6E to determine if the Skew Sensor (D603) is working correctly.
- Perform the Check procedure under Preheat Platen Vacuum Adjustment.
- Run Driver Routine 23 to run the Steering Motor (M601) in both directions.
- When performing mechanical adjustments, you will want to know if the parts are correctly aligned. In other words, you will want to see if the forms track correctly without the assistance of the steering system.

  You can disable the steering system by setting the MASW Switch on the B1J11 Card to position **5**.

  This procedure is described in the Adjustment procedure under Skew Sensor (D603).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll	30	2073	3431	2503
Hot Roll Collars	30%	2073	3387	2537
Hot Roll	11%	2073	3387	2537
Backup Idler Roll	04%	2073	3241	2522
Steering Motor (M601)	04%	2064	3431	2611
Skew Sensor (D603)	04%	2064	3435	2604
Hot Roll Control Card HR091	04%	2064	3397	2534
Loose or binding steering mechanism	04%			
Scuff Rolls	04%	2073	3405	2590
B1J8 Card	02%	B1 Logic Card Links		
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J1 Card	01%	B1 Logic Card Links		
B1J9 Card	01%	B1 Logic Card Links		
Printer out of level	---			3679
Preheat Platen or vacuum system contamination	---			
Skew Sensor adjustment	---	2073	3435	2604

(continued on next page)

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Bridge parallelism adjustment	---			2199
Tension Arm parallelism adjustment	---			3105

Note: On new installations, ensure that the printer has been leveled. If the problem develops later, check for contamination in the Preheat Platen air passages and paper dust in the Distribution Manifold.

A 133 error can indicate more than one problem, for example, a forms problem and a worn Backup Roll (or a forms problem, dirty sensor, and so on).

Further, if the machine is wearing out Hot Rolls or Backup Rolls before their normal PM interval, the problem may be with the forms, the Hot Roll Collar, a slight twist in the frame, or the fuser casting not being parallel to the Transfer Station.

MAP 0133 BEGINS

Important

To reset this error push the **Vacuum Pushbutton**:

1. Once, to turn the vacuum off
2. Once again, to turn the vacuum on

Then press **Check Reset** or **Ready**.

This error is stored in the printer's NVS memory, and cannot be cleared by only powering off.

Table 58. MAP 0133

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If no you find problems using the QUICK CKECKS, continue with the questions. Room light falling on the Skew Sensor (D603) can cause this problem. **Are all the machine covers in place and closed?**	Go to Step 2.	• Close all the covers. If the problem contiues, go to Step 2.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The Backup Roll, Backup Idler Roll, or Hot Roll may be due for replacement. • Select **Logs** and then **PM Log** on the Service Actions menu. **Is PM due for:** • Hot roll • Backup roll • Backup idler roll	• Replace the indicated PM parts and verify the fix. • Check the usage counts of these parts in the PM log. They should have been replaced before this error occurred. You can modify the PM log to give yourself an earlier warning of an upcoming PM if this PM was late. See PM Log. @	Go to Step 3.
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. Even if these rolls are not due for PM, it is possible that one has had an early failure. It is also possible that one of the rolls has reached the end of its normal life, but there is no PM prompt because the PM counters were accidentally reset to zero or the wrong value for these items. This can happen if the logs are not transferred to the new diskette when new microcode is installed. • **Open the fuser area and allow it cool. While you wait, continue with the questions.** This MAP diagnoses the fuser area in later questions because it is too hot at this time. **Is the Manifold Distribution Filter clean?**	Go to Step 4.	• Clean the filter and the manifold enclosure. If the problem continues, reenter the MAP at the question above and answer Yes.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 4.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** • Visually inspect the grooves and ports in the Preheat Platen for paper dust and resins. **Are the Preheat Platen grooves and ports clean?**	Go to Step 5.	• Clean the grooves and ports. If the problem continues, reenter the MAP at the question above and answer Yes.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 5.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** • Without touching any hot parts, visually examine the Backup Roll, Backup Idler Roll, and Hot Roll for obvious defects, for example, cracks, wrong installation, or deep wear marks in their surfaces. **Do the Backup Roll, Backup Idler Roll, and Hot Roll appear to be in good condition?**	Go to Step 6.	The defective roll seems to have failed before the normal end of its life. Perform the following steps: • Remove the Hot Roll when it is cool and check if the plastic collars on the ends are broken. This condition may have caused the early failure of the defective roll. • Excessive wear marks that align with the edges of the form may indicate that the steering system was applying excessive pressure on one side to overcome another problem in the machine. After you install new parts, restart this MAP from the beginning to identify any other problems. • Install new parts as necessary. @

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Run Sensor Routine 6E. Fully cover and uncover the Skew Sensor (D603) with plain white paper while you watch the Maintenance Panel. **Hint** There are two sensors in this assembly, a right and a left skew. **Are the following displayed?** • **rL6E** - with the sensor covered • **6E** - with the sensor uncovered	Go to Step 8.	Go to Step 7.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Locate the LEDs on the Hot Roll Control Card HR091 labeled **D4** and **D5**. Fully cover and uncover the Skew Sensor (D603) with plain white paper while watching the LEDS. **Do you see the following?** • Both LEDs **off** - with the sensor covered • Both LEDs **on** - with the sensor uncovered	Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – B1J8 Card – Fuser Control Card (FSxxx) • Repair an open circuit between one of the following pairs of connectors: – PJ6007-21 and PJ6010-21 – PJ6007-22 and PJ6010-22 – PJ6007-23 and PJ6010-23 – PJ6007-24 and PJ6010-24 @	Do the following, one step at a time, until the problem is corrected: • Clean the Skew Sensor (D603). Use a pencil eraser if necessary. • Check connectors PJ638 and PJ6009 for correct contact. • Install a new Skew Sensor (D603). • Install a new Hot Roll Control Card HR091. • Repair an open circuit between one of the following pairs of connectors: – PJ6009-32 and PJ638-5 – PJ6009-33 and PJ638-4 – PJ6009-34 and PJ638-1 – PJ6009-35 and PJ638-2 – PJ6009-36 and PJ638-3 @

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 8.	The Skew Sensor (D603) is working correctly. Be aware that there may be more than one problem. For example, a problem form or adjustment may be causing an early failure of a Backup Roll. If the customer runs mostly one size of form, the wear pattern in the Backup Roll can cause steering problems when a wider form is run. In extreme cases, colors, coatings, or moisture may cause a problem if they transfer to the Backup Roll or Hot Roll, or are causing a slip condition. **Does the problem occur on more than one form?**	Go to Step 9.	Go to Step 21.
Step 9.	The Bridge may not be feeding the forms straight into the Fuser when doing an autoload. Perform the following steps: • Check for obvious problems like missing feed belts or rollers on the Bridge, and repair as necessary. • Perform the Check procedure under Bridge Height and Parallelism. **Is the Bridge parallelism correct?**	Go to Step 10.	• Perform the parallelism Adjustment procedure under Bridge Height and Parallelism.
Step 10.	• Perform the Check procedure under Tension Arm Position. **Is the Tension Arm position correct?**	Go to Step 11.	• Perform the Adjustment procedure under Tension Arm Position.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 11.	The Tension Arm may be twisted. This may cause a difference in tension between the front and rear edges of the form. This tension difference will prevent the correct tracking of the form. • Perform the Check procedure under Tension Arm Parallelism. **Is the Tension Arm parallelism correct?**	Go to Step 12.	• Perform the Adjustment procedure under Tension Arm Parallelism.
Step 12.	There may be a problem with the steering mechanism. • Remove the steering pulley cover and inspect the steering cables. **Are the steering cables loose?**	Adjust or repair the Steering Cables (2611).	Go to Step 13.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 13.	The Steering Motor (M601) or its control circuitry may be defective. • Run Driver Routine 23. Watch the Steering Pulley during the test. The Steering Motor (M601) will be driven: – 20 steps clockwise – 40 steps counterclockwise – 20 steps clockwise **Note:** In the following check, it is difficult to see the pulley. Watch the cables or use a mirror. You are checking for any motion, and for possible slipping of the pulley. Do not place your fingers on the outside of the pulley. They could be pinched between the cables and the rotating pulley. If necessary, raise the Autoload Bridge Assembly using Driver Routine 21. **Did the Steering Pulley move correctly during Driver Routine 23?**	Go to Step 14.	Go to Step 22.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 14.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** • See Level the Printer. **Are the Tractor Guide Shaft and Hot Roll level?**	Go to Step 15.	Perform the following steps: • Detach the Control Unit. • Level the printer. • Reattach the Control Unit. • Check the level and readjust if necessary. @
Step 15.	**Important** Before you remove the Hot Roll in this step, be aware that you must install new plastic collars after you have removed the Hot Roll. Reused plastic collars may break. • Remove the Hot Roll when it is cool and check for broken plastic collars. **Are the Hot Roll Plastic Collars in good condition?**	Go to Step 16.	• Install new Hot Roll Plastic Collars. @

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 16.	You have found no obvious problem. • **Install new Hot Roll Plastic Collars before you reinstall the Hot Roll**. • Install the Hot Roll. • Install a new Backup Roll. @ **Does the problem still occur?**	Go to Step 17.	• Check the usage count of this part in the PM log. It should have been replaced before this error occurred. You can change the end-of-life limit value for this part. See PM Log.
Step 17.	• Install a new Hot Roll. @ **Does the problem still occur?**	Go to Step 18.	• Check the usage count of this part in the PM log. It should have been replaced before this error occurred. You can change the end-of-life limit value for this part. See PM Log.
Step 18.	**Are the Preheat Platen hoses free of paper dust and moisture?**	Go to Step 19.	• Clean the hoses as necessary. If the problem continues, reenter this MAP at the question above and answer Yes.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 19.	• Perform the Preheat Platen Vacuum Adjustment. **Is the Preheat Platen Vacuum correct?**	Go to Step 20.	Do the following, one step at a time, until the problem is corrected: • Verify that the Vacuum Blower Motor (M105) is operating. • Inspect the vacuum hoses for cracks, breaks, and disconnected ends. @
Step 20.	It is possible to move the plate that supports the Skew Sensor (D603). The purpose is to move the sensor under the forms when the forms cannot be made to travel over the red line. • Perform the Adjustment procedure under Skew Sensor (D603). **Does the problem still occur?**	Carefully review the items in the QUICK CKECKS.	The problem was caused by the skew sensor adjustment.

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 21.	The failing form may be the problem. Some heavily preprinted forms have a tendency to skew. This problem can become worse with the higher settings on the Preheat Control. Try printing with the lowest possible Preheat Control setting. The forms may have a curved edge. Take the forms from the box and fluff them so that they assume their natural stacking position. If the stack is leaning, twisting, or has a raised corner, they may have a problem. Also, perform the Perforation Accuracy Test. See the chapter entitled “General Guidelines for Selecting Forms” in the “*Forms Design Reference for: Continuous Forms Advanced Function Printers*” for details on this and other tests of the form. The surface roughness is often different on the two sides of the form. If possible, try printing on the other side of the form. The form may be causing this problem if it is thicker or smoother on one side than the other. For example, there may be labels on half of the form towards the front or rear of the machine. • Contact your next level of support to analyze the failing form, if it is an unusual form. • To check for other machine problems, go back to Step 8 and answer Yes.		

Table 58. MAP 0133 (continued)

Step	Questions/Actions	Yes	No
Step 22.	Do the following, one step at a time, until the problem is corrected: • Check the Steering Pulley for slippage on the shaft. • Check the steering mechanism for binds. • Check the following connectors for correct contact: – PJ478 – PJ674 – PJ615 • Install the new parts listed below, one at a time, until the problem is corrected: – Steering Motor (M601) – B1J1 Card – B1J9 Card • Repair an open circuit between one of the following pairs of connectors: – PJ615-1 and PJ478-1 – PJ615-3 and PJ478-6 – PJ615-4 and PJ478-7 – PJ615-5 and PJ478-2 – PJ615-7 and PJ478-4 – PJ615-8 and PJ478-5 **Note:** Connector PJ674 is wired between these connectors. @		

MAP 0134: Fuser Wrap

Symptom Explanation	Conditions That Could Cause This Symptom
SRC 134 (FUSER WRAP) indicates that the forms have begun to wrap around the Backup roll. The switches are normally closed. A wrap condition causes the switches to open.	• There is a failure in the Scuff Roll Motor (M604), its drive circuits, or the Scuff Roll mechanism. • There is a failure in the Fuser Front Wrap Sensor (S617), Fuser Rear Wrap Sensor (S618), or their sensing circuits. (Printers without a Backup Idler Roll) • There is a failure in the Fuser Wrap Sensor (S620) or the sensing circuits. (Printers with a Backup Idler Roll) • Various operator causes described below under QUICK CKECKS. • Forms problems described under QUICK CKECKS.
Forms jam in the hot roll area on Printer 2 of a duplex system.	• Light weight forms with heavy print density or large areas of solid area fill may stick to the hot roll if the oil feed rate is too low or if the oiling system has failed.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD14 - Fuser Front Wrap Sensors (S617, S618, S620)
  CD15 -Scuff Roll Motor (M604)
  CD16 - Three-Pump Oiling System
- Wiring Diagrams -
  WD58 - Fuser and Stacker Sensors (FSxxx & HR091)
  WD33 - AC Motors (M604, M701, M702 & M803)
  WD54 - Oil Pumps L701, L702 & L703
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).

  An error is indicated by a SRC 134 on the Display/Touch Screen, **E07E** on the Maintenance Panel, or by a forms jam in the fuser area.

QUICK CHECKS

Important

To reset this error, clear the forms from the machine, then push the **Vacuum** pushbutton:

1. Once, to turn the vacuum off
2. Once again, to turn the vacuum on

Then press **Check Reset** or **Ready**.

This error is stored in the printer NVS memory, and cannot be cleared by only powering off.

- If there is also a stacker jam, the forms may have been pushed back into the sensors. Correct the stacker jam, and ensure that the folding direction of the forms is set correctly in the stacker and with the **FORMS SET** switch.
- If this is occurring during autoload, ensure that the first sheet is folded over the second sheet. Also, check if the leading edge of the form is curled, which would prevent it from feeding into the Scuff Rolls.
- Lightweight or slightly damp forms can cause wraps.
- Check for damaged or worn scuff rolls.
- If labels are printed on this machine, exposed adhesive on the backing or adhesive that has been deposited on the Backup Roll or Backup Idler Roll (Duplex Printer 2) can cause wraps. Inspect the forms and clean the Backup Roll. If this is a duplex system, also clean the Backup Idler Roll.
- If the forms are wrapping around the hot roll, the fuser oil feed rate may be too low, or the oil system may have failed.

SERVICE CHECKS

- Run Sensor Routine 70 to test the Fuser Front Wrap Sensor (S617) and Fuser Rear Wrap Sensor (S618).
- Run Driver Routine 29. This routine drives the Scuff Roll Motor (M604) for five seconds. You must watch for rotation, as no errors are displayed.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Fuser Wrap Sensor (S617, S618, S620)	40%	2073	3387	2530 for S617, S618 2532 for S620
Scuff Roll Motor (M604)	25%	2073	3403	2592
Scuff Roll Drive Belt	08%	2073	3405	2592
Oil Pump (Lxxx)	08%	2059	3395	2569
Hot Roll Control Card HR091	05%	2064	3397	2534
Fuser Control Card FSxxx	05%	2131	3499	2528
Relay Board RB091/RB092	05%	2135	3501	
Scuff rolls	04%	2073	3405	2590
Pendulum	---	2117	3461	3004
Pendulum Drive Belt	---	2117	3461	3004
Open or short circuit in wiring	---			

MAP 0134 BEGINS

Important

To reset this error, clear the forms from the machine, then push the **Vacuum** pushbutton:

1. Once, to turn the vacuum off
2. Once again, to turn the vacuum on.

Then press **Check Reset** or **Ready**.

This error is stored in the printer NVS memory, and cannot be cleared by only powering off.

Note: If a large number of 133 Skew Errors are also occurring and you can not repair the problem using this MAP, go to MAP 0133: Skew Error.

Table 59. MAP 0134

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 1.	If you find no problems using the QUICK CKECKS, continue with the questions. • Clear the fuser area of any jammed forms. • Inspect the Scuff Roll Drive Belt to determine if it is broken, stretched, or loose. It is easily visible behind the front fuser cover. **Is the Scuff Roll Drive Belt tight and in good condition?**	Go to Step 2.	• Tighten or install a new Scuff Roll Drive Belt, as necessary. @
Step 2.	There may be a problem with the Scuff Roll Motor (M604). The belt that you just checked is mounted on the Scuff Roll Drive Pulleys. • Run Driver Routine 29. **Do the Scuff Roll Drive Pulleys turn during the test?**	Go to Step 3.	Go to Step 9.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** There may be some problem with the Scuff Rollers or the Scuff Pressure Rollers, causing them to slip. • Open the Scuff Pressure Roller mounting rack, using the blue handle. • Check the Scuff Rolls and Scuff Pressure Rollers for missing, worn, or binding rollers. Also check for excess fuser oil on the surface of the rollers. • If you have recently installed the Pendulum Assembly, check that its upper paper guide is not binding on the Scuff Rollers. **Are the Scuff Pressure Rollers and Scuff Rollers turning freely and in good condition?**	Go to Step 4.	• Repair or install new rollers as necessary. @
Step 4.	A loosely attached or bent vane on the Pendulum can cause this problem. If a vane is not firmly mounted to its shaft, the two halves of the pendulum will be too close together. This prevents the forms from passing through the Pendulum. **Is the Pendulum in good condition?**	Go to Step 5.	• Repair the Pendulum as necessary. @

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 5.	**Is the Pendulum Drive Belt tight and in good condition?**	Go to Step 6.	• Tighten or install a new Pendulum Drive Belt as necessary. @
Step 6.	It is possible that the Scuff Roll is not providing enough tension. Perform the following checks. Use this procedure to check the Scuff Roll tension: • Load the forms. • Ensure that `Channels Disabled` is displayed. • Press the vacuum release pushbutton. • Hold the Tension Arm down. • Press the Stacker Table Up button. • Release the Tension Arm. • If the Tension Arm rises, the Scuff Rolls are not providing enough tension. **Are the Scuff Rolls providing enough tension?**	Go to Step 7.	• The Scuff Roll Release Cable may be too tight, preventing the Scuff Pressure Rollers from contacting the Scuff Rolls. See page 2594. • The Pressure Roll release lever may be contacting a bracket, preventing it from returning to the closed position. • The Scuff Rolls may have fuser oil on them, causing the forms to slip. • If the Pressure Rolls are loaded against the Scuff Rolls, there may not be enough side force on the Scuff Rolls. Move the clip on the Scuff Roll shaft to increase spring compression.
Step 7.	Fuser jams and hot roll wraps can be caused by a dry oiler belt or oiler wick roll. **Could the problem be caused by a low oiling rate?**	Go to Step 16.	Go to Step 8.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 8.	**Are the forms jams occurring on Printer 2 of a duplex system?** (Answer **No** if this is a simplex printer)	Go to Step 14.	Go to Step 11.
Step 9.	• Run Driver Routine 29. (Use the Run Option for continuous looping. First press E0, ENTER, FF, ENTER, then START/STOP.) **Is the voltage 200 V ac across P653-2 and P653-3 while the routine is running, and 0 V ac when the routine is stopped?**	• Install a new Scuff Roll Motor (M604) and Capacitor (C604). These parts are shipped together under one part number. @	Go to Step 10.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 10.	This step checks the Scuff Roll Motor (M604) relay pick circuit. **Hint** Use IBM miniprobe, PN 453718, in the following step. It may also be helpful to use the Maintenance Panel Extension Cable. Perform the following steps: • Measure for +24 V dc at PJ604-3 on the Relay Board RB091/RB092 . • Run Driver Routine 29. • Watch for the voltage to change between +24 and +1 V dc as the routine starts and stops. The values are approximate. **Does the voltage change at PJ604-3 as Driver Routine 29 starts and stops?**	There is a problem with the drive circuit. Do the following, one step at a time, until the problem is corrected: • Install a new Relay Board RB091/RB092 . • Repair an open circuit between one of the following pairs of connectors: – PJ653-2 and PJ602-15 – PJ653-3 and PJ602-4 **Note:** Connectors PJ620 and PJ622 are also in this circuit. • Install a new Scuff Roll Motor (M604) and Capacitor (C604). These parts are shipped together under one part number. @	There is a problem with the pick circuit. Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – B1J9 Card – Relay Board RB091/RB092 • Repair an open circuit between one of the following pairs of connectors: – PJ604-1 and PJ480-25 – PJ604-3 and PJ480-32 @
Step 11.	Fuser wraps can occur when a post processing device is attached and is not set correctly to take up the paper from the machine, either at start up or while running. **Does the postprocessing device accelerate fast enough and run fast enough to take up the paper from the machine, so there is no paper backing up?**	Go to Step 12.	• Have the operator set up the post processing device to take up the paper properly.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 12.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** One of the wrap sensors may be defective or binding. • Check that no forms are jammed in the Fuser Front Wrap Sensor (S617) and Fuser Rear Wrap Sensor (S618). • Check the condition of the actuators on the Fuser Front Wrap Sensor (S617) and the Fuser Rear Wrap Sensor (S618). Look for a bent or binding actuator on either of the two switches. • Run Sensor Routine 70. **Did oF70 appear on the Maintenance Panel during the test?**	The problem may be an intermittent binding switch actuator. • If this problem occurs again, install a new Fuser Front Wrap Sensor (S617) and Fuser Rear Wrap Sensor (S618).	Go to Step 13.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 13.	**on70** is displayed. This means that there is a false reading from the sensors. Either the switches or the circuits are bad. • SHUTDOWN AND POWER OFF THE PRINTER. • Locate the PJ6009 connector on the Hot Roll Control Card HR091 • Disconnect connector PJ6009 from the board. Check continuity on the free connector half, and not on the board. **Is there continuity between pins P6009-38 and P6009-39?**	Install a new Hot Roll Control Card HR091.	Do the following, one step at a time, until the problem is corrected: • Install a new Fuser Front Wrap Sensor (S617) and Fuser Rear Wrap Sensor (S618). • Repair an open circuit between one of the following pairs of connectors: – PJ6009-38 and PJ640-1 – PJ6009-39 and PJ640-2 – PJ640-3 and PJ640-4 @

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 14.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** The wrap sensor may be defective or binding. • Check that no forms are jammed in the Fuser Wrap Sensor (S620). • Check the condition of the actuator on the Fuser Wrap Sensor (S620). Ensure that when the sensor lever at the front of the printer is moved, that the switch actuator moves. Look for a bent or binding actuator or a defective spring at the switch. Also, check that the sensor lever at the front of the printer is not bent or binding. • Run Sensor Routine 70. **Did oF70 appear on the Maintenance Panel during the test?**	Go to Step 21.	Go to Step 15.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 15.	**on70** is displayed. This means that there is a false reading from the sensors. Either the switches or the circuits are bad. • SHUTDOWN AND POWER OFF THE PRINTER. • Locate the PJ6009 connector on the Hot Roll Control Card HR091 • Disconnect connector PJ6009 from the board. Check continuity on the free connector half, and not on the board. **Is there continuity between pins P6009-38 and P6009-39?**	• Install a new Hot Roll Control Card HR091. @	Do the following, one step at a time, until the problem is corrected: • Install a new Fuser Wrap Sensor (S620). • Repair an open circuit between one of the following pairs of connectors: – PJ6009-38 and PJ640-1 – PJ6009-39 and PJ640-2 @
Step 16.	Fuser jams and hot roll wraps can be caused by a dry oiler belt or oiler wick roll. • Inspect the oiler belt or oiler wick roll and hot roll area for oil. **Is the oiler belt or oiler wick roll dry?**	Go to Step 17.	Go to Step 18.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 17.	• Check the oil pump assembly oil level. **Is the oil pump assembly empty?**	Go to MAP 0792: Fuser Oil Empty to repair a “Fuser Oil Empty” condition that was not detected.	Do the following, one at a time, until the problem is corrected: • Check connector PJ745 for correct contact. • Install a new B1J5 Card. • Repair any shorts or opens from the oil pumps to PJ480. • Install a new B1J9 Card. After the problem is corrected, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil. @
Step 18.	• Remove the oiler belt and check to see if oil is being fed through all the oil holes when you run Driver Routines 2A, 2B, and 2C. Use run option **E0** with loop count **FF** for continuous operation for routines **2A**, then **2B**, then **2C**. Because the continuous loop option remains active for only one routine, you must enter **E0** and **FF** each time you run a routine. **Do all of the pumps work?**	Go to Step 21.	Go to Step 19.

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 19.	• Check for a loose or broken wire from PJ745 to the pump that did not work. **Is the wiring OK?**	Go to Step 20.	• Repair the wiring problem. • After the problem is corrected, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil.
Step 20.	To help isolate whether the pump/plumbing is defective or the driver circuit is defective, the drive circuit from a working pump will be applied to the pump that did not work. • Connect the wires from a working pump to the one that did not work. Run the driver routine for the pump that did work and check to see if oil is now fed. Remember to use the continuous feed option. **Is oil being fed now?**	• Reconnect the pump wires to their correct pump. Do the following, one at a time, until the oil feeds correctly when the oil pump driver routines are run: • Install a new B1J5 Card. • Install a new B1J9 Card. • Correct any wiring problem in the oil pump driver circuit. After the problem is corrected, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil. @	• Reconnect the pump wires to their correct pump. Do the following, one at a time, until the problem is corrected: • Repair any leaks in the oil supply system. • Install a new oil pump assembly. • Repair any blockages in the oil supply mechanism. After the problem is corrected, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil. @

Table 59. MAP 0134 (continued)

Step	Questions/Actions	Yes	No
Step 21.	Fuser jams and hot roll wraps can be caused by start/stop printing with a combination of light weight forms, heavy print coverage, and/or low fuser oil feed rate. The Forms Select switch controls the oil feed rate for different weight forms. Setting **B** provides twice as much oil as setting **A**. **Is the Forms Select switch on the Printer Control Panel (SW721) set on A?**	• Set the Forms Select switch on the Printer Control Panel (SW721) to **B**. This will double the oil feed rate. It may take several hundred feet of forms printing for the increased oil feed rate to have an effect on the fuser operation. • If the forms continue to jam in the fuser after increasing the oil feed rate, contact your next level of support.	If the Forms Select switch is set on **B** or **C**, the oil feed rate is already set at the maximum that the operator controls allow. The oil feed rate can be increased by changing the value in printer memory location FF20. The normal value for FF20 is **64**. Changing it to **48** increases the oil feed rate by one third. Changing it to **32** doubles the oil feed rate. • Use the Writing to Memory routine to change the oil feed rate in printer memory location **FF20**. It may take several hundred feet of forms printing for the increased oil feed rate to have an effect on the fuser operation. • If the forms continue to jam in the fuser after increasing the oil feed rate, contact your next level of support.

MAP 0135: Backup Roll Motor Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Backup-Roll Motor (M603), causing an overtemperature condition.	• The Backup-Roll Motor (M603) is defective. • A mechanical bind in the Backup Roll mechanism causing an overload of the Backup-Roll Motor (M603). • The Backup-Roll Motor (M603) Gear Head is defective. • The Relay Board RB091/RB092 is defective.
An Backup-Roll Motor (M603) overtemperature condition is detected, but the Backup-Roll Motor (M603) is not overheated.	• The thermal sensor in the Backup-Roll Motor (M603), or the sensor wiring, is defective. • The Fuser Control Card (FSxxx) is defective. • The +24VE circuit is open.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD18 - Backup Roll Motor and Thermal Sensor (M603)
- Wiring Diagrams - WD31 - AC Motors (M603, M605, M606 & M609)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. This routine operates the Backup-Roll Motor (M603) and checks the operation of the motor and open/close mechanism. An error is indicated by **E1d1** on the Maintenance Panel.
- Run Alternate Print Sample. An error is indicated by an SRC 135 on the Display/Touch Screen or by **E0d1** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by a SRC 135 on the Display/Touch Screen or by **E0d1** in the Maintenance Panel.

QUICK CHECKS

- Determine if the Backup-Roll Motor (M603) is actually hot or if the overtemperature error is false.

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup-Roll Motor (M603) and checks the operation of the motor and open/close mechanism.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll Motor (M603)	70%	2076	3393	2521
Backup Roll open/close mechanism	15%			
Backup Roll Motor (M603) gear head	10%	2076	3393	2521
Relay Board RB091/RB0902	03%	2135	3501	
Fuser Control Card FSxxx	%	2131	3499	2528
B1J9 Card	01%	B1 Logic Card Links		

MAP 0135 BEGINS

Table 60. MAP 0135

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	To correct this problem, you need to determine if the Backup-Roll Motor (M603) is actually overheating or if the errors are false. If the Backup-Roll Motor (M603) does actually overheat, the internal thermal-protect switch opens. This disables the motor drive circuit, and the motor will cool. When the motor cools, the internal thermal-protect switch closes. If the Backup-Roll Motor (M603) does not overheat, but the thermal error still occurs, there is a failure in the thermal sensing circuit. Use caution when you try to determine if the motor is actually overheating. The Backup-Roll Motor (M603) may be hot enough to burn your fingers if you touch it. • Run the machine long enough to recreate the failure. **Is the Backup-Roll Motor (M603) overheating?**	Go to Step 2.	Go to Step 3.

Table 60. MAP 0135 (continued)

Step	Questions/Actions	Yes	No
Step 2.	There is a problem with the Backup Roll Open/Close mechanism, or the Backup-Roll Motor (M603), causing it to overheat. • Manually raise and lower the Backup Roll to check for binds. **Is there any binding in the Backup Roll Open/Close mechanism?**	Adjust, repair, or replace the item as necessary. @	Do the following, one step at a time, until the problem is corrected: • Install a new Backup-Roll Motor (M603) and Capacitor (C603). • Install a new Backup-Roll Motor (M603) Gear Head. • Install a new Relay Board RB091/RB092 . @
Step 3.	The thermal errors are false, caused by a failure in the thermal sensing circuit. • Measure the voltage at PJ646-1. **Is the voltage +24 V dc?**	Go to Step 4.	Go to Step 5.
Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ646. • Measure the resistance between P646-1 and P646-2 (the motor side of the connector). **Is there continuity between P646-1 and P646-2?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ646-2 and PJ684-6 – PJ684-6 and PJ612-13 • Install a new Fuser Control Card (FSxxx). @	• Install a new Backup-Roll Motor (M603). @

Table 60. MAP 0135 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Measure the voltage at PJ612-8 on the Fuser Control Card (FSxxx). **Is the voltage +24 V dc?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between one of the following pairs of connectors: – PJ646-1 and PJ684-5 – PJ684-5 and PJ612-10 • Install a new Fuser Control Card (FSxxx). @	Repair an open circuit between one of the following pairs of connectors: • PJ612-8 and PJ629-1 • PJ629-1 and PJ604-6 • PJ604-6 and PJ604-4 • PJ604-4 and PJ480-26 @

MAP 0136: Backup Roll Position Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Backup Roll fails to close correctly.	• The Backup-Roll Motor (M603) and Capacitor (C603) assembly is defective. • The Backup Roll Open/Close mechanism has a mechanical failure. • The Backup-Roll Motor (M603) Gear Head is defective. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective.
The Backup Roll closes correctly, but the BUR Position Encoder Board (EN131) does not sense that it has closed.	• The Backup Roll Encoder is defective. • The BUR Position Encoder Board (EN131), or the Encoder wiring, is defective. • The Hot Roll Control Card HR091 is defective. • The Fuser Control Card (FSxxx) is defective. • The B1J8 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD19 - Backup Roll Motor (M603) and Encoder (EN131)
- Wiring Diagrams -
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD60 - Backup Roll and Backup Idler Roll Encoders (HR091 & FSxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. An error is indicated by **E198** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 136 on the Display/Touch Screen or by **E098** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by a SRC 136 on the Display/Touch Screen or by **E098** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup-Roll Motor (M603) and checks the operation of the motor and drive system.
- Run Sensor Routine 71. This routine tests the Backup Roll Open/Close sensor portion of the BUR Position Encoder Board (EN131).
- Run Sensor Routine 72. This routine tests the Backup Roll rotation sensor portion of the BUR Position Encoder Board (EN131).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll Motor (M603)	50%	2076	3393	2521
Backup Roll Position Encoder (EN131)	20%	2073	3407	2507
Backup Roll open/close mechanism	10%			
Backup Roll Motor (M603) gear head	10%	2076	3393	2521
RB091/RB092 Relay Board	05%	2135	3501	
Hot Roll Control Card HR091	02%	2064	3397	2534
Fuser Control Card FSxxx	01%	2131	3499	2528
B1J9 Card	01%	B1 Logic Card Links		
B1J8 Card	01%	B1 Logic Card Links		

MAP 0136 BEGINS

Table 61. MAP 0136

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Observe the Backup Roll load cams and shaft while you Run Driver Routine 25 several times. For normal operation, the cam shaft should rotate ½ revolution to the Backup Roll closed position, stop for 2 seconds and sound the buzzer, then rotate another ½ revolution to the open position and sound the buzzer again. If the motor circuit has failed, or if the cam shaft is bound up, the cam shaft may not rotate at all. If the Backup Roll Open/Close mechanism is binding, the cam shaft may start to rotate, but fail to complete the rotation because of the bind. If the BUR Position Encoder Board (EN131) circuit has failed, the cam shaft may rotate continuously for one or more complete revolutions before it stops. • Repeat Driver Routine 25 several times, if necessary. **Does the cam shaft ever rotate ½ revolution or more?**	Go to Step 2.	Go to Step 3.

Table 61. MAP 0136 (continued)

Step	Questions/Actions	Yes	No
Step 2.	There is a problem with the BUR Position Encoder Board (EN131) or its logic circuit. Or there may be a mechanical problem with the Backup Roll Encoder mechanism. • Remove the cover over the Backup Roll Encoder mechanism. • Check the condition of the Encoder disks. See Backup Idler Roll Position Encoder Board (EN131). **Are the Encoder disks causing the problem?**	• Adjust, repair, or replace the item as necessary. @	• Check for an open circuit in connectors PJ606, PJ6009, PJ6010, or PJ6007. • If that is not the problem, install the following, one at a time, until the problem is corrected: – BUR Position Encoder Board (EN131) – Hot Roll Control Card HR091 – Fuser Control Card (FSxxx) – B1J8 Card – B1J9 Card @
Step 3.	The Backup Roll Open/Close mechanism is binding, or the Backup-Roll Motor (M603) is failing to drive. • Manually raise and lower the Backup Roll Open/Close mechanism. **Note:** The springs on the mechanism are strong, but you should be able to raise it away from the cams with a reasonable amount of force. **Does the Backup Roll Open/Close mechanism move without binding?**	Go to Step 4.	• Adjust, repair, or replace the item as necessary. @

Table 61. MAP 0136 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Remove the Backup-Roll Motor (M603) and the gear box. • Rotate the gears in the gear box and check for binds or stripped gears. **Are the gears binding or stripped?**	• Install a new Gear Box. @	The Backup-Roll Motor (M603) or its drive circuit has failed. • Check for an open circuit between the Backup-Roll Motor (M603) connector PJ652 and the Relay Board RB091/RB092 connector PJ602. This circuit includes connectors PJ620 and PJ622. If that is not the problem, install the following, one at a time, until the problem is corrected: • Backup-Roll Motor (M603) and Capacitor (C603) assembly • Relay Board RB091/RB092 • B1J9 Card @

MAP 0137: Steering Motor Driver

Symptom Explanation	Conditions That Could Cause This Symptom
A hardware checker has detected that the driver for the steering motor is on solid.	• The B1J1 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Circuit Diagrams - CD13 - Steering Motor (M601)

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

- Install the new parts listed below, one at a time, until the problem is corrected.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J1 Card	85%	B1 Logic Card Links		
B1J9	15%	B1 Logic Card Links		

MAP 0138: Hot Roll Overspeed

Symptom Explanation	Conditions That Could Cause This Symptom
The output of the Hot Roll Motor (M607) encoder indicates that the Hot Roll is turning too fast.	• There is a problem in the Hot Roll Motor (M607) drive circuitry. • There is a problem in the speed detection circuitry.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD13 - Steering Motor (M601)
- Wiring Diagrams - WD51 - Motor M607

FIX VERIFICATION

- Print the Print Pack (1569).

  An error is indicated by an SRC 138 on the Display/Touch Screen or **E08d** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J3 Card	40%	B1 Logic Card Links		
B1J7	30%	B1 Logic Card Links		
Hot Roll Motor (M607)	20%	2076	3391	2541
B1J10 Card	10%	B1 Logic Card Links		

MAP 0138 BEGINS

Table 62. MAP 0138

Step	Questions/Actions	Yes	No
	<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.		
Step 1.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – B1J3 Card – B1J7 Card – Hot Roll Motor (M607) – B1J10 Card @		

MAP 0139: Backup Roll Overtravel Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Backup Roll fails to stop at the correct position.	• The Backup-Roll Motor (M603) is defective. • The Backup Roll mechanism has a mechanical failure. • The B1J8 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD19 - Backup Roll Motor (M603) and Encoder (EN131)
- Wiring Diagrams -
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD60 - Backup Roll and Backup Idler Roll Encoders (HR091 & FSxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. An error is indicated by **E195** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 139 on the Display/Touch Screen or by **E095** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 139 on the Display/Touch Screen or by **E095** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup-Roll Motor (M603) and checks the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll Motor (M603)	90%	2076	3393	2524
Backup Roll open/close mechanism	05%			
B1J8 Card	03%	B1 Logic Card Links		
B1J9 Card	02%	B1 Logic Card Links		

MAP 0139 BEGINS

Table 63. MAP 0139

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Observe the Backup Roll load cams and shaft while you Run Driver Routine 25 several times. For normal operation, the cam shaft should rotate ½ revolution to the Backup Roll closed position, stop for 2 seconds and sound the buzzer, then rotate another ½ revolution to the open position and sound the buzzer again. If the internal brake in the Backup-Roll Motor (M603) has failed, the cam shaft rotates past the Backup Roll closed position without stopping. The shaft continues on to the open position (low dwell of the cam), and the Maintenance Panel shows error code **E195** or **E197**. If some part of the Backup Roll Open/Close mechanism is loose or broken, the cam shaft may rotate past the Backup Roll closed position, also. • Repeat Driver Routine 25 several times, if necessary. **Does the cam shaft rotate past the Backup Roll closed position and cause an error?**	Go to Step 2.	The cam shaft must be rotating normally, as described in this step. The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Retrace your steps through this MAP. • If you find no problems, go to MAP 0001: Introduction.

Table 63. MAP 0139 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Does the error code change between E195 and E197 as you repeat Driver Routine 25?**	There may be a problem with the Backup Roll Encoder mechanism. Go to MAP 013A: Backup Roll Drive Signal On.	Go to Step 3.
Step 3.	• Examine the Backup Roll Open/Close mechanism for any mechanical failures, such as loose parts or broken springs. **Is there a mechanical failure?**	• Adjust, repair, or replace the item as necessary. @	Install the new parts listed below, one at a time, until the problem is corrected: • Backup-Roll Motor (M603) and Capacitor (C603) assembly. • B1J8 Card • B1J9 Card @

MAP 013A: Backup Roll Drive Signal On

Symptom Explanation	Conditions That Could Cause This Symptom
The Backup Roll fails to close correctly.	• The Backup-Roll Motor (M603) and Capacitor (C603) assembly is defective. • The Backup Roll Open/Close mechanism has a mechanical failure. • The Backup-Roll Motor (M603) Gear Head is defective. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective.
The Backup Roll closes correctly, but the BUR Position Encoder Board (EN131) does not sense that it has closed.	• The Backup Roll Encoder is defective. • The BUR Position Encoder Board (EN131), or the Encoder wiring, is defective. • The Fuser Control Card (FSxxx) is defective. • The Hot Roll Control Card HR091 is defective. • The B1J8 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD19 - Backup Roll Motor (M603) and Encoder (EN131)
- Wiring Diagrams -
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD60 - Backup Roll and Backup Idler Roll Encoders (HR091 & FSxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. An error is indicated by **E196** on the Maintenance Panel display.
- Run the Alternate Print Sample. An error is indicated by an SRC 13A on the Display/Touch Screen or by **E096** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 13A on the Display/Touch Screen or by **E096** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup-Roll Motor (M603) and checks the operation of the motor and drive system.
- Run Sensor Routine 71. This routine tests the Backup Roll Open/Close sensor portion of the BUR Position Encoder Board (EN131).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll Motor (M603)	50%	2076	3393	2521
Backup Roll Position Encoder (EN131)	20%	2073	3407	2507
Backup Roll open/close mechanism	10%			
Backup Roll Motor (M603) gear head	10%	2076	3393	2521
Relay Board RB091/RB092	05%	2135	3501	
Hot Roll Control Card HR091	%	2064	3397	2534
Fuser Control Card FSxxx	01%	2131	3499	2528
B1J9 Card	01%	B1 Logic Card Links		
B1J8 Card	01%	B1 Logic Card Links		

MAP 013A BEGINS

Table 64. MAP 013A

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Observe the Backup Roll load cams and shaft while you Run Driver Routine 25 several times. For normal operation, the cam shaft should rotate ½ revolution to the Backup Roll closed position, stop for 2 seconds and sound the buzzer, then rotate another ½ revolution to the open position and sound the buzzer again. If the motor circuit has failed, or if the cam shaft is bound up, the cam shaft does not rotate at all. If the Backup Roll Open/Close mechanism is binding, the cam shaft may start to rotate, but fail to complete the rotation because of the bind. If the BUR Position Encoder Board (EN131) circuit has failed, the cam shaft may rotate continuously for one or more complete revolutions before it stops. • Repeat Driver Routine 25 several times, if necessary. **Does the cam shaft ever rotate ½ revolution or more?**	Go to Step 2.	Go to Step 3.

Table 64. MAP 013A (continued)

Step	Questions/Actions	Yes	No
Step 2.	There is a problem with the BUR Position Encoder Board (EN131) or its logic circuit. Or there may be a mechanical problem with the Backup Roll Encoder mechanism. • Remove the cover over the Backup Roll Encoder mechanism. • Check the condition of the Encoder disks. **Are the Encoder disks causing the problem?**	Adjust, repair, or replace the item as necessary.	• Check for an open circuit in connectors PJ606, PJ6009, PJ6010, or PJ6007. If that is not the problem, install the following, one at a time, until the problem is corrected: • BUR Position Encoder Board (EN131) • Hot Roll Control Card HR091 • Fuser Control Card (FSxxx) • B1J8 Card • B1J9 Card @
Step 3.	The Backup Roll Open/Close mechanism is binding, or the Backup-Roll Motor (M603) is failing to drive. • Manually raise and lower the Backup Roll Open/Close mechanism. **Note:** The springs on the mechanism are strong, but you should be able to raise it away from the cams with a reasonable amount of force. **Does the Backup Roll Open/Close mechanism move without binding?**	Go to Step 4.	• Adjust, repair, or replace the item as necessary. @

Table 64. MAP 013A (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Remove the Backup-Roll Motor (M603) and the gear box. • Rotate the gears in the gear box and check for binds or stripped gears. **Are the gears binding or stripped?**	• Install a new Gear Box. @	The Backup-Roll Motor (M603) or its drive circuit has failed. • Check for an open circuit between the Backup-Roll Motor (M603) connector PJ652 and the Relay Board RB091/RB092 connector PJ602. This circuit includes connectors PJ620 and PJ622. If that is not the problem, install the following, one at a time, until the problem is corrected: • The Backup-Roll Motor (M603) and Capacitor (C603) assembly • The Relay Board RB091/RB092 • The B1J9 Card @

MAP 013B: Backup Roll Open Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Backup Roll fails to open correctly.	• The Backup-Roll Motor (M603) and Capacitor (C603) assembly is defective. • The Backup Roll Open/Close mechanism has a mechanical failure. • The Backup-Roll Motor (M603) Gear Head is defective. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective.
The Backup Roll opens correctly, but the BUR Position Encoder Board (EN131) does not sense that it has opened.	• The Backup Roll Encoder is defective. • The BUR Position Encoder Board (EN131), or the Encoder wiring, is defective. • The Hot Roll Control Card HR091 is defective. • The Fuser Control Card (FSxxx) is defective. • The B1J8 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD19 - Backup Roll Motor (M603) and Encoder (EN131)
- Wiring Diagrams - WD31 - AC Motors (M603, M605, M606 & M609)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. An error is indicated by **E197** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 13B on the Display/Touch Screen or by **E097** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 13B on the Display/Touch Screen or by **E097** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup-Roll Motor (M603) and checks the operation of the motor and drive system.
- Run Sensor Routine 71. This routine tests the Backup Roll Open/Close sensor portion of the BUR Position Encoder Board (EN131).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll Motor (M603)	50%	2076	3393	2521
BUR Position Encoder (EN131)	20%	2073	3407	2507
Backup Roll open/close mechanism	10%			
Backup Roll Motor (M603) gear head	10%	2076	3393	2521
RB091/RB092 Card	05%	2135	3501	
Hot Roll Control Card HR091	%	2064	3397	2534
Fuser Control Card FSxxx	01%	2131	3499	2528
B1J9 Card	01%	B1 Logic Card Links		
B1J8 Card	01%	B1 Logic Card Links		

MAP 013B BEGINS

Table 65. MAP 013B

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Observe the Backup Roll load cams and shaft while you Run Driver Routine 25 several times. For normal operation, the cam shaft should rotate ½ revolution to the Backup Roll closed position, stop for 2 seconds and sound the buzzer, then rotate another ½ revolution to the open position and sound the buzzer again. If the motor circuit has failed, or the cam shaft is bound up, the cam shaft may not rotate at all. If the Backup Roll Open/Close mechanism is binding, the cam shaft may start to rotate, but fail to complete the rotation because of the bind. If the BUR Position Encoder Board (EN131) circuit has failed, the cam shaft may rotate continuously for one or more complete revolutions before it stops. • Repeat Driver Routine 25 several times, if necessary. **Does the cam shaft ever rotate ½ revolution or more?**	Go to Step 2.	Go to Step 3.

Table 65. MAP 013B (continued)

Step	Questions/Actions	Yes	No
Step 2.	There is a problem with the BUR Position Encoder Board (EN131) or its logic circuit. Or there may be a mechanical problem with the Backup Roll Encoder mechanism. • Remove the cover over the Backup Roll Encoder mechanism. • Check the condition of the Encoder disks. **Are the Encoder disks causing the problem?**	Adjust, repair, or replace the item as necessary. @	• Check for an open circuit in connectors PJ606, PJ6009, PJ6010, or PJ6007. If that is not the problem, install the following, one at a time, until the problem is corrected: • BUR Position Encoder Board (EN131) • Hot Roll Control Card HR091 • Fuser Control Card (FSxxx) • B1J8 Card • B1J9 Card @
Step 3.	The Backup Roll Open/Close mechanism is binding, or the Backup-Roll Motor (M603) is failing to drive. • Manually raise and lower the Backup Roll Open/Close mechanism. **Note:** The springs on the mechanism are strong, but you should be able to raise it away from the cams with a reasonable amount of force. **Does the Backup Roll Open/Close mechanism move without binding?**	Go to Step 4.	• Adjust, repair, or replace the item as necessary. @

Table 65. MAP 013B (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Remove the Backup-Roll Motor (M603) and the gear box. • Rotate the gears in the gear box and check for binds or stripped gears. **Are the gears binding or stripped?**	• Install a new Gear Box. @	The Backup-Roll Motor (M603) or its drive circuit has failed. • Check for an open circuit between the Backup-Roll Motor (M603) connector PJ652 and the Relay Board RB091/RB092 connector PJ602. This circuit includes connectors PJ620 and PJ622. If that is not the problem, install the following, one at a time, until the problem is corrected: • Backup-Roll Motor (M603) and Capacitor (C603) assembly. • Relay Board RB091/RB092 • B1J9 Card @

MAP 013C: Hot Roll Underspeed

Symptom Explanation	Conditions That Could Cause This Symptom
The output of the Hot Roll Motor (M607) encoder indicates that the Hot Roll is turning too slowly in the open revolution mode.	• There is a problem in the Hot Roll Motor (M607) drive circuitry. • There is a problem in the speed-detection circuitry. • There is a mechanical bind causing a drag on the hot roll. • The forms are jamming in the fuser.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD20 - Hot Roll Motor Servo Control (M607)
- Wiring Diagrams - WD51 - Motor M607
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569). An error is indicated by an SRC 013C on the Display/Touch Screen or by **E09C** on the Maintenance Panel.

QUICK CHECKS

- If the forms jam in the fuser, they may cause enough drag on the hot roll to cause an underspeed error. If the form jams are causing the underspeed error, go to MAP 0134: Fuser Wrap to diagnose the fuser jam problem.

SERVICE CHECKS

- Run Driver Routine 26. This is only to make a visual check of the Hot Roll rotation in the open revolution mode. The Backup Roll will not be loaded. No errors are displayed from this test.
- Run Driver Routine 27. This is to make a visual check of the Hot Roll rotation with the Backup Roll loaded. No errors are displayed from this test.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J7 Card	40%	B1 Logic Card Links		
B1J3	30%	B1 Logic Card Links		
Hot Roll Motor (M607)	20%	2076	3391	2541
B1J10 Card	10%	B1 Logic Card Links		
Hot Roll bearing, gears and plastic collars	---	2073	3387	2537
Oil Pump (Lxxx)	%	2059	3395	2569
Backup Roll	---	2073	3431	2503

MAP 013C BEGINS

Table 66. MAP 013C

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 26. (Use the Run Option for continuous looping. First press E0, ENTER, FF, ENTER, then START/STOP.) **Does the Hot Roll rotate?**	Go to Step 3.	Go to Step 2.

Table 66. MAP 013C (continued)

Step	Questions/Actions	Yes	No
Step 2.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ677. • Prepare to measure +42 V dc between J677-1 and J677-2. The voltage may be displayed for only a few seconds. You may find it helpful to use the Maintenance Panel extension cable for this check. • Run Driver Routine 26. (Use the Run Option for continuous looping. First press E0, ENTER, FF, ENTER, then START/STOP.) • After you have checked the voltage, you will have to raise the Reset Switch on the B1J11 Card to clear the Maintenance Panel. **Was the voltage approximately +42 V dc at any time while the routine was running?**	• Install a new Hot Roll Motor (M607). @	The drive circuit has failed. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – B1J3 Card – B1J7 Card – B1J10 Card • Repair an open circuit between one of the following pairs of connectors: – PJ677-1 and PJ476-1 on the B1 Carrier Board – PJ677-2 and PJ476-2 on the B1 Carrier Board @
Step 3.	If the forms jam in the fuser, they may cause enough drag on the hot roll to cause an underspeed error. **Are fuser forms jams causing the underspeed error?**	Go to MAP 0134: Fuser Wrap to diagnose the fuser jam problem.	Go to Step 4.

Table 66. MAP 013C (continued)

Step	Questions/Actions	Yes	No
Step 4.	A binding Backup Roll may be causing a drag on the Hot Roll. **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** • SHUTDOWN AND POWER OFF THE PRINTER. • Rotate the Backup Roll by hand. **Does the Backup Roll turn freely?**	Go to Step 5.	• Install a new Backup Roll. @
Step 5.	This problem can be caused by a dry Oiler Belt. • Inspect the Oiler Belt area and Hot Roll for dryness, or an obvious condition that would cause a drag on the Hot Roll. **Is the Hot Roll correctly oiled?**	Go to Step 6.	Do the following, one step at a time, until the problem is corrected: • Ensure that the Forms Select Switch is set for the correct forms weight. • Ensure that the following printer memory addresses are set correctly. • Check for oil leaks. • Run Driver Routines 2A, 2B, 2B. Loop the tests as necessary to ensure that the pumps are working correctly. (continued on next page)

Table 66. MAP 013C (continued)

Step	Questions/Actions	Yes	No
Step 5 (cont.)			• Install the new parts listed below, one at a time, until the problem is corrected: – B1J5 Card – Oil Pump assembly – B1J9 Card @
Step 6.	**Important** Before you remove the Hot Roll in this step, be aware that you must install new plastic collars after you have removed the Hot Roll. Reused plastic collars may break. Perform the following steps: • Remove the Hot Roll. • Inspect the plastic collars for breaks, cracks, or excessive wear. **Are the plastic collars at the ends of the Hot Roll in good condition?**	Go to Step 7.	• Install new Hot Roll Plastice Collars as necessary. @
Step 7.	• Inspect the bearings at the front and rear of the Hot Roll. Check for unusually hard or discolored grease, or any indications of a binding bearing. **Are the Hot Roll bearings in good condition?**	Go to Step 8.	• Grease or repair as necessary. @

Table 66. MAP 013C (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Inspect the Hot Roll gears. Check for lubrication or binding problems. **Are the Hot Roll gears in good condition?**	The problem is a binding motor, a failing encoder, or a failure in the speed checking circuitry. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Hot Roll Motor (M607) – B1J7 Card – B1J10 Card – B1J3 Card • Repair an open circuit between PJ632-1 and PJ468-1 @	• Grease or repair as necessary. @

MAP 013D: Hot Roll Motor Blower Stopped

Symptom Explanation	Conditions That Could Cause This Symptom
No rotation of the Hot Roll Motor Blower (B602) is detected.	• The Hot Roll Motor Blower (B602) or its drive circuitry (electrical or binding) is defective. • The sensing circuitry is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD128 - Hot Roll Motor Blower (B602)
- Wiring Diagrams - WD27 - Motors B602, B703 & 200 VAC Blowers
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the All White Print Sample. An error is indicated by an SRC 13D on the Display/Touch Screen or by **E0d6** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 85. The blower rotational speed in revolutions per minute is displayed.
- To check for rotation of the blower, place paper near the blower inlet and feel for vacuum.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Blower Motor (B602)	80%	2076	3393	2546
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Relay (K503)	03%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Printer AC Power Supply	02%	2084	3507 (200V) 3509 (400V)	2635

MAP 013D BEGINS

Table 67. MAP 013D

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 67. MAP 013D (continued)

Step	Questions/Actions	Yes	No
Step 1.	Perform the following steps: • Locate the High Voltage Power Supply Fan (B604) and Upper Rear Fuser Fan (B605). • Run Sensor Routine 85. The sensor may have failed, so do not use the numbers on the Maintenance Panel at this time. You may notice that the fans are rotating whenever power is on. This is a normal condition. **Do the fans rotate while the routine is running?**	Go to Step 2.	Do the following, one step at a time, until the problem is corrected: • Power off the printer. • Check connector PJ521 for correct contact. • Install a new Relay (K503). If present, the problem is an open between terminals L2 and T2. • Repair an open circuit between one of the following pairs of connectors: – PJ622-11 and Terminal 4 on TB503 – PJ622-12 and Terminal 6 on TB503 – Terminal L2 on Relay (K503) to terminal T2 on Relay (K502) – Terminal T2 on Relay (K503) to PJ521 • Install a new Printer AC Power Supply. @

Table 67. MAP 013D (continued)

Step	Questions/Actions	Yes	No
Step 2.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** **Is the voltage 200 V ac across P657-1 and P657-2 when the routine is running?**	Go to Step 3.	• Power off the printer. • Repair an open circuit between one of the following pairs of connectors: – PJ657-1 and PJ622-11 – PJ657-2 and PJ622-12

Table 67. MAP 013D (continued)

Step	Questions/Actions	Yes	No
Step 3.	**Is the voltage 7 to 8 V ac across P649-1 and P649-2 when the routine is running?**	• Power off the printer. There is a failure in the sensing circuitry. Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Fuser Control Card (FSxxx) – B1J8 Card • Repair an open circuit between one of the following pairs of connectors: – PJ649-1 and PJ612-47 – PJ649-2 and PJ612-48 – PJ6005-63 and PJ466-63 – PJ6005-64 and PJ466-64 @	• Power off the printer. • Install a new Hot Roll Motor Blower (B602) and Capacitor (C608). These parts are shipped together under one part number. @

MAP 0141: Felt Oiler Belt Driver Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Felt Oiler motor drive signal is on continuously. The motor is locked and fails to run.	• The Oiler-Belt Motor drive circuitry is defective. • The Oiler-Belt Motor (M706) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD21 - Oiler Belt Motor and Driver (M706)
- Wiring Diagrams - WD53 - Motors M706 and M707
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 28. An error is indicated by **E18F** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 141 on the Display/Touch Screen or by **E08F** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by **..83** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 28. This routine operates the Oiler-Belt Motor (M706) for 200 steps (one revolution of the motor shaft) and checks the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J3 Card	60%	B1 Logic Card Links		
B1J9 Card	30%	B1 Logic Card Links		
Oiler-Belt Motor (M706)	10%	2073	3443	2564

MAP 0141 BEGINS

Table 68. MAP 0141

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Switch machine power off, then on to run the power-on diagnostics. **Did an ..83 error appear on the Maintenance Panel?**	Go to Step 2.	Go to Step 3.
Step 2.	There is a possible short circuit in the Oiler-Belt Motor (M706), which causes an overcurrent condition in the B1J3 Card. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect the Oiler Belt Motor connector PJ723. • Measure the resistance between: – P723-1 and 2 – P723-1 and 3 – P723-1 and 4 – P723-1 and 5 (the motor side of the connector) **Were any of the resistance readings below 5 ohms?**	• Install a new Oiler-Belt Motor (M706) and B1J3 Card. @	Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ723 or PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. @

Table 68. MAP 0141 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Driver Routine 28. An error is indicated by **E18F** on the Maintenance Panel. **Did an E18F error appear on the Maintenance Panel?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ723 or PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. @	The problem is intermittent. The possible failing parts are: • B1J3 Card • B1J9 Card @

MAP 0142: Oil Pump Driver Error

Symptom Explanation	Conditions That Could Cause This Symptom
One of the Oil Pump drive signals is on continuously.	• The Oil Pump drive circuitry is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD16 - Three-Pump Oiling System
- Wiring Diagrams -
  WD54 - Oil Pumps L701, L702 & L703
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routines 2A, 2B, 2B. An error is indicated by **E199** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 142 on the Display/Touch Screen or by **E099** on the Maintenance Panel.
- Switch machine power off, then on to run the power on diagnostics. An error is indicated by **..89**, **..8A**, or **..8B** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routines 2A, 2B, 2B. These routines operate the Oil Pumps and cause them to feed oil to the Oiler Belt and Oiler Wick Roll.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J5 Card	65%	B1 Logic Card Links		
B1J9 Card	35%	B1 Logic Card Links		
Oil Pump (Lxxx)	%	2059	3395	2569

MAP 0142 BEGINS

Table 69. MAP 0142

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Switch machine power off, then on to run the power-on diagnostics. **Did an ..89, ..8A, or ..8B error appear on the Maintenance Panel?**	Go to Step 2.	Go to Step 3.
Step 2.	There is a possibility of a short circuit in one of the Oil Pumps, which causes an overcurrent condition in the B1J5 Card. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect the Oil Pump connector PJ745. • Measure the resistance between: – P745-1 and 2 – P745-3 and 4 – P745-5 and 6, (the pump side of the connector) **Were any of the resistance readings below 5 ohms?**	One of the Oil Pumps is shorted, and the B1J5 Card is defective. Install the following new parts: • Oil Pump assembly • B1J5 Card @	Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ745, PJ776, or PJ480. • Install a new B1J5 Card. • Install a new B1J9 Card. @

Table 69. MAP 0142 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Driver Routines 2A, 2B, 2B. An error is indicated by **E199** on the Maintenance Panel. **Did an E199 error appear on the Maintenance Panel?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ745, PJ776, or PJ480. • Install a new B1J5 Card. • Install a new B1J9 Card. @	The problem is intermittent. The possible failing parts are: • B1J5 Card • B1J9 Card @

MAP 0143: Felt Oiler Belt Motor Always Driven

Symptom Explanation	Conditions That Could Cause This Symptom
The Felt Oiler motor drive signal is on continuously. The motor is locked and fails to run.	• The Oiler Belt Motor drive circuitry is defective. • The Oiler-Belt Motor (M706) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD21 - Oiler Belt Motor and Driver (M706)
- Wiring Diagrams - WD53 - Motors M706 and M707
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 28. An error is indicated by **E18F** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 143 on the Display/Touch Screen or by **E090** in the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by **..83** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 28. This routine operates the Oiler-Belt Motor (M706) for 200 steps (one revolution of the motor shaft) and checks the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J3 Card	60%	2126		
B1J9 Card	30%	B1 Logic Card Links		
Oiler-Belt Motor (M706)	10%	2073	3443	2564

MAP 0143 BEGINS

Table 70. MAP 0143

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Switch machine power off, then on to run the power-on diagnostics. **Did an ..83 error appear on the Maintenance Panel?**	Go to Step 2.	Go to Step 3.
Step 2.	There is a possibility of a short circuit in the Oiler-Belt Motor (M706), which causes an overcurrent condition in the B1J3 Card. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect Oiler Belt Motor connector PJ723. • Measure the resistance between: – P723-1 and 2 – P723-1 and 3 – P723-1 and 4 – P723-1 and 5, (the motor side of the connector) **Were any of the resistance readings below 5 ohms?**	The Oiler-Belt Motor (M706) is shorted and the B1J3 Card is defective. Install the following new parts: • Oiler-Belt Motor (M706) • B1J3 Card @	Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ723 or PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. @

Table 70. MAP 0143 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Driver Routine 28. An error is indicated by **E18F** on the Maintenance Panel. **Did an E18F error appear on the Maintenance Panel?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ723 or PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. @	The problem is intermittent. The possible failing parts are: • B1J3 Card • B1J9 Card @

MAP 0144: Felt Oiler Belt Motor Never Driven

Symptom Explanation	Conditions That Could Cause This Symptom
The Felt Oiler motor drive signal does not switch ON.	• The B1J9 Card is defective. • The B1J3 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD21 - Oiler Belt Motor and Driver (M706)
- Wiring Diagrams - WD53 - Motors M706 and M707
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 28. An error is indicated by **E191** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 144 on the Display/Touch Screen or by **E091** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by **..90**, **..91**, **..92**, or **..93** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 28. This routine operates the Oiler-Belt Motor (M706) for 200 steps (one revolution of the motor shaft) and checks the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J3 Card	55%	B1 Logic Card Links		
B1J9 Card	35%	B1 Logic Card Links		
Oiler-Belt Motor (M706)	10%	2073	3443	2564

MAP 0144 BEGINS

Table 71. MAP 0144

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Switch machine power off, then on to run the power-on diagnostics. **Did a ..90, ..91, ..92, or ..93 error appear on the Maintenance Panel?**	Go to Step 2.	Go to Step 3.
Step 2.	There is a possibility of a short circuit in the Oiler-Belt Motor (M706), which causes an overcurrent condition in the B1J3 Card. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect the Oiler Belt Motor connector PJ723. • Measure the resistance between: – P723-1 and 2 – P723-1 and 3 – P723-1 and 4 – P723-1 and 5, (the motor side of the connector) **Were any of the resistance readings below 5 ohms?**	The Oiler-Belt Motor (M706) is shorted and the B1J3 Card is defective. Install the following new parts: • Oiler-Belt Motor (M706) • B1J3 Card @	Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ723 or PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. @

Table 71. MAP 0144 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Driver Routine 28. An error is indicated by **E191** on the Maintenance Panel. **Did an E191 error appear on the Maintenance Panel?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ723 or PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. @	The problem is intermittent. The possible failing parts are: • B1J3 Card • B1J9 Card @

MAP 0145: Oil Pump Always Driven

Symptom Explanation	Conditions That Could Cause This Symptom
The Oil Pump drive signal is on continuously.	• The B1J9 Card is defective. • The B1J5 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD16 - Three-Pump Oiling System
- Wiring Diagrams -
  WD54 - Oil Pumps L701, L702 & L703
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routines 2A, 2B, 2B. An error is indicated by **E09A** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 145 on the Display/Touch Screen or by **E09A** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by **..89**, **..8A**, or **..8b** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routines 2A, 2B, 2B. These routines operate the Oil Pumps and check the operation of the drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J5 Card	65%	B1 Logic Card Links		
B1J9 Card	35%	B1 Logic Card Links		

MAP 0145 BEGINS

Table 72. MAP 0145

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Switch machine power off, then on to run the power on diagnostics. **Did an ..89, ..8A, or ..8b error appear on the Maintenance Panel.**	Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ745, PJ776, or PJ480. • Install a new B1J5 Card. • Install a new B1J9 Card. @	Go to Step 2.
Step 2.	• Run Driver Routines 2A, 2B, 2B. An error is indicated by **E199**, **E19A**, or **E19b** on the Maintenance Panel. **Did an E199, E19A, or E19b error appear on the Maintenance Panel?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ745, PJ776, or PJ480. • Install a new B1J5 Card. • Install a new B1J9 Card. @	The problem is intermittent. The possible failing parts are as follows: • B1J5 Card • B1J9 Card @

MAP 0146: Oil Pump Never Driven

Symptom Explanation	Conditions That Could Cause This Symptom
The Oil Pump drive signal does not turn on.	• The B1J9 Card is defective. • The B1J5 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD16 - Three-Pump Oiling System
- Wiring Diagrams -
  WD54 - Oil Pumps L701, L702 & L703
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routines 2A, 2B, 2B.An error is indicated by **E09b** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 146 on the Display/Touch Screen or by **E09b** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by **..89**, **..8A**, or **..8b** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routines 2A, 2B, 2B. These routines operate the Oil Pumps and check the operation of the drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J5 Card	65%	B1 Logic Card Links		
B1J9 Card	35%	B1 Logic Card Links		

MAP 0146 BEGINS

Table 73. MAP 0146

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Switch machine power off, then on to run the power-on diagnostics. **Did an ..89, ..8A, or ..8b error appear on the Maintenance Panel?**	Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ745, PJ776, or PJ480. • Install a new B1J5 Card. • Install a new B1J9 Card. @	Go to Step 2.
Step 2.	• Run Driver Routines 2A, 2B, 2B. An error is indicated by **E199**, **E19A**, or **E19b** on the Maintenance Panel. **Did an E199, E19A, or E19b error appear on the Maintenance Panel?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Check for an open connector PJ745, PJ776, or PJ480. • Install a new B1J5 Card. • Install a new B1J9 Card. @	The problem is intermittent. The possible failing parts are: • B1J5 Card • B1J9 Card @

MAP 0152: Scuff Roll Motor Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Scuff Roll Motor (M604), causing an overtemperature condition.	• The Scuff Roll Motor (M604) and Capacitor (C604) assembly is defective. • The Scuff Roll mechanism has a mechanical bind, causing an overload of the Scuff Roll Motor (M604). • The Scuff Roll Motor (M604) Gear Head is defective. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective.
A Scuff Roll Motor (M604) overtemperature condition is detected, but the Scuff Roll Motor (M604) is not overheated.	• The thermal sensor in the Scuff Roll Motor (M604), or the sensor wiring, is defective. • The Fuser Control Card (FSxxx) is defective. • The Hot Roll Control Card HR091 is defective. • The TH-5 24-volt circuit is open.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD15 -Scuff Roll Motor (M604)
- Wiring Diagrams - WD33 - AC Motors (M604, M701, M702 & M803)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 29. This routine operates the Scuff Roll Motor (M604) and checks the operation of the motor and Scuff Roll mechanism. An error is indicated by **E1C7** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 152 on the Display/Touch Screen or by **E0C7** on the Maintenance Panel.
- Press the **Up** pushbutton on the Stacker Control Panel (SW511) to operate the Scuff Roll Motor (M604). An error is indicated by an SRC 152 on the Display/Touch Screen or by **E0C7** on the Maintenance Panel.
- Switch printer power off, then on to run the power-on diagnostics. An error is indicated by an SRC 152 on the Display/Touch Screen or by **E0C7** on the Maintenance Panel.

QUICK CHECKS

- Determine if the Scuff Roll Motor (M604) is actually hot, or if the overtemperature error is false.

SERVICE CHECKS

- Run Driver Routine 29. This routine operates the Scuff Roll Motor (M604) to check the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Scuff Roll Motor (M604)	70%	2073	3403	2592
Scuff Roll drive mechanism	25%	2073		
Relay Board RB091/RB092	02%	2135	3501	
Fuser Control Card FSxxx	%	2131	3499	2528
Hot Roll Control Card HR091	%	2064	3397	2534
B1J9 Card	01%	B1 Logic Card Links		

MAP 0152 BEGINS

Table 74. MAP 0152

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	To correct this problem, you need to determine if the Scuff Roll Motor (M604) is actually overheating, or if the errors are false. If the Scuff Roll Motor (M604) does actually overheat, the internal thermal-protect switch opens. This disables the motor drive circuit, and the motor cools. When the motor cools, the internal thermal-protect switch closes. If the Scuff Roll Motor (M604) does not overheat, but the thermal error still occurs, there is a failure in the thermal-sensing circuit. Use caution when you try to determine if the motor is actually overheating. The Scuff Roll Motor (M604) may be hot enough to burn your fingers if you touch it. • Run the machine long enough to create the failure again. **Is the Scuff Roll Motor (M604) overheating?**	There is a problem with the Scuff Roll Motor (M604), causing it to overheat. Do the following, one step at a time, until the problem is corrected: • Check for a bind in the Scuff Roll drive mechanism. • Install a new Scuff Roll Motor (M604) and Capacitor (C604) assembly. • Install a new Relay Board RB091/RB092 . • Install a new B1J9 Card. @	Go to Step 2.

Table 74. MAP 0152 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The thermal errors are false and are caused by a failure in the thermal-sensing circuit. • Measure the voltage at PJ647-1. **Is the voltage +24 V dc?**	Go to Step 3.	Go to Step 4.
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ647. • Measure the resistance between PJ647-1 and PJ647-2 (the motor side of the connector). **Is there continuity between PJ647-1 and PJ647-2?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ647-2 and PJ6009-2. • Install a new Hot Roll Control Card HR091. @	• Install a new Scuff Roll Motor (M604) and Capacitor (C604) assembly. @
Step 4.	• Measure the voltage at PJ6010-39 on the Hot Roll Control Card HR091. **Is the voltage +24 V dc?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ647-1 and PJ6009-1. • Install a new Hot Roll Control Card HR091. @	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ6010-39 and PJ483-1 – PJ6010-40 and PJ6007-40 • Install a new Fuser Control Card (FSxxx). @

MAP 0153: Backup Idler Roll Not Closed

Symptom Explanation	Conditions That Could Cause This Symptom
The Backup Idler Roll fails to close correctly.	• The Backup Idler Roll Motor (M609) and Capacitor (C613) assembly is defective. • The Backup Idler Roll Open/Close mechanism has a mechanical failure. • The Backup Idler Roll Motor (M609) Gear Head is defective. • The Fuser Control Card (FSxxx) is defective. • The Relay Board (RB092) is defective.
The Backup Idler Roll closes correctly, but the BIR Position Encoder Board (EN131) does not sense that it has closed.	• The Backup Idler Roll Encoder is defective. • The BIR Position Encoder Board (EN131), or the Encoder wiring, is defective. • The Fuser Control Card (FSxxx) is defective. • The Hot Roll Control Card HR091 is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD22 - Backup Idler Roll (M609) and Encoder (EN131)
- Wiring Diagrams -
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD60 - Backup Roll and Backup Idler Roll Encoders (HR091 & FSxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. An error is indicated by **E1F0** on the Maintenance Panel.
- Print the Primary Print Sample. An error is indicated by an SRC 153 on the Display/Touch Screen or by **E0F0** on the Maintenance Panel.
- Switch the printer power off, then on to run the power-on diagnostics. An error is indicated by an SRC 153 on the Display/Touch Screen or by **E0F0** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup Idler Roll Motor (M609) and checks the operation of the motor and drive system.
- Run Sensor Routine 7B. This routine tests the Stop sensor portion of the BIR Position Encoder Board (EN131).
- Run Sensor Routine 7C. This routine tests the Open/Close sensor portion of the BIR Position Encoder Board (EN131).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Idler Roll Motor (M609)	50%	2076	3393	2524
BIR Position Encoder (EN131)	20%	2073	3407	2526
Backup Idler Roll open/close mechanism	10%			
Relay Board (RB092)	10%	2136	3501	
Backup Idler Roll Motor (M609) gear head	08%	2073	3393	2524
Fuser Control Card FSxxx	%	2131	3499	2528
Hot Roll Control Card HR091	%	2064	3397	2534

MAP 0153 BEGINS

Table 75. MAP 0153

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 75. MAP 0153 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• Observe the Backup Idler Roll load cams and shaft while you run Driver Routine 25 several times. Driver Routine **25** tests both the Backup Idler Roll and Backup Roll mechanisms and circuits. For normal operation, the Backup Idler Roll cam shaft should rotate ½ revolution to the closed position, stop for 2 seconds and sound the buzzer, then rotate another ½ revolution to the open position. Then the Backup Roll cam shaft should close, sound the buzzer, then open and sound the buzzer again. If the motor circuit has failed, or if the cam shaft is bound up, the cam shaft may not rotate at all. If the Backup Idler Roll Open/Close mechanism is binding, the cam shaft may start to rotate, but fail to complete the rotation because of the bind. If the BIR Position Encoder Board (EN131) circuit has failed, the cam shaft may rotate continuously for one or more complete revolutions before it stops. • Repeat Driver Routine 25 several times, if necessary. **Does the cam shaft ever rotate ½ revolution or more?**	Go to Step 9.	Go to Step 2.

Table 75. MAP 0153 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Run Sensor Routine 7B. Use a small piece of paper to test the outer sensor on the BIR Position Encoder Board (EN131). **Does the BIR Position Encoder Board (EN131) test good?**	Go to Step 3.	Go to Step 9.
Step 3.	The Backup Idler Roll Open/Close mechanism is binding, or the Backup Idler Roll Motor (M609) is failing to drive. • Manually raise and lower the Backup Idler Roll Open/Close mechanism. **Note:** The springs on the mechanism are strong, but you should be able to raise it away from the cams with a reasonable amount of force. **Does the Backup Idler Roll Open/Close mechanism move without binding?**	Go to Step 4.	• Adjust, repair, or replace as necessary. @
Step 4.	• Measure the voltage between PJ6001-1 and PJ6001-2 while you run Driver Routine 25. **Is the voltage 200 V ac across PJ6001-1 and PJ6001-2?**	Go to Step 5.	Go to Step 6.
Step 5.	• Remove the Backup Idler Roll Motor (M609) and the gear box. • Rotate the gears in the gear box and check for binds or stripped gears. **Are the gears binding or stripped?**	• Install a new Gear Box. @	• Install a new Backup Idler Roll Motor (M609) and Capacitor (C613) assembly. @

Table 75. MAP 0153 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Measure the voltage at PJ699-1. **Is the voltage +24 V dc?**	Go to Step 7.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ699-1 and PJ612-16. • Install a new Fuser Control Card (FSxxx). @
Step 7.	• Measure the voltage at PJ699-2. **Is the voltage +24 V dc?**	Go to Step 8.	• Install a new Relay Board (RB092). @
Step 8.	• Measure the voltage at PJ699-2 while you run Driver Routine 25. **Does the voltage change between +24 V dc and 0 V dc while Driver Routine 25 is running?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ6001-1 and PJ6000-1 – PJ6001-2 and PJ6000-3 • Install a new Relay Board (RB092). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ699-2 and PJ612-19. • Install a new Fuser Control Card (FSxxx). @

Table 75. MAP 0153 (continued)

Step	Questions/Actions	Yes	No
Step 9.	There is a problem with the BIR Position Encoder Board (EN131) or its logic circuit. Or there may be a mechanical problem with the Backup Idler Roll Encoder mechanism. • Remove the cover over the Backup Idler Roll Encoder mechanism. • Check the condition of the Encoder disks. **Are the Encoder disks causing the problem?**	• Adjust, repair, or replace the item as necessary. @	• Check for an open circuit in connector PJ6003 or PJ6009. If that is not the problem, install the following, one at a time, until the problem is corrected: • BIR Position Encoder Board (EN131) • Hot Roll Control Card HR091 @

MAP 0154: Backup Idler Roll Not Open

Symptom Explanation	Conditions That Could Cause This Symptom
The Backup Idler Roll fails to open correctly.	• The Backup Idler Roll Motor (M609) and Capacitor (C613) assembly is defective. • The Backup Idler Roll Open/Close mechanism has a mechanical failure. • The Backup Idler Roll Motor (M609) Gear Head is defective. • The Relay Board (RB092) is defective.
The Backup Idler Roll opens correctly, but the BIR Position Encoder Board (EN131) does not sense that it has opened.	• The Backup Idler Roll Encoder is defective. • The BIR Position Encoder Board (EN131), or the Encoder wiring, is defective. • The Fuser Control Card (FSxxx) is defective. • The Hot Roll Control Card HR091 is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD22 - Backup Idler Roll (M609) and Encoder (EN131)
- Wiring Diagrams -
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD60 - Backup Roll and Backup Idler Roll Encoders (HR091 & FSxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. An error is indicated by **E1EF** on the Maintenance Panel.
- Print the Primary Print Sample. An error is indicated by a SRC 154 on the Display/Touch Screen or by **E0EF** on the Maintenance Panel.
- Switch the printer power off, then on to run the power-on diagnostics. An error is indicated by an SRC 154 on the Display/Touch Screen or by **E0EF** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup Idler Roll Motor (M609) and checks the operation of the motor and drive system.
- Run Sensor Routine 7B. This routine tests the Stop sensor portion of the BIR Position Encoder Board (EN131).
- Run Sensor Routine 7C. This routine tests the Open/Close sensor portion of the BIR Position Encoder Board (EN131).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Idler Roll Motor (M609)	50%	2073	3393	2524
BIR Position Encoder (EN131)	20%	2073	3407	2526
Backup Idler Roll open/close mechanism	10%			
Relay Board (RB092)	10%	2136	3501	
Backup Idler Roll Motor (M609) gear head	08%	2073	3393	2524
Fuser Control Card FSxxx	%	2131	3499	2528
Hot Roll Control Card HR091	%	2064	3397	2534

MAP 0154 BEGINS

Table 76. MAP 0154

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 76. MAP 0154 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• Observe the Backup Idler Roll load cams and shaft while you run Driver Routine 25 several times. Driver Routine **25** tests both the Backup Idler Roll and Backup Roll mechanisms and circuits. For normal operation, the Backup Idler Roll cam shaft should rotate ½ revolution to the closed position, stop for 2 seconds and sound the buzzer, then rotate another ½ revolution to the open position. Then the Backup Roll cam shaft should close, sound the buzzer, then open and sound the buzzer again. If the motor circuit has failed, or if the cam shaft is bound up, the cam shaft may not rotate at all. If the Backup Idler Roll open/close mechanism is binding, the cam shaft may start to rotate, but fail to complete the rotation because of the bind. If the BIR Position Encoder Board (EN131) circuit has failed, the cam shaft may rotate continuously for one or more complete revolutions before it stops. • Repeat Driver Routine 25 several times, if necessary. **Does the cam shaft ever rotate ½ revolution or more?**	Go to Step 9.	Go to Step 2.

Table 76. MAP 0154 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Run Sensor Routine 7B. Use a small piece of paper to test the outer sensor on the BIR Position Encoder Board (EN131). **Does the BIR Position Encoder Board (EN131) test good?**	Go to Step 3.	Go to Step 9.
Step 3.	The Backup Idler Roll Open/Close mechanism is binding, or the Backup Idler Roll Motor (M609) is failing to drive. • Manually raise and lower the Backup Idler Roll Open/Close mechanism. **Note:** The springs on the mechanism are strong, but you should be able to raise it away from the cams with a reasonable amount of force. **Does the Backup Idler Roll Open/Close mechanism move without binding?**	Go to Step 4.	• Adjust, repair, or replace as necessary. @
Step 4.	• Measure the voltage between PJ6001-1 and PJ6001-2 while you run Driver Routine 25. **Is the voltage 200 V ac across PJ6001-1 and PJ6001-2?**	Go to Step 5.	Go to Step 6.
Step 5.	• Remove the Backup Idler Roll Motor (M609) and the gear box. • Rotate the gears in the gear box and check for binds or stripped gears. **Are the gears binding or stripped?**	• Install a new Gear Box. @	• Install a new Backup Idler Roll Motor (M609) and Capacitor (C613) assembly. @

Table 76. MAP 0154 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Measure the voltage at PJ699-1. **Is the voltage +24 V dc??**	Go to Step 7.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ699-1 and PJ612-16. • Install a new Fuser Control Card (FSxxx). @
Step 7.	• Measure the voltage at PJ699-2. **Is the voltage +24 V dc??**	Go to Step 8.	• Install a new Relay Board (RB092). @
Step 8.	• Measure the voltage at PJ699-2 while you run Driver Routine 25. **Does the voltage change between +24 V dc and 0 V dc while Driver Routine 25 is running?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ6001-1 and PJ6000-1 – PJ6001-2 and PJ6000-3 • Install a new Relay Board (RB092) @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ699-2 and PJ612-19. • Install a new Fuser Control Card (FSxxx). @

Table 76. MAP 0154 (continued)

Step	Questions/Actions	Yes	No
Step 9.	There is a problem with the BIR Position Encoder Board (EN131) or its logic circuit. Or there may be a mechanical problem with the Backup Idler Roll Encoder mechanism. • Remove the cover over the Backup Idler Roll Encoder mechanism. • Check the condition of the Encoder disks. **Are the Encoder disks causing the problem?**	• Adjust, repair, or replace the item as necessary. @	• Check for an open circuit in connector PJ6003 or PJ6009. If that is not the problem, install the following, one at a time, until the problem is corrected: • BIR Position Encoder Board (EN131) • Hot Roll Control Card HR091 @

MAP 0155: Backup Idler Roll Motor Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Backup Idler Roll Motor (M609), causing an overtemperature condition.	• The Backup Idler Roll Motor (M609) is defective. • A mechanical bind in the Backup Roll mechanism causing an overload of the Backup Idler Roll Motor (M609). • The Backup Idler Roll Motor (M609) gear head is defective. • The Relay Board (RB092) is defective.
An Backup Idler Roll Motor (M609) overtemperature condition is detected, but the Backup Idler Roll Motor (M609) is not overheated.	• The thermal sensor in the Backup Idler Roll Motor (M609), or the sensor wiring, is defective. • The Fuser Control Card (FSxxx) is defective. • The +24VE circuit is open.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD23 - Backup Idler Roll Motor and Thermal (M609)
- Wiring Diagrams - WD31 - AC Motors (M603, M605, M606 & M609)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 25. This routine operates the Backup Idler Roll Motor (M609) and checks the operation of the motor and open/close mechanism. An error is indicated by **E1d2** on the Maintenance Panel.
- Print the Primary Print Sample. An error is indicated by an SRC 155 on the Display/Touch Screen or by **E0d2** on the Maintenance Panel.
- Switch the printer power off, then on to run the power-on diagnostics. An error is indicated by an SRC 155 on the Display/Touch Screen or by **E0d2** on the Maintenance Panel.

QUICK CHECKS

- Determine if the Backup Idler Roll Motor (M609) is actually hot or if the overtemperature error is false.

SERVICE CHECKS

- Run Driver Routine 25. This routine operates the Backup Idler Roll Motor (M609) and checks the operation of the motor and open/close mechanism.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Idler Roll Motor (M609)	70%	2073	3393	2524
Backup Roll open/close mechanism	15%			
Backup Idler Roll Motor (M609) gear head	10%	2073	3393	2524
Relay Board (RB092)	03%	2135	3501	
Fuser Control Card FSxxx	%	2131	3499	2528

MAP 0155 BEGINS

Table 77. MAP 0155

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	To correct this problem, you need to determine if the Backup Idler Roll Motor (M609) is actually overheating or if the errors are false. If the Backup Idler Roll Motor (M609) does actually overheat, the internal thermal-protect switch opens. This disables the motor drive circuit, and the motor cools. When the motor cools, the internal thermal-protect switch closes. If the Backup Idler Roll Motor (M609) does not overheat, but the thermal error still occurs, there is a failure in the thermal sensing circuit. Use caution when you try to determine if the motor is actually overheating. The Backup Idler Roll Motor (M609) may be hot enough to burn your fingers if you touch it. • Run the machine long enough to recreate the failure. **Is the Backup Idler Roll Motor (M609) overheating?**	Go to Step 2.	Go to Step 3.

Table 77. MAP 0155 (continued)

Step	Questions/Actions	Yes	No
Step 2.	There is a problem with the Backup Idler Roll open/close mechanism, or the Backup Idler Roll Motor (M609), causing it to overheat. • Manually raise and lower the Backup Idler Roll to check for binds. **Is there any binding in the Backup Idler Roll Open/Close mechanism?**	• Adjust, repair, or replace the item as necessary. @	Do the following, one step at a time, until the problem is corrected: • Install a new Backup Idler Roll Motor (M609) and Capacitor (C613). • Install a new Backup Idler Roll Motor (M609) gear head. • Install a new Relay Board (RB092). @
Step 3.	The thermal errors are false, caused by a failure in the thermal sensing circuit. • Measure the voltage at PJ6002-1. **Is the voltage +24 V dc?**	Go to Step 4.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between PJ6002-1 and PJ612-14. • Install a new Fuser Control Card (FSxxx). @

Table 77. MAP 0155 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ6002. • Measure the resistance between P6002-1 and P6002-2 (the motor side of the connector). **Is there continuity between P6002-1 and P6002-2?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ6002-2 and PJ612-15. • Install a new Fuser Control Card (FSxxx). @	• Install a new Backup Idler Roll Motor (M609). @

MAP 0156: Backup Roll Lift Motor (M610) Position Error

Symptom Explanation	Conditions That Could Cause This Symptom
The position of the Backup Roll Lift Motor (M610) is incorrect and Backup Roll Lift Motor (M610) does not move.	• The Backup Roll Lift Motor (M610) is defective. • The SC101 Card is defective. • The B1J8 Card is defective.
The position of the Backup Roll Lift Motor (M610) cannot be determined, but the Backup Roll Lift Motor (M610) does move.	• The Backup Roll Lift Position Sensor (S624) is defective. • The Backup Roll Lift Motor (M610) Belt is defective. • The backup roll lift mechanism is binding. (Look for interference between the backup roll lift shaft and the Steering Motor.) • The SC101 Card is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD24 - Backup Roll Lift Motor (M610) and Position Sensor (S624)
- Wiring Diagrams - WD51.1 - Motor M610
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 9C. This routine checks the status of the Backup Roll Lift Position Sensor (S624).
- Run Driver Routine 4D. This routine checks the operation of the Backup Roll Lift Motor (M610).
- Print the Print Pack (1569). An error is indicated by an SRC 156 on the Display/Touch Screen or by **E0EE** on the Maintenance Panel.

QUICK CHECKS

- Check the Backup Roll Lift Motor timing. See Modify Backup Roll Lift Motor Open/Close Timing (Position 5).

SERVICE CHECKS

- Run Sensor Routine 9C. This routine checks the status of the Backup Roll Lift Position Sensor (S624).
- Run Driver Routine 4D. This routine operates the Backup Roll Lift Motor (M610) to check the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll Lift Motor (M610) belt	30%	2064	3437	2512
Backup Roll Lift Motor (M610)	20%	2064	3437	2509
Backup Roll Lift Position Sensor (S624)	20%	2064	3439	2520
Binding Backup Roll Lift mechanism	15%			
Stacker Control Card SCxxx	01%	2120	3457	3019
B1J8 Card	05%	B1 Logic Card Links		

MAP 0157: Backup Roll Lift Motor (M610) Overcurrent

Symptom Explanation	Conditions That Could Cause This Symptom
The Backup Roll Lift Motor (M610) is drawing too much current.	• The Backup Roll Lift Motor (M610) is defective. • The motor drive circuit has failed. • The current sensing circuit has failed. • The backup roll lift mechanism is binding. (Look for interference between the backup roll lift shaft and the Steering Motor.)

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD24 - Backup Roll Lift Motor (M610) and Position Sensor (S624)
- Wiring Diagrams - WD51.1 - Motor M610
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 4D. This routine checks the operation of the Backup Roll Lift Motor (M610). An error is indicated by **E1D5** on the Maintenance Panel.
- Print the **Print Pack** (1569). An error is indicated by an SRC 157 on the Display/Touch Screen or by **E0D5** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 4D. This routine operates the Backup Roll Lift Motor (M610) to check the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Backup Roll Lift Motor (M610)	60%	2064	3437	2509
Binding Backup Roll Lift mechanism	25%			
Stacker Control Card SCxxx	10%	2120	3457	3019
B1J8 Card	05%	B1 Logic Card Links		

MAP 0161: Stacker Jams (Light Never Sensed)

Symptom Explanation	Conditions That Could Cause This Symptom
Forms jam in the stacker	• The forms Set switch setting is wrong. • Forms are not folding correctly. • The Forms Width guide is set wrong. • The Forms Length setting is wrong. • The Finger Belts are broken, loose, or worn. • The Stacker Table is not lowering correctly. • The Stacker Height LEDs and Sensors are dirty, out of adjustment, or defective. • Forms are out of specification. • The finger belt motor drive belt is broken or loose. • Pin feed holes are torn. • The Pendulum Position Sensor (S619) is out of adjustment. • The finger belt motor, capacitor, or gear box is defective. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective. • The B1J8 Card is defective. • The Pendulum Motor (M704) is defective
False stacker-jam errors occur	• The Stacker Jam Sensor Lamp, Receiver, or Mirror is dirty. • The Stacker Jam Sensor is out of adjustment. • The Stacker Jam LED (PL701) is defective. • The Stacker Jam Sensor (Q701) is defective. • The Stacker Jam Sensor circuit has an open connector or broken wire. • The Stacker Control Card (SCxxx) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD25 - Finger Belt Motors (M701, M702)
  CD26 - Stacker Jam Sensor (Q701)
- Wiring Diagrams -
  WD33 - AC Motors (M604, M701, M702 & M803)
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 75. This routine checks the status of the Stacker Jam Sensor.
- Run Driver Routine 1B. This routine checks the operation of the Stacker Table Motor (M803).
- Run Driver Routine 1C. This routine checks the operation of the Stacker Finger Belts.
- Run the Alternate Print Sample. An error is indicated by STACKER JAM 161 on the Display/Touch Screen or by **E080** on the Maintenance Panel.

QUICK CHECKS

Note: The Stacker Jam error cannot be reset unless you press the stacker table down switch or you open the stacker gate.

1. Ensure that the forms set switch is set correctly.
2. Ensure that the forms are folding in the correct direction.
3. Check for dust or chads on the Stacker Jam LED, mirrors, and receiver.
4. Ensure that all of the upper Stacker Height LEDs and Photosensors are clean and operating correctly.
5. Ensure that the forms width guide is set correctly.
6. Ensure that the forms length setting is correct.
7. Check for broken, loose, or worn Stacker Finger Belts.
8. Run the Stacker Table up and down several times. Check for binds, broken belts, and so on. If you get a Stacker Table SRC 172 or 175, go to that MAP and correct the Stacker Table problem.
9. Check for torn pin feed holes causing the forms to stack wrong.
10. Clear the forms jam and retry.
11. Try a different type or weight of forms.

Hint

If your customer is having difficulty getting box paper to refold in the stacker of the second printer in a duplex system, the problem may be stiff perforations. Refer to the *Forms Design Reference Guide*, and also contact your marketing representative for assistance.

SERVICE CHECKS

1. Run Sensor Routine 75 to check the status of the Stacker Jam Sensor.
2. Run Driver Routine 1B to check the operation of the Stacker Table Motor (M803)
3. Run Driver Routine 1C to check the operation of the Stacker Finger Belts.
4. Run Sensor Routine 8D to check the status of the Right Stacker Height Sensor (Q702).
5. Run Sensor Routine 8E to check the status of the Left Stacker Height Sensor (Q703).
6. Run Driver Routine 18 to check the operation of the Pendulum mechanism.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Operator control switches set wrong	15%			
Forms folding incorrectly	10%			
Stacker Jam Sensor dirty	10%	2117	3471	2978
Stacker Jam Sensor out of adjustment	10%	2117	3471	2978
Finger belts broken, loose, or worn	10%	2118	3475 (left) 3481 (right)	, 2984 (left) 2990 (right)
Stacker height LEDs and photosensors dirty, out of adjustment, or defective	05%	2117 (sensors) 2118 (LEDs)	3471 (left) 3483 (right)	2973
Forms out of specifications	05%			
Left Finger Belt Motor (M701) drive belt	05%	2118	3475	2984
Right Finger Belt Motor (M702) drive belt	05%	2117	3481	2990
Torn pin feed holes	04%			
Pendulum Position Sensor (S619) out of adjustment	03%	2117	3463	3007
Left Finger Belt Motor (M701)	03%	2118	3475	2984
Right Finger Belt Motor (M702)	03%	2118	3481	2990

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
RB091/RB092 Relay Board	03%	2135, 2136	3501	
Stacker Jam LED (PL701)	02%	2117	3471	2978
Stacker Jam Sensor (Q701)	02%	2117	3471	2978
Capacitor (C702) (part of M701 Motor Asm)	01%	2118	3475	2984
Capacitor (C703) (part of M702 Motor Asm)	01%	2118	3481	2990
B1J9 Card	01%	B1 Logic Card Links		
B1J8 Card	01%	B1 Logic Card Links		
Stacker Control Card SCxxx	01%	2120	3457	3019
Pendulum Motor (M704)	01%	2117	3461	3004

MAP 0161 BEGINS

Table 78. MAP 0161

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CKECKS, continue with the questions. If the Stacker Table does not lower correctly, the forms stack high enough to operate the Stacker Jam Sensor. If the Stacker Table does not lower when the Stacker Table Down pushbutton is pressed, the error symptom may change to an SRC 172 or 175 after a delay of approximately 30 seconds. • Press the Stacker Table Down pushbutton. **Does the Stacker Table lower correctly?**	Go to Step 2.	Go to Step 9.
Step 2.	If the Stacker Height Sensors fail, the Stacker Table may step down faster than normal. This results in a loose stack of forms, which may cause stacker jams or the forms may flow out onto the floor. • Run Sensor Routine 8D to check the status of the Right Stacker Height Sensor (Q702). **Does the Right Stacker Height Sensor (Q702) test correctly?**	Go to Step 3.	Go to MAP 0172: Stacker Table Timeout, Step 1.

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Sensor Routine 8E to check the status of the Left Stacker Height Sensor (Q703). **Does the Left Stacker Height Sensor (Q703) test correctly?**	Go to Step 4.	Go to MAP 0172: Stacker Table Timeout, Step 1.
Step 4.	• Run Sensor Routine 75 to check the status of the Stacker Jam Sensor (Q701). **Does the Stacker Jam Sensor (Q701) test correctly?**	Go to Step 5.	The problem is false stacker jams. Go to Step 13.
Step 5.	• Carefully check the condition of the Stacker Finger Belts. Look for worn fingers and broken or missing belts. Ensure that the belts are installed so that the fingers are staggered, rather than aligned. **Are the Stacker Finger Belts in good condition with the fingers staggered?**	Go to Step 6.	• Adjust, repair, or replace as necessary. @
Step 6.	• Run Driver Routine 1C to operate the Stacker Finger Belts. **Do the Stacker Gate (Left) Finger Belts and Inner (Right) Finger Belts both rotate when you run Driver Routine 1C?**	Go to Step 7.	Go to Step 11.
Step 7.	One of the V-belts that drives the Stacker Finger Belts may be slipping. • Check the tension of the Left Finger Belt Motor (M701) drive belt and the Right Finger Belt Motor (M702) drive belt. **Are both belt tensions correct?**	Go to Step 8.	• Adjust, repair, or replace as necessary. @

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 8.	The timing of the Pendulum swing may be wrong. • Run the All White Print Sample and observe the pendulum motion as the forms enter the stacker. Watch very carefully for: – Pendulum motion – Misfolds – Stacker table descending too quickly, especially with lightweight forms. **Note:** This condition can also be caused by air flow in the stacker. See also Step 23. **Is the pendulum timing in synchronization with the perforations so that the forms are folding correctly?**	Go to Step 22.	Go to Step 23.
Step 9.	**Does the Stacker Table go up when you press the Down pushbutton?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ604-18 and PJ480-34. • Install a new Relay Board RB091/RB092 . • Install a new B1J9 Card. • Install a new B1J8 Card. @	Go to Step 10.

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Press the **Down** pushbutton and wait approximately 30 seconds. **Does the error symptom change to an SRC 172 or 175?**	If you get an SRC 172 or 175, go to that MAP and repair the Stacker Table problem.	• Check for broken Stacker Table drive belts. • Obstructions in the path of the Stacker Table. • Binds in the Stacker Table drive mechanism. @
Step 11.	**Do the Stacker Gate (Left) Finger Belts rotate when you run Driver Routine 1C?**	Do the following, one step at a time, until the problem is corrected: • Check for a loose or broken Right Finger Belt Motor (M702) drive belt. • Repair an open circuit between one of the following pairs of connectors: – PJ717-1 and PJ602-5 – PJ717-2 and PJ602-7 • Check for a binding or stripped gear box on the Right Finger Belt Motor (M702). • Install a new Right Finger Belt Motor (M702) and Capacitor (C703) assembly. @	Go to Step 12.

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 12.	**Do the Inner (Right) Finger Belts rotate when you run Driver Routine 1C?**	Do the following, one step at a time, until the problem is corrected: • Check for a loose or broken Left Finger Belt Motor (M701) drive belt. • Repair an open circuit between one of the following pairs of connectors: – PJ715-1 and PJ602-5 – PJ715-2 and PJ602-7 • Check for a binding or stripped gear box on the Left Finger Belt Motor (M701). • Install a new Left Finger Belt Motor (M701) and Capacitor (C702) assembly. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ715-1 and PJ602-5 – PJ715-2 and PJ602-7 – PJ717-1 and PJ602-5 – PJ717-2 and PJ602-7 – PJ604-9 and PJ480-30 • Install a new Relay Board RB091/RB092 . • Install a new B1J9 Card. @

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 13.	**Note:** Measure the voltage measurements in the following steps when Sensor Routine 75 is active. If the printer is in Diagnostic Mode and Sensor Routine 75 is not active, the voltage at the Stacker Jam LED (PL701) is lower than normal. This causes the voltage measurements in the following steps to be too low. • Clear all forms from the Stacker and reset any error conditions. • Clean the lamp, mirrors, and receiver on the Stacker Jam Sensor assembly. • Run Sensor Routine 75. • With no forms in the Stacker and Sensor Routine 75 active, measure the voltage between TP-1 and TP-G on the Stacker Control Card (SCxxx). The voltage reading should be + 4.7 V dc or higher, when the sensor is adjusted correctly. **Is the voltage greater than + 4.7 V dc?**	Go to Step 24.	Go to Step 14.
Step 14.	**Is the voltage greater than + 1.0 V dc and less than + 4.7 V dc?**	Go to Step 15.	Go to Step 16.

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 15.	• Clean the lamp, mirrors, and receiver on the Stacker Jam Sensor assembly. Also check for loose mirrors on the Jam Sensor assembly. • With no forms in the Stacker and Sensor Routine 75 active, measure the voltage between TP-1 and TP-G on the Stacker Control Card (SCxxx). The voltage reading should be +4.7 V dc or higher, when the sensor is adjusted correctly. **Is the voltage greater than +4.7 V dc?**	Cleaning the Jam Sensor fixed the problem.	• Perform the Stacker Jam Sensor adjustment. @
Step 16.	The voltage must be less than + 1.0 V dc. **Is Stacker Jam LED (PL701) emitting red light?**	Go to Step 17.	Go to Step 20.
Step 17.	• Place a small piece of white paper over the end of the Stacker Jam Sensor (Q701) so you can see the beam of red light from the LED. **Is the beam of light adjusted so it shines on the Stacker Jam Sensor (Q701)?**	Go to Step 18.	• Perform the Stacker Jam Sensor adjustment. Also check for loose mirrors on the Jam Sensor assembly. @
Step 18.	• With Sensor routine 75 still active, measure the voltage between PJ702-1 and the frame ground. **Is the voltage greater than +4.7 V dc?**	Go to Step 19.	• Check for an open circuit between PJ702-1 and PJ157-3. If that is not the problem: • Install a new Stacker Control Card (SCxxx). @

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 19.	• With Sensor Routine 75 still active, measure the voltage between PJ702-2 and the frame ground. **Is the voltage greater than +1.0 V dc?**	• Check for an open circuit between PJ702-2 and PJ157-4. If that is not the problem: • Install a new Stacker Control Card (SCxxx). @	• Install a new Stacker Jam Sensor (Q701). @
Step 20.	• With Sensor Routine 75 still active, measure the voltage at PJ711-1. **Is the voltage greater than +4.7 V dc?**	Go to Step 21.	• Check for an open circuit between PJ711-1 and PJ157-1. If that is not the problem: • Install a new Stacker Control Card (SCxxx). @
Step 21.	• With Sensor Routine 75 still active, measure the voltage at PJ711-2. **Is the voltage greater than +4.7 V dc?**	• Check for an open circuit between PJ711-2 and PJ157-2. If that is not the problem: • Install a new Stacker Control Card (SCxxx). @	• Install a new Stacker Jam LED (PL701). @

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 22.	Do the following, one step at a time, until the problem is corrected: • Check for bent forms guides in the Stacker. • Run Driver Routine 1B to check for any problem with the Stacker table mechanism. • Check the direction and amount of air flow from the Stacker Cooling Blower (B703) to ensure that it is not blowing the top part of the forms stack up high enough to be blocking the Jam sensor. There is a small deflector in the outlet of the Stacker Cooling Blower (B703). This deflector may be moved slightly to change the direction and amount of air flow from the blower. • If the forms stack is rising at the corners or leaning, try a different type of forms. • Repeat the QUICK CKECKS. • Do the SERVICE CHECKS.		
Step 23.	Do the following, one step at a time, until the problem is corrected: • Run Driver Routine 18 to check for any problems with the Pendulum mechanism. Check for any loose, broken, or bent parts, especially the drive belt and motor coupling. • Perform the Pendulum Position Sensor (S619) adjustment. • Check the error log for any of the following SRCs. There may be intermittent or related failures with the Pendulum drive. Install new parts from the MAP for the SRC you found, beginning with the Pendulum Motor (M704). – 162 – 163 – 165 – 166 – 167 @		

Table 78. MAP 0161 (continued)

Step	Questions/Actions	Yes	No
Step 24.	If the forms are not jamming and the sensor voltage measurement is okay, do the following, one step at a time, until the problem is corrected. • Check for bent forms guides in the Stacker. • Run Driver Routine 1B to check for any problem with the Stacker table mechanism. • Check the direction and amount of air flow from the Stacker Cooling Blower (B703) to ensure that it is not blowing the top part of the forms stack up high enough to be blocking the Jam sensor. There is a small deflector in the outlet of the Stacker Cooling Blower (B703). This deflector may be moved slightly to change the direction and amount of air flow from the blower. • If the forms stack is rising at the corners or leaning, try a different type of form. • Repeat the QUICK CKECKS. • Do the SERVICE CHECKS.		

MAP 0162: Pendulum Motor Overcurrent

Symptom Explanation	Conditions That Could Cause This Symptom
The pendulum drive current as detected by the Stacker Control Card (SCxxx) is beyond error limits.	• The pendulum motor driver circuit is defective. • The overcurrent detection circuit is defective. • The Pendulum Motor (M704) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD27 - Pendulum Motor (M704)
  CD28 - Pendulum Motor Overcurrent (M704)
- Wiring Diagrams -
  WD52 - Motor M704
  WD55 - Address/Data Bus Networks
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.3 - Stacker Switch Panel (Forms Length & Width Cards)

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Control Card SCxxx	80%	2120	3457	3019
B1J8 Card	10%	B1 Logic Card Links		
B1J11 Card	05%	B1 Logic Card Links		
Pendulum Motor (M704)	05%	2117	3461	3004

MAP 0162 BEGINS

Table 79. MAP 0162

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Print the Primary Print Sample for up to a full box of paper to see if the error occurs during printing. **Did an SRC 0162 occur?**	Install the following, one at a time, until the problem is corrected: • Stacker Control Card (SCxxx) • B1J8 Card • B1J11 Card • Pendulum Motor (M704) @	The problem is intermittent. Go to Intermittent Failures.

MAP 0163: Pendulum Initial Position Error

Symptom Explanation	Conditions That Could Cause This Symptom
Initial position of the Pendulum cannot be determined and the Pendulum does not move.	• The Pendulum drive belt is broken or loose. • The Pendulum drive clamping ring is loose. • The Pendulum Motor (M704) is defective. • The Stacker Control Card (SCxxx) is defective. • The B1J8 Card is defective. • The B1J11 Card is defective. • The +24 VD circuit is open.
Initial position of the Pendulum cannot be determined but the Pendulum does move.	• The Pendulum Position Sensor (S619) is defective. • The Stacker Control Card (SCxxx) is defective. • The B1J8 Card is defective. • The B1J9 Card is defective.
The Pendulum Motor (M704) cannot be manually rotated.	• The Pendulum mechanism is binding.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD29 - Pendulum Motor (M704) and Position Sensor (S619)
- Wiring Diagrams - WD52 - Motor M704
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 18 and 19 to check the Pendulum Motor (M704) and the Pendulum Position Sensor (S619).
- Run the Alternate Print Sample. An error is indicated by an SRC 163 on the Display/Touch Screen or by **E0C5** on the Maintenance Panel.

QUICK CHECKS

- Ensure that the Pendulum drive belt is not loose or broken.
- Manually move the Pendulum in both directions to check for binds.

SERVICE CHECKS

- Run Driver Routines 18 and 19 to check the Pendulum Motor (M704) and the Pendulum Position Sensor (S619).
- Run Sensor Routine 7D. This routine checks the Pendulum Position Sensor (S619).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Pendulum drive belt broken or loose	25%	2117	3461	3004
Pendulum drive clamping ring loose	20%	2117	3461	3004
Pendulum mechanism bind	15%			
Pendulum Motor (M704)	15%	2117	3461	3004
Pendulum Position Sensor (S619)	10%	2117	3463	3007
Stacker Control Card SCxxx	08%	2120	3457	3019
B1J8 card	04%	B1 Logic Card Links		
B1J11 Card	03%	B1 Logic Card Links		

MAP 0163 BEGINS

Table 80. MAP 0163

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 80. MAP 0163 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• Clear the stacker and pendulum area of all forms so you can visually check the pendulum operation in the following MAP steps. • Manually move the pendulum in both directions. If everything is operating correctly, you should feel a smooth, steady drag or resistance. **Note:** The pendulum may seem to bind at the extreme end of each swing. This is normal and is caused by the linkage between the motor and the pendulum. • Do not try to force the pendulum if it binds. • If the pendulum binds at the end of a swing, rotate the belt and pulley manually, or move the linkage to release the pendulum. It may be necessary to remove the fuser front cover to see the motor drive pulley and the top of the belt. • Visually check the condition of the pendulum, belt, pulleys, and linkage. **Is the mechanical operation of the pendulum mechanism correct?**	Go to Step 2.	• Repair or replace the failing pendulum mechanism, as necessary. @

Table 80. MAP 0163 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Manually position the pendulum so it is vertical (in the middle of a swing). • Observe the pendulum movement while you Run Driver Routine 19. This routine should operate the pendulum for 5 seconds. **Did the pendulum move at all during this test?**	Go to Step 3.	Go to Step 4.
Step 3.	• Run Sensor Routine 7D to test the Pendulum Position Sensor (S619). The 'Home' position of the pendulum is at the center of the swing when the pendulum is vertical. • Manually rotate the Pendulum Motor drive pulley and belt to move the Pendulum through a complete cycle. **Does the display switch from 'oF7d' to 'on7d' when the pendulum is moved to the 'Home' position?**	Install the new parts listed below, one at a time, until the problem is corrected: • Stacker Control Card (SCxxx) • B1J8 Card • B1J11 Card @	There is a problem with the Pendulum Position Sensor (S619) or its circuit. Do the following, one step at a time, until the problem is corrected: • Check connector PJ823 for correct connection. • Perform the Pendulum Position Sensor (S619) adjustment. • Install a new Pendulum Position Sensor (S619). • Install a new Stacker Control Card (SCxxx). @

Table 80. MAP 0163 (continued)

Step	Questions/Actions	Yes	No
Step 4.	There is a problem with the Pendulum Motor (M704), or its drive circuit. • Check connectors PJ823 and PJ752 for correct connection. If that is not the problem: Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ750-1 and the DC 2 power supply +24 VD line. • Install the new parts listed below, one at a time, until the problem is corrected: – Stacker Control Card (SCxxx) – B1J8 Card – B1J11 Card – Pendulum Motor (M704) **Note:** The Pendulum Motor (M704) has the highest failure rate of the items on this list. But it also has the highest cost and is the most difficult to replace. It is recommended that you replace the logic cards first, because they are easier to remove and replace. If the new logic cards do not correct the problem, reinstall the original logic cards, and then install a new Pendulum Motor (M704). @		

MAP 0164: Stacker Jams (Light Always Sensed)

Symptom Explanation	Conditions That Could Cause This Symptom
Forms jam in the stacker.	• The forms Set switch setting is wrong. • The forms are not folding correctly. • The forms Width guide is set wrong. • The forms Length setting is wrong. • The forms are out of specifications. • Pin feed holes are torn. • The finger belts are broken, loose, or worn. • The finger belt motor drive belt is broken or loose. • The finger belt motor, capacitor, or gear box is defective. • The Pendulum Position Sensor (S619) is out of adjustment. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective.
False Stacker Jam errors occur.	• The Stacker Jam Sensor (Q701) is defective. • The Stacker Control Card (SCxxx) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD26 - Stacker Jam Sensor (Q701)
- Wiring Diagrams -
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 75 to check the status of the Stacker Jam Sensor.
- Run the Alternate Print Sample. An error is indicated by an SRC 164 on the Display/Touch Screen or by **E081** on the Maintenance Panel.

QUICK CHECKS

Note: The Stacker Jam error cannot be reset unless the stacker table down switch is pressed or the stacker gate is opened.

1. Ensure that the forms set switch is set correctly.
2. Ensure that the forms are folding in the correct direction.
3. Ensure that the forms width guide is set correctly.
4. Ensure that the forms length setting is correct.
5. Check for torn pin feed holes causing the forms to stack wrong.
6. Clear the forms jam and retry.
7. Try a different type or weight of forms.

SERVICE CHECKS

- Run Sensor Routine 75 to check the status of the Stacker Jam Sensor.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Operator control switches set wrong	25%			
Stacker Jam Sensor (Q701)	14%	2117	3471	2978
Forms folding incorrectly	10%			
Finger belts broken, loose, or worn	10%	2118	3475 (left) 3481 (right)	2984 (left) 2990 (right)
Forms out of specification	05%			
Left Finger Belt Motor (M701) drive belt	05%	2118	3475	2984
Right Finger Belt Motor (M702) drive belt	05%	2118	3481	2990
Torn pin feed holes	05%			
Pendulum Position Sensor (S619) adjustment	04%	2117	3463	3007
Left Finger Belt Motor (M701)	04%	2118	3475	2984
Right Finger Belt Motor (M702)	04%	2118	3481	2990
Relay Board RB091/RB092	02%	2135, 2136	3501	
Capacitor (C702) (part of M701 Motor Asm)	02%	2118	3475	2984

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Capacitor (C703) (part of M702 Motor Asm)	02%	2118	3481	2990
B1J9 Card	01%	B1 Logic Card Links		
Stacker Control Card SCxxx	01%	2120	3461	3004

MAP 0164 BEGINS

Table 81. MAP 0164

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CHECKS, continue with the questions. • Clear the stacker jam, reset the error, and run the All White Print Sample to recreate the failure. • If you are getting `STACKER JAM 161` errors also, go to MAP 0161: Stacker Jams (Light Never Sensed) to diagnose the problem. **Are the forms actually jammed when the failure occurs?**	Go to Step 2.	The problem is false stacker jams. Go to Step 6.
Step 2.	• Carefully check the condition of the Stacker Finger Belts. Look for worn fingers and broken or missing belts. Ensure that the belts are installed so that the fingers are staggered, rather than aligned. **Are the Stacker Finger Belts in good condition with the fingers staggered?**	Go to Step 3.	• Adjust, repair, or replace as necessary. @

Table 81. MAP 0164 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Driver Routine 1C to operate the Stacker Finger Belts. **Do the Stacker Gate (Left) Finger Belts and Inner (Right) Finger Belts both rotate when you run Driver Routine 1C?**	Go to Step 4.	Go to Step 8.
Step 4.	One of the V-belts that drives the Stacker Finger Belts may be slipping. Check the tension of the Left Finger Belt Motor (M701) drive belt and the Right Finger Belt Motor (M702) drive belt. **Are both belt tensions correct?**	Go to Step 5.	• Adjust, repair, or replace as necessary. @

Table 81. MAP 0164 (continued)

Step	Questions/Actions	Yes	No
Step 5.	The timing of the Pendulum swing may be wrong. • Run the All White Print Sample and observe the pendulum motion as the forms enter the stacker. **Is the pendulum timing in synchronization with the perforations so that the forms are folding correctly?**	Do the following, one step at a time, until the problem is corrected: • Check for bent forms guides in the Stacker. • Run Driver Routine 1B to check for any problem with the Stacker table mechanism. • Check the direction and amount of air flow from the Stacker Cooling Blower (B703) to ensure that it is not blowing the top part of the forms stack up high enough to be blocking the Jam sensor. • If the forms stack is rising at the corners or leaning, try a different type of form. • Repeat the QUICK CHECKS.	• Perform the Pendulum Position Sensor (S619) adjustment. @

Table 81. MAP 0164 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Clear all forms from the Stacker and reset any error conditions. • Run Sensor Routine 75. • Cover the Stacker Jam Sensor (Q701) with paper. The buzzer should be on and **on75** should appear on the Maintenance Panel. **Is the buzzer on and does 'on75' appear on the Maintenance Panel?**	If the forms are not jamming and the sensor test is okay, do the following, one step at a time, until the problem is corrected: • Check for bent forms guides in the Stacker. • Run Driver Routine 1B to check for any problem with the Stacker table mechanism. • Check the direction and amount of air flow from the Stacker Cooling Blower (B703) to ensure that it is not blowing the top part of the forms stack up high enough to be blocking the Jam sensor. • If the forms stack is rising at the corners or leaning, try a different type of forms. • Repeat the QUICK CHECKS. • If you are getting `STACKER JAM 161` errors also, go to MAP 0161: Stacker Jams (Light Never Sensed) to diagnose the problem.	Go to Step 7.
Step 7.	• Disconnect PJ702. • Run Sensor Routine 75. **Is the buzzer on and does on75 appear on the Maintenance Panel?**	• Install a new Stacker Jam Sensor (Q701). @	• Install a new Stacker Control Card (SCxxx). @

Table 81. MAP 0164 (continued)

Step	Questions/Actions	Yes	No
Step 8.	**Do the Stacker Gate (Left) Finger Belts rotate when you run Driver Routine 1C?**	Do the following, one step at a time, until the problem is corrected: • Check for a loose or broken Right Finger Belt Motor (M702) drive belt. • Check for a binding or stripped gear box on the Right Finger Belt Motor (M702). • Install a new Right Finger Belt Motor (M702) and Capacitor (C703) assembly. • Repair an open circuit between one of the following pairs of connectors: – PJ717-1 and PJ602-5 – PJ717-2 and PJ602-7 @	Go to Step 9.

Table 81. MAP 0164 (continued)

Step	Questions/Actions	Yes	No
Step 9.	**Do the Inner (Right) Finger Belts rotate when you run Driver Routine 1C?**	Do the following, one step at a time, until the problem is corrected: • Check for a loose or broken Left Finger Belt Motor (M701) drive belt. • Repair an open circuit between one of the following pairs of connectors: – PJ715-1 and PJ602-5 – PJ715-2 and PJ602-7 • Check for a binding or stripped gear box on the Left Finger Belt Motor (M701). • Install a new Left Finger Belt Motor (M701) and Capacitor (C702) assembly. @	Do the following, one step at a time, until the problem is corrected: • Install a new Relay Board RB091/RB092 . • Install a new B1J9 Card. • Repair an open circuit between one of the following pairs of connectors: – PJ715-1 and PJ602-5 – PJ715-2 and PJ602-7 – PJ717-1 and PJ602-5 – PJ717-2 and PJ602-7 @

MAP 0165: Pendulum Control Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Pendulum did not stop at the correct time.	• The Stacker Control Card (SCxxx) is defective. • The Pendulum Position Sensor (S619) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD28 - Pendulum Motor Overcurrent (M704)
  CD29 - Pendulum Motor (M704) and Position Sensor (S619)
- Wiring Diagrams - WD52 - Motor M704
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 18 to check the Pendulum Motor (M704) and the Pendulum Position Sensor (S619).
- Run the Alternate Print Sample. An error is indicated by `PRINTER NOT AVAILABLE` or an SRC 165 on the Display/Touch Screen or by **E0C2** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routines 18 and 19 to check the Pendulum Motor (M704) and the Pendulum Position Sensor (S619).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Control Card SCxxx	60%	2120	3457	3019
B1J8 Card	25%	B1 Logic Card Links		
B1J11 Card	09%	B1 Logic Card Links		
Pendulum Position Sensor (S619)	05%	2117	3463	3007
Pendulum Motor (M704)	01%	2117	3461	3004

MAP 0165 BEGINS

Table 82. MAP 0165

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	There is a problem with the Pendulum Motor (M704) circuit. There are no test points or diagnostic routines that will isolate among the possible failing parts. • Check connector PJ823 for correct connection. If that is not the problem, do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ749-33 and PJ467-33 – PJ749-35 and PJ467-35 – PJ749-41 and PJ467-41 – PJ749-45 and PJ467-45 – PJ749-55 and PJ467-55 • Install a new Stacker Control Card (SCxxx). • Install a new B1J8 Card. • Install a new B1J11 Card. • Install a new Pendulum Position Sensor (S619). • Install a new Pendulum Motor (M704). @		

MAP 0166: Pendulum Interface Error

Symptom Explanation	Conditions That Could Cause This Symptom
An interface error occurred between the processors on the Stacker Control Card (SCxxx) and the B1J11 Card.	• The Stacker Control Card (SCxxx) is defective. • The B1J11 Card is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD28 - Pendulum Motor Overcurrent (M704)
- Wiring Diagrams -
  WD52 - Motor M704
  WD55 - Address/Data Bus Networks
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD59.3 - Stacker Switch Panel (Forms Length & Width Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 1B to check the Pendulum Motor (M704) and the Pendulum Position Sensor (S619).
- Run the Alternate Print Sample. An error is indicated by an SRC 166 on the Display/Touch Screen or by **E0C3** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 18 and 19 to check the Pendulum Motor (M704) and the Pendulum Position Sensor (S619).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Control Card SCxxx	45%	2120	3457	3019
B1J11 Card	45%	B1 Logic Card Links		
B1J8 Card	10%	B1 Logic Card Links		

MAP 0166 BEGINS

Table 83. MAP 0166

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	There is a problem with the Pendulum Position Sensor (S619) or its circuit. There are no test points or diagnostic routines that will isolate among the possible failing parts. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between connectors PJ749 and PJ467. • Install a new Stacker Control Card (SCxxx). • Install a new B1J11 Card. • Install a new B1J8 Card. @		

MAP 0167: Pendulum Motor Overcurrent

Symptom Explanation	Conditions That Could Cause This Symptom
The pendulum drive current as detected by the Stacker Control Card (SCxxx) is beyond error limits.	• The pendulum motor driver circuit is defective. • The overcurrent detection circuit is defective. • The Pendulum Motor (M704) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD27 - Pendulum Motor (M704)
- Wiring Diagrams -
  WD52 - Motor M704
  WD55 - Address/Data Bus Networks
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD59.3 - Stacker Switch Panel (Forms Length & Width Cards)

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Control Card SCxxx	80%	2120	3457	3019
B1J8 Card	10%	B1 Logic Card Links		
B1J11 Card	05%	B1 Logic Card Links		
Pendulum Motor (M704)	05%	2117	3461	3004

MAP 0167 BEGINS

Table 84. MAP 0167

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Print the Primary Print Sample for up to a full box of paper to see if the error occurs during printing. **Did an SRC 0167 occur?**	Install the following, one at a time, until the problem is corrected: • Stacker Control Card (SCxxx) • B1J8 Card • B1J11 Card • Pendulum Motor (M704) @	The problem is intermittent. Go to Intermittent Failures.

MAP 0169: Stacker Cooling Blower Rotation Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Stacker Cooling Blower (B703) does not rotate.	• The Stacker Cooling Blower (B703) is defective. • The Capacitor (C704) is defective. • Relay Board RB091/RB092 is defective. • The B1J9 Card is defective.
The Stacker Cooling Blower (B703) rotates, but the Printer logic does not detect the rotation.	• The Stacker Cooling Blower (B703) is defective. • The Fuser Control Card (FSxxx) is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD30 - Stacker Cooling Blower (B703)
- Wiring Diagrams -
  WD27 - Motors B602, B703 & 200 VAC Blowers
  WD28 - 200 VAC Blowers
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print at least 50 pages of the Alternate Print Sample to see if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 32. This routine runs the Stacker Cooling Blower (B703) and Stacker Cooling Fans B606, B607, B623, B624, B625, and B626 for 5 seconds. There are no error codes for this routine.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Cooling Blower (B703)	50	2057	3455	2959
Relay Board RB091/RB092	25%	2135, 2136	3501	
Capacitor (C704) (part of M703 Motor Asm)	15%	2057	3455	2959
Fuser Control Card FSxxx	05%	2131	3499	2528
B1J8 Card	03%	B1 Logic Card Links		
B1J9 Card	02%	B1 Logic Card Links		

MAP 0169 BEGINS

Table 85. MAP 0169

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 85. MAP 0169 (continued)

Step	Questions/Actions	Yes	No
Step 1.	The Stacker Cooling Blower and Fans do not turn on until after approximately 18 or 20 prints have been run. To recreate the error, you should print at least 50 pages of the Alternate Print Sample. • Reset any errors on the Operator Panel. • Lower the stacker table. • Run Driver Routine 32. • Hold your hand or a piece of paper in front of the air outlet on the Stacker Cooling Blower (B703) during the test. **Does the Stacker Cooling Blower (B703) blow air during the test?**	The Stacker Cooling Blower (B703) is rotating correctly, but there is a problem with the sensing circuit. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ747-1 and PJ612-49 – PJ747-2 and PJ612-50 – PJ6005-61 and PJ466-61 – PJ6005-62 and PJ466-62 • Install the new parts listed below, one at a time, until the problem is corrected: – Stacker Cooling Blower (B703) and Capacitor (C704) assembly – Fuser Control Card (FSxxx) – B1J8 Card @	Go to Step 2.

Table 85. MAP 0169 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Open the stacker end cover. • Run Driver Routine 32. • Check the Paper Cooling Fan (B623), (B624), (B625), and (B626) during the test. **Hint** It is difficult to determine if the fans are blowing, because they do not move a large volume of air. Hold a small piece of paper in front of the fan grill. If the fans are blowing, the paper should stick to the grill. **Does the Paper Cooling Fan (B623), (B624), (B625), and (B626) blow air during the test?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ622-9 and PJ746-1 – PJ622-10 and PJ746-2 • Install a new Stacker Cooling Blower (B703) and Capacitor (C704) assembly. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ602-6 and PJ622-9 – PJ602-8 and PJ622-10 – PJ480-27 and PJ604-16 • Install the new parts listed below, one at a time, until the problem is corrected: – Relay Board RB091/RB092 – B1J9 Card @

MAP 0171: Stacker Table Motor Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Stacker Table Motor (M803), causing an overtemperature condition.	• The Stacker Table Motor (M803) is defective. • A mechanical bind in the Stacker Table mechanism is causing an overload of the Stacker Table Motor (M803). • The Stacker Table Motor (M803) Gear Head is defective. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective.
A Stacker Table Motor (M803) overtemperature condition is detected, but the Stacker Table Motor (M803) is not overheated.	• The thermal sensor in the Stacker Table Motor (M803), or the sensor wiring, is defective. • The Fuser Control Card (FSxxx) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD31 - Stacker Table Motor and Thermal Sense (M803)
- Wiring Diagrams - WD33 - AC Motors (M604, M701, M702 & M803)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 1B. An error is indicated by **E1C9** on the Maintenance Panel.
- Run the Alternate Print Sample. An error is indicated by an SRC 171 on the Display/Touch Screen or by **E0C9** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 171 on the Display/Touch Screen.

QUICK CHECKS

- Determine if the Stacker Table Motor (M803) is actually hot or if the overtemperature error is false.

SERVICE CHECKS

- Run Driver Routine 1B. This routine operates the Stacker Table Motor (M803) and checks the operation of the motor and drive system.
- Operate the Stacker Table Motor (M803) from the Stacker Operator switch panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Table Motor (M803)	70%	2120	3491	3013
Stacker Table mechanism	15%	2120	3491	
Stacker Table Motor (M803) gear head	10%	2120	3491	3013
Relay Board RB091/RB092	25%	2135, 2136	3501	
Fuser Control Card FSxxx	01%	2131	3499	2528
B1J9 Card		B1 Logic Card Links		

MAP 0171 BEGINS

Table 86. MAP 0171

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This step determines if the Stacker Table Motor (M803) is actually overheating or if the errors are false. You can operate the Stacker Table Motor (M803) by pressing the Up and Down pushbuttons on the Stacker Operator Switch Panel. • Run the machine long enough to recreate the failure. **Is the Stacker Table Motor (M803) overheating?**	There is a problem with the Stacker Table Motor (M803), causing it to overheat. Do the following, one step at a time, until the problem is corrected: • Install a new Stacker Table Motor (M803). • Install a new Stacker Table Motor (M803) gear head. • Install a new Relay Board RB091/RB092 . • Install a new B1J9 Card. @	Go to Step 2.

Table 86. MAP 0171 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The thermal errors are false, caused by a failure in the thermal-sensing circuit. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ804. • Measure the resistance between PJ804-1 and PJ804-2 (the motor side of the connector). **Is there continuity between P804-1 and P804-2?**	Do the following, one step at a time, until the problem is corrected: • Check for a loose connector PJ612 on the Fuser Control Card (FSxxx). • Install a new Fuser Control Card (FSxxx). • Repair an open circuit between PJ804-1 and PJ612-12 or between PJ804-2 and PJ612-18. @	• Install a new Stacker Table Motor (M803). @

MAP 0172: Stacker Table Timeout

Symptom Explanation	Conditions That Could Cause This Symptom
The Right Stacker Height Sensor (Q702) is covered continuously for one minute while printing.	• The Right Stacker Height LED (PL702) and Right Stacker Height Sensor (Q702) need adjusting. • The Right Stacker Height LED (PL702) or Right Stacker Height Sensor (Q702) is dirty. • The Right Stacker Height LED (PL702) or Right Stacker Height Sensor (Q702) is defective. • The Stacker Control Card (SCxxx) is defective.
The Stacker Table lowers faster than normal, with loose stacking and no Error Code.	• The Left Stacker Height LED (PL703) and Left Stacker Height Sensor (Q703) need adjustment. • The Left Stacker Height LED (PL703) or Left Stacker Height Sensor (Q703) is dirty. • The Left Stacker Height LED (PL703) or Left Stacker Height Sensor (Q703) is defective. • The Stacker Control Card (SCxxx) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD32 - Stacker Height Sensor (Q703)
- Wiring Diagrams -
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 8D to check the Right Stacker Height Sensor (Q702) and the Right Stacker Height LED (PL702) operation.
- Run Sensor Routine 8E to check the Left Stacker Height Sensor (Q703) and the Left Stacker Height LED (PL703) operation.
- Run the Alternate Print Sample for 300 cycles. An error is indicated by an SRC 172 on the Display/Touch Screen or by **E0CA** on the Maintenance Panel.

QUICK CHECKS

- Ensure that Right Stacker Height LED (PL702) is shining onto the Right Stacker Height Sensor (Q702).
- Ensure that Left Stacker Height LED (PL703) is shining onto the Left Stacker Height Sensor (Q703).
- Ensure that all of the upper stacker LEDs and Photosensors are clean.

SERVICE CHECKS

- Run Sensor Routine 8D to check the Right Stacker Height Sensor (Q702) and Right Stacker Height LED (PL702) operation.
- Run Sensor Routine 8E to check the Left Stacker Height Sensor (Q703) and Left Stacker Height LED (PL703) operation.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Right Stacker Height LED (PL702) and Sensor (Q702) adjustment	25%	2117 (sensor) 2118 (LED)	3483	2973
Right Stacker Height LED (PL702) and Sensor (Q702) cleaning	25%	2117 (sensor) 2118 (LED)	3483	2973
Right Stacker Height LED (PL702)	15%	2118	3483	2973
Right Stacker Height Sensor (Q702)	10%	2117	3483	2973
Left Stacker Height LED (PL703) and Sensor (Q703) adjustment	05%	2117 (sensor) 2118 (LED)	3471	2973
Left Stacker Height LED (PL703) and Sensor (Q703) cleaning	05%	2117 (sensor) 2118 (LED)	3471	2973
Left Stacker Height LED (PL703)	05%	2118	3471	2973
Left Stacker Height Sensor (Q703)	05%	2118	3471	2973
Stacker Control Card SCxxx	05%	2117	3461	3004

MAP 0172 BEGINS

Table 87. MAP 0172

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Lowering of the Stacker Table during printing is controlled by the Right and Left Stacker Height Sensors (Q702 and Q703). When both sensors are covered, the table is lowered. If one of the sensors fails for any reason, the table lowering is controlled by the remaining operational sensor. If both sensors fail, the table lowering is controlled by the printer microcode, which causes the table to lower faster than normal. This results in a loose stack of forms, which in turn may cause stacker jams. The Right Stacker Height Sensor (Q702) has error detection that causes an SRC 172 error if it is covered continuously for one minute during printing. The Left Stacker Height Sensor (Q703) has no error detection. • Remove the forms from the Stacker, and lower the Stacker Table far enough to observe the Stacker Height LEDs and Sensors. • Clean all Upper Stacker LEDs and Sensors. **Is the Right Stacker Height LED (PL702) on?**	Go to Step 2.	Go to Step 5.

Table 87. MAP 0172 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Is Left Stacker Height LED (PL703) on?**	Go to Step 3.	Go to Step 8.
Step 3.	• Run Sensor Routine 8D to check Right Stacker Height Sensor (Q702). • Test the Right Stacker Height Sensor (Q702) by putting a small piece of paper in front of the sensor to block the light from the LED. **Does the Right Stacker Height Sensor (Q702) switch on and off correctly when the sensor is covered and uncovered with the paper?**	Go to Step 4.	Go to Step 10.
Step 4.	• Run Sensor Routine 8E to check the Left Stacker Height Sensor (Q703). • Test the Left Stacker Height Sensor (Q703) by putting a small piece of paper in front of the sensor to block the light from the LED. **Does the Left Stacker Height Sensor (Q703) switch on and off correctly when the sensor is covered and uncovered with the paper?**	You have not found a clear problem. • Retrace your steps through this MAP. Refer to the QUICK CHECKS. Refer to the POSSIBLE FAILING PARTS OR ADJUSTMENTS.	Go to Step 13.
Step 5.	**Is the Left Stacker Height LED (PL703) on?**	Go to Step 6.	Do the following, one step at a time, until the problem is corrected: • Check all connectors in the circuit for damage and correct seating. • Install a new Stacker Control Card (SCxxx). @

Table 87. MAP 0172 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Measure the voltage at PJ732-1. **Is the voltage +5.0 V dc?**	Go to Step 7.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ157-15 and PJ732-1. • Install a new Stacker Control Card (SCxxx). @
Step 7.	• Measure the voltage at PJ732-2. **Is the voltage greater than +2.5 V dc?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ732-2 and PJ157-16. • Install a new Stacker Control Card (SCxxx). @	• Install a new Right Stacker Height LED (PL702). @
Step 8.	• Measure the voltage at PJ733-1. **Is the voltage +5.0 V dc?**	Go to Step 9.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ157-17 and PJ733-1. • Install a new Stacker Control Card (SCxxx). @

Table 87. MAP 0172 (continued)

Step	Questions/Actions	Yes	No
Step 9.	• Measure the voltage at PJ733-2. **Is the voltage greater than +2.5 V dc?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ733-2 and PJ157-18. • Install a new Stacker Control Card (SCxxx). @	• Install a new Left Stacker Height LED (PL703). @
Step 10.	**Is the Right Stacker Height LED (PL702) aligned so the light shines on the Right Stacker Height Sensor (Q702)?**	Go to Step 11.	• Align the Right Stacker Height LED (PL702) so the light shines on the Right Stacker Height Sensor (Q702). @
Step 11.	• Measure the voltage between TP-2 and TP-G on the SC card. **Is the voltage greater than +3 V dc while the routine 8D is running?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ731-2 and PJ157-20. • Install a new Stacker Control Card (SCxxx). @	Go to Step 12.

Table 87. MAP 0172 (continued)

Step	Questions/Actions	Yes	No
Step 12.	• Measure the voltage at PJ731-1. **Is the voltage +5.0 V dc?**	• Install a new Right Stacker Height Sensor (Q702). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ731-1 and PJ157-19. • Install a new Stacker Control Card (SCxxx). @
Step 13.	**Is the Left Stacker Height LED (PL703) aligned so the light shines on the Left Stacker Height Sensor (Q703)?**	Go to Step 14.	• Align the Left Stacker Height LED (PL703) so the light shines on the Left Stacker Height Sensor (Q703). @
Step 14.	• Measure the voltage between TP-3 and TP-G on the SCxxx card. **Is the voltage greater than +3 V dc while the routine 8E is running?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ730-3 and PJ157-38. • Install a new Stacker Control Card (SCxxx). @	Go to Step 15.

Table 87. MAP 0172 (continued)

Step	Questions/Actions	Yes	No
Step 15.	• Measure the voltage at PJ730-1. **Is the voltage +5.0 V dc?**	• Install a new Left Stacker Height Sensor (Q703). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ730-1 and PJ157-21. • Install a new Stacker Control Card (SCxxx). @

MAP 0174: Stacker Safety Switch On

Symptom Explanation	Conditions That Could Cause This Symptom
The Stacker Gate Safety Switch (S713) or Stacker Gate Safety Switch (S714) is on while the Stacker Table up switch is depressed.	• The Stacker Gate Safety Switch Finger Bar is binding. • The Stacker Gate Safety Switch (S713) and Stacker Gate Safety Switch (S714) are out of adjustment. • The Stacker Gate Safety Switch (S713) is shorted. • The Stacker Gate Safety Switch (S714) is shorted. • The Stacker Control Card (SCxxx) is defective.
The Stacker Table does not stop when the Stacker Gate Safety Switch Finger Bar is operated.	• Binding Stacker Gate Safety Switch Finger Bar • Open connector PJ737 or PJ157 • Adjustment of Stacker Gate Safety Switch (S713) and Stacker Gate Safety Switch (S714) • Open Stacker Gate Safety Switch (S713) • Open Stacker Gate Safety Switch (S714) • Defective Stacker Control Card (SCxxx)

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD33 - Stacker Gate Safety Switches (S713, S714)
- Wiring Diagrams -
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 76. This routine checks the operation of Stacker Gate Safety Switch (S713) and Stacker Gate Safety Switch (S714).
- Press the Stacker Table UP switch. An error is indicated by an SRC 174 on the Display/Touch Screen or by **E015** on the Maintenance Panel.
- To ensure that the Stacker Gate Safety Switch Finger Bar is operating correctly, force an error by pressing the Stacker Table Up switch while you manually operate the Stacker Gate Safety Switch Finger Bar. This should cause either an SRC 174 on the Display/Touch Screen or an E015 on the Maintenance Panel, or both.

QUICK CHECKS

- Ensure that the Stacker Gate Safety Switch Finger Bar is not binding.

SERVICE CHECKS

- Run Sensor Routine 76. This routine checks the Stacker Gate Safety Switch (S713) and Stacker Gate Safety Switch (S714) operation.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty			
Stacker Gate Safety Switch Finger Bar binding	60%	2118	3479	
Stacker Gate Safety Switches (S713) and (S714) adjustment	30%	2118	3479	2968
Stacker Control Card SCxxx	04%	2120	3457	3019
Stacker Gate Safety Switch (S713)	03%	2118	3479	2968
Stacker Gate Safety Switch (S714)	03%	2118	3479	2968

MAP 0174 BEGINS

Table 88. MAP 0174

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	The Stacker Gate Safety switch circuit uses the normally open contacts of the switches. Stacker Gate Safety Switch (S713) and Stacker Gate Safety Switch (S714) are electrically independent, but are mechanically operated by the same Stacker Gate Safety Switch Finger Bar. If both of the switches fail in the open circuit condition, or if there is an open circuit in the wiring, no error is detected. If one of the switches fails in the short circuit condition, an SRC 174 is displayed every time the **Stacker Table Up** switch is depressed. • Manually operate the Stacker Gate Safety Switch Finger Bar and check for binds or obstructions. **Does the Stacker Gate Safety Switch Finger Bar operate correctly?**	The problem has been fixed.	• Repair the Stacker Gate Safety Switch Finger Bar mechanical problem. @

MAP 0175: Stacker Table Motor Runs Too Long

Symptom Explanation	Conditions That Could Cause This Symptom
The Stacker Table does not move when the Stacker Table Up or Down pushbuttons are depressed. The Stacker Table movesin only one direction.	• There is an obstruction in the Stacker Table path. • There is a mechanical problem with the Stacker Table mechanism or there is a broken belt or loose pulley. • The Stacker Table Motor (M803) is defective. • The Capacitor (C803) is defective. • The Relay Board RB091/RB092 is defective. • The B1J9 Card is defective. • The B1J8 Card is defective. • The Fuser Control Card (FSxxx) is defective.
The Stacker Table drives to the lower or upper limit, but the Stacker Table Motor (M803) continues to run.	• The Stacker Table Lower Limit Switch (S701) could be out of adjustment. • The Stacker Table Lower Limit Switch (S701) may have shorted. • The Stacker Table Upper Limit Switch (S704) could be out of adjustment. • The Stacker Table Upper Limit Switch (S704) may have shorted. • The Stacker Control Card (SCxxx) is defective.
The Stacker Table moves when the Stacker Table Up or Down pushbuttons are depressed, but the SRC 175 error still occurs.	• There may be a bind or other mechanical problem with the Stacker Table, causing it to move slower than normal. • The Stacker Table Motor (M803) is defective. • The Gear Box on the Stacker Table Motor (M803) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD34 - Stacker Table Switches (S701, S704)
  CD31 - Stacker Table Motor and Thermal Sense (M803)
- Wiring Diagrams -
  WD33 - AC Motors (M604, M701, M702 & M803)
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 1B. This routine checks the operation of the Stacker Table Motor (M803), the Stacker Table mechanism, and the Stacker Table Upper and Lower limit pushbuttons.
- Operate the Stacker Table from the Stacker Control Panel (SW511). An error is indicated by an SRC 175 on the Display/Touch Screen or by **E0Cb** on the Maintenance Panel.

QUICK CHECKS

1. Check the printer configuration to ensure that the stacker has not been disabled.
2. Ensure that the Stacker Table path is free of any obstructions.
3. Operate the Stacker Table from the Stacker Control Panel (SW511). Check the Stacker Table drive mechanism for any mechanical problems, such as broken or loose Stacker Table drive belts, binds in the gears and bearings, or bent forms guides obstructing the Stacker Table motion.

SERVICE CHECKS

- Run Driver Routine 1B. This routine checks the operation of the Stacker Table Motor (M803), the Stacker Table mechanism, and the Stacker Table Upper and Lower limit pushbuttons.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Table path obstruction	30%	2117		
Stacker Table drive mechanism broken, loose, or binding	25%	2117	3491	
RB091/RB092 Relay Board	15%	2135	3501	
Stacker Table Motor (M803) and Capacitor (C803) assembly	10%	2120	3491	3013
Stacker Table Lower Limit Switch (S701)	05%	2118	3489	3015
Stacker Table Upper Limit Switch (S704)	05%	2118	3489	3017
B1J9 Card	04%	B1 Logic Card Links		
B1J8 Card	02%	B1 Logic Card Links		
Stacker Control Card SCxxx	02%	2120	3457	3019
Fuser Control Card FSxxx	02%	2131	3499	2528

MAP 0175 BEGINS

Table 89. MAP 0175

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CHECKS, continue with the questions. The Stacker Table drive slips if it is obstructed while the Stacker Table is being lowered. It does not slip if it is obstructed while the Stacker Table is being raised. If the Stacker Table is obstructed while the motor is raising the Stacker Table, the drive belts slip on the drive pulleys and create a loud pounding noise. • Remove all the paper from the stacker. • Carefully check the Stacker Table area and remove any obstructions from the Stacker Table path. • If the Stacker Table is at the bottom of the stacker, manually raise it to a point midway between the top and bottom. • Press the **Stacker Table Down** pushbutton. **Does the Stacker Table move down when you press the Stacker Table Down pushbutton?**	Go to Step 2.	Go to Step 5.

Table 89. MAP 0175 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Press the **Stacker Table Up** pushbutton. **Does the Stacker Table move up when you press the Stacker Table Up pushbutton?**	Go to Step 3.	Go to Step 7.
Step 3.	• Press the **Stacker Table Down** pushbutton and allow the Stacker Table to fully descend to the lower limit. • Press the **Stacker Table Up** pushbutton and allow the Stacker Table to fully raise to the upper limit. **Does the Stacker Table constantly drive against the upper or lower limit?**	Go to Step 4.	The Stacker Table must be moving too slowly, causing the SRC 175. Do the following, one step at a time, until the problem is corrected: • Check carefully for a bind in the Stacker Table mechanism. • Check for a bind in the Stacker Table Motor (M803) Gear Box. • Install a new Stacker Table Motor (M803) and Capacitor (C803) assembly. @

Table 89. MAP 0175 (continued)

Step	Questions/Actions	Yes	No
Step 4.	**Does the Stacker Table constantly drive against the lower limit?**	Do the following, one step at a time, until the problem is corrected: • Check the adjustment of the Stacker Table Lower Limit Switch (S701). • Repair an open circuit between one of the following pairs of connectors: – PJ705-1 and PJ157-5 – PJ705-2 and PJ157-6 • Install the new parts listed below, one at a time, until the problem is corrected: – Stacker Table Lower Limit Switch (S701) – Stacker Control Card (SCxxx) @	The Stacker Table must be driving constantly against the upper limit. Do the following, one step at a time, until the problem is corrected: • Check the adjustment of the Stacker Table Upper Limit Switch (S704). • Repair an open circuit between one of the following pairs of connectors: – PJ703-1 and PJ157-13 – PJ703-2 and PJ157-14 • Install the new parts listed below, one at a time, until the problem is corrected: – Stacker Table Upper Limit Switch (S704) – Stacker Control Card (SCxxx) @
Step 5.	**Is the Stacker Table at the top of the stacker?**	Go to Step 6.	Go to Step 8.

Table 89. MAP 0175 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Remove the input bin left side cover to access PJ803 for the following voltage measurements. PJ803 is located behind a frame piece, which is near the Stacker Table Motor (M803). To make the following voltage measurements easier, it is recommended that you: – SHUTDOWN AND POWER OFF THE PRINTER. – Disconnect PJ803, move it to the other side of the frame, and reconnect it. – Power on the printer. – Remember to move the connector back behind the frame before you install the input bin left side cover. • Measure the voltage between PJ803-1 and PJ803-3 while you press the Stacker Table Down pushbutton. **Is the voltage greater than 180 V ac?**	Do the following, one step at a time, until the problem is corrected: • Check the Stacker Table drive mechanism for any mechanical problems, such as broken or loose Stacker Table drive belts, binds in the gears and bearings, or bent forms guides obstructing the Stacker Table motion. • Install a new Stacker Table Motor (M803) and Capacitor (C803) assembly. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ803-1 and PJ602-3 – PJ803-3 and PJ602-13 – PJ604-8 and PJ612-17 – PJ604-10 and PJ480-33 • Install the new parts listed below, one at a time, until the problem is corrected: – Relay Board RB091/RB092 – B1J9 Card – B1J8 Card – Fuser Control Card (FSxxx) @

Table 89. MAP 0175 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Remove the input bin left side cover to access PJ803 for the following voltage measurements. PJ803 is located behind a frame piece, which is near the Stacker Table Motor (M803). To make the following voltage measurements easier, it is recommended that you: – SHUTDOWN AND POWER OFF THE PRINTER. – Disconnect PJ803, move it to the other side of the frame, and reconnect it. – Power on the printer. – Remember to move the connector back behind the frame before you install the input bin left side cover. • Measure the voltage between PJ803-1 and PJ803-2 while you press the **Stacker Table Up** pushbutton. **Is the voltage greater than 180 V ac?**	Do the following, one step at a time, until the problem is corrected: • Check the Stacker Table drive mechanism for any mechanical problems, such as broken or loose Stacker Table drive belts, binds in the gears and bearings, or bent forms guides obstructing the Stacker Table motion. • Install a new Stacker Table Motor (M803) and Capacitor (C803) assembly. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ803-2 and PJ602-14 – PJ604-18 and PJ480-34 • Install the new parts listed below, one at a time, until the problem is corrected: – Relay Board RB091/RB092 . – B1J9 Card – B1J8 Card @
Step 8.	• Press the **Stacker Table Up** pushbutton. **Does the Stacker Table move up when you press the Stacker Table Up pushbutton?**	Go to Step 9.	Go to Step 10.

Table 89. MAP 0175 (continued)

Step	Questions/Actions	Yes	No
Step 9.	• Remove the input bin left side cover to access PJ803 for the following voltage measurements. PJ803 is located behind a frame piece, which is near the Stacker Table Motor (M803). To make the following voltage measurements easier, it is recommended that you: – SHUTDOWN AND POWER OFF THE PRINTER. – Disconnect PJ803, move it to the other side of the frame, and reconnect it. – Power on the printer. – Remember to move the connector back behind the frame before you install the input bin left side cover. • Measure the voltage between PJ803-1 and PJ803-3 while you press the **Stacker Table Down** pushbutton. **Is the voltage greater than 180 V ac?**	Do the following, one step at a time, until the problem is corrected: • Check the Stacker Table drive mechanism for any mechanical problems, such as broken or loose Stacker Table drive belts, binds in the gears and bearings, or bent forms guides obstructing the Stacker Table motion. • Install a new Stacker Table Motor (M803) and Capacitor (C803) assembly. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ803-3 and PJ602-13. • Install a new Relay Board RB091/RB092 . @

Table 89. MAP 0175 (continued)

Step	Questions/Actions	Yes	No
Step 10.	• Remove the input bin left side cover to access PJ803 for the following voltage measurements. PJ803 is located behind a frame piece, which is near the Stacker Table Motor (M803). To make the following voltage measurements easier, it is recommended that you: – SHUTDOWN AND POWER OFF THE PRINTER. – Disconnect PJ803, move it to the other side of the frame, and reconnect it. – Power on the printer. – Remember to move the connector back behind the frame before you install the input bin left side cover. • Measure the voltage between PJ803-1 and PJ803-3 while you press the **Stacker Table Down** pushbutton. **Is the voltage greater than 180 V ac?**	Do the following, one step at a time, until the problem is corrected: • Check the Stacker Table drive mechanism for any mechanical problems, such as broken or loose Stacker Table drive belts, binds in the gears and bearings, or bent forms guides obstructing the Stacker Table motion. • Install a new Stacker Table Motor (M803) and Capacitor (C803) assembly. @	Go to Step 11.
Step 11.	• Measure the voltage at PJ604-8. **Is the voltage greater than 20 V dc?**	Go to Step 12.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ604-8 and PJ612-17. • Install a new Fuser Control Card (FSxxx). @

Table 89. MAP 0175 (continued)

Step	Questions/Actions	Yes	No
Step 12.	• Measure the voltage at PJ604-10 while you press the **Stacker Table Down** pushbutton. **Is the voltage greater than 20 V dc?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ604-10 and PJ480-33. • Install a new B1J9 Card. • Install a new B1J8 Card. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ602-3 and PJ803-1. • Install a new Relay Board RB091/RB092 . @

MAP 0176: Stacker Forms Length Sensor

Symptom Explanation	Conditions That Could Cause This Symptom
No output from the Stacker Forms Length Hall sensors. Forms Length LEDs on the Stacker Control Panel (SW511) are blank.	• The stacker forms length was manually changed while the machine was powered off. • Timing alignment of the magnets and the Hall sensors on the Forms Length Sensor Board (FL061). • Rotary timing adjustment of the magnet gear on the Stacker Length Rotary Board (FL041). • The stacker length belt is broken or a clamp is loose. • The Forms Length Sensor Board (FL061) is defective. • The Stacker Length Rotary Board (FL041) is defective. • The Stacker Control Card (SCxxx) is defective.
The forms length does not change when the Forms Length arrow switches on the Stacker Control Panel (SW511) are pressed.	• The stacker length drive belt is broken. • The Stacker Length Motor (M707) is defective. • The B1J5 Card is defective. • The B1J9 Card is defective.
Output from three or more of the Forms Length Hall sensors.	• The Forms Length Sensor Board (FL061) is defective. • The Stacker Length Rotary Board (FL041) is defective. • The Stacker Control Card (SCxxx) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD35 - Stacker Forms Length Hall Sensor
  CD36 - Stacker Length Motor (M707)
- Wiring Diagrams -
  WD59.3 - Stacker Switch Panel (Forms Length & Width Cards)
  WD53 - Motors M706 and M707
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Operate the Forms Length arrow switches on the Stacker Control Panel (SW511). Move the stacker length through its range of 7 inches to 14 inches. Observe the panel LED display for correct operation.
- Run Driver Routine 3C to check the Stacker Length Motor (M707) .
- Run Sensor Routine 74. The Maintenance Panel indicates the output of the Stacker Forms Length Hall sensors.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 176 on the Display/Touch Screen or by **E0CF** on the Maintenance Panel.

QUICK CHECKS

- Check for broken Stacker Forms Length belts.

SERVICE CHECKS

- Run Driver Routine 3C to check the Stacker Length Motor (M707) .
- Run Sensor Routine 74. The Maintenance Panel indicates the output of the Stacker Forms Length Hall sensors.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Forms Length Mechanism and Sensor Adjustment	50%			2961
Stacker Length Belt	15%	2120	3465	2995
Stacker Length Drive Belt	15%	2120	3465	2997
Stacker Length Motor (M707)	10%	2120	3467	2997
Forms Length Sensor Board (FL061)	02%	2120	3465	2960
Stacker Length Rotary Board (FL041)	02%	2120	3473	3001
B1J5 Card	02%	B1 Logic Card Links		
B1J9 Card	02%	B1 Logic Card Links		
Stacker Control Card SCxxx	02%	2120	3457	3004

MAP0176 BEGINS

Table 90. MAP 0176

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Observe the Stacker Gate and watch for movement while you press and hold the Right (wide) arrow switch on the Stacker Control Panel (SW511). • Observe the Stacker Gate and watch for movement while you press and hold the Left (narrow) arrow switch on the Stacker Control Panel (SW511). **Did the Stacker Gate move?**	Go to Step 2.	Go to Step 4.
Step 2.	• Carefully check the timing adjustment between the magnets and the Hall sensors on the Forms Length Sensor Board (FL061) and the Stacker Length Rotary Board (FL041). @ **Is the adjustment correct?**	Go to Step 3.	• Perform the entire 2961 procedure. • Run Driver Routine 3C to ensure that the adjustment is correct. @

Table 90. MAP 0176 (continued)

Step	Questions/Actions	Yes	No
Step 3.	Check the following connectors for pushed pins or poor connections: • PJ154 on the Stacker Control Card (SCxxx) • PJ183 on the Stacker Control Card (SCxxx) • PJ727 on the Stacker Length Rotary Board (FL041) • PJ830 on the Forms Length Sensor Board (FL061) @ **Are the connectors properly connected?**	• Run Driver Routine 3C. If the failure is still occurring on every test, do the following: Install the new parts listed below, one at a time, until the problem is corrected: • Forms Length Sensor Board (FL061) • Stacker Length Rotary Board (FL041) • Stacker Control Card (SCxxx) @	• Repair as necessary. @
Step 4.	• Open the printer left front cover. • Visually check the condition of the stacker length belt, pulleys, and clamps. Look for broken, loose, or worn parts. **Are the stacker length belt, pulleys and clamps operating correctly?**	Go to Step 5.	• Adjust, repair, or replace the item as necessary. • Run Driver Routine 3C to ensure that the mechanism is operating correctly. @
Step 5.	• Remove the input bin left side cover. • Visually check the condition of the stacker length drive belt, gears, and clamps. Look for broken, loose, or worn parts. **Are the stacker length drive belt, gears, and clamps operating correctly?**	Go to Step 6.	• Adjust, repair, or replace the item as necessary. • Run Driver Routine 3C to ensure that the mechanism is operating correctly. @

Table 90. MAP 0176 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Manually turn the Stacker Length Motor (M707) pulley or drive belt to move the stacker in or out approximately 1 inch. • Observe the Stacker Gate and watch for movement while you press and hold the Right (wide) arrow switch on the Stacker Control Panel (SW511). • Observe the Stacker Gate and watch for movement while you press and hold the Left (narrow) arrow switch on the Stacker Control Panel (SW511). **Did the Stacker Gate move?**	Go to Step 2.	• Check the Stacker Length Motor (M707) connector PJ742 for good connection. If that is not the problem, do the following: Install the new parts listed below, one at a time, until the problem is corrected: • Stacker Length Motor (M707) • B1J5 Card • B1J9 Card @

MAP 0177: Stacker Length Motor Timeout

Symptom Explanation	Conditions That Could Cause This Symptom
There is no output from the Stacker Forms Length Hall sensors. Forms Length LEDs on the Stacker Control Panel (SW511) are blank and an SRC 0177 is displayed.	• The stacker forms length was manually changed while the machine was powered off. • The gap between the magnets and the Hall sensors on the Forms Length Sensor Board (FL061) may need adjustment. • The magnets and the Hall sensors on the Forms Length Sensor Board (FL061) may need timing alignment. • The magnet gear on the Stacker Length Rotary Board (FL041) may need rotary timing adjustment. • The Forms Length Sensor Board (FL061) is defective. • The Stacker Length Rotary Board (FL041) is defective. • The Stacker Control Card (SCxxx) is defective.
The forms length does not change when the Forms Length arrow switches on the Stacker Control Panel (SW511) are pressed and an SRC 0177 is displayed.	• Broken stacker length drive belt. • The Stacker Length Motor (M707) is defective. • The B1J5 Card is defective. • The B1J9 Card is defective.
There is no response when the Forms Length arrow switches on the Stacker Control Panel (SW511) are pressed. The stacker forms length does not change, and there are no error messages.	• The machine is in Service Diagnostic mode. • The Stacker Gate is open. • The Stacker Gate Safety Switch is on. • The Stacker Control Panel (SW511) is defective. • The Stacker Control Card (SCxxx) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD35 - Stacker Forms Length Hall Sensor
  CD36 - Stacker Length Motor (M707)
  CD37 - Stacker Forms Length Control Switch (SW511)
- Wiring Diagrams -
  WD53 - Motors M706 and M707
  WD59.2 - Stacker Switch Panel (SW511 & FSxxx Card)
  WD59.3 - Stacker Switch Panel (Forms Length & Width Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Operate the Forms Length arrow switches on the Stacker Control Panel (SW511). Move the stacker length through its range of 7 inches to 14 inches. Observe the Stacker Control Panel LED display for correct operation.
- Run Driver Routine 3C to check the Stacker Length Motor (M707).
- Run Sensor Routine 74 to check the output of the Stacker Forms Length Hall sensors.
- Run Sensor Routine 7E to check the Stacker Control Panel (SW511).
- POR the printer to run the power-on diagnostics. An error is indicated by an SRC 0177 on the Display/Touch Screen or by **E02d** on the Maintenance Panel.

QUICK CHECKS

- If the Stacker Length Rotary Board (FL041) has recently been replaced or adjusted, recheck the adjustment.
- Operate the Forms Length arrow switches on the Stacker Control Panel (SW511). Move the stacker length through its range of 7 inches to 14 inches. Observe the Stacker Control Panel LED display for correct operation.

SERVICE CHECKS

- Run Driver Routine 3C to check the Stacker Length Motor (M707).
- Run Sensor Routine 74 to check Stacker Length Rotary Board (FL041) and Forms Length Sensor Board (FL061).
- Run Sensor Routine 7E to check the Stacker Control Panel (SW511).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Forms Length manually changed when machine power is off.	50%			
Forms Length Mechanism and Sensor Adjustment	15%			2961
Magnet to sensor gap adjustment	10%			2961
Machine left in Service Diagnostic mode	06%			
Stacker Length Drive Belt broken	05%	2120	3465	2997
Stacker Length Motor (M707)	03%	2120	3467	2997
Stacker Control Panel (SW511)	02%	2118	3455	2957
B1J5 Card	02%	B1 Logic Card Links		
B1J9 Card	02%	B1 Logic Card Links		
Forms Length Sensor Board (FL061)	02%	2120	3465	2960
Stacker Length Rotary Board (FL041)	02%	2120	3473	3001
Stacker Control Card SCxxx	01%	2117	3461	3019

MAP 0177 BEGINS

Table 91. MAP 0177

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP fixes the following problems: An SRC 0177 is displayed. There is no response when the Forms Length arrow switches on the Stacker Control Panel (SW511) are pressed. • Ensure that the Diagnostic function switch on the B1J11 Card is set to the **0** position. • POR the printer. • Press and hold the Right (wide) arrow switch on the Stacker Control Panel (SW511). • Press and hold the Left (narrow) arrow switch on the Stacker Control Panel (SW511). **Are you using this MAP because an SRC 0177 is displayed?**	Go to Step 2.	The problem must be no response when the Forms Length arrow switches on the Stacker Control Panel (SW511) are pressed. Go to Step 10.
Step 2.	**Are the Forms Length LEDs on the Stacker Control Panel (SW511) blank (off)?**	Go to Step 3.	Go to Step 8.

Table 91. MAP 0177 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check the adjustment of the Stacker Length Rotary Board (FL041). **Is the adjustment correct?**	Go to Step 4.	• Readjust as necessary. • Run Driver Routine 3C to ensure that the mechanism is operating correctly. @
Step 4.	• Visually check the adjustment of the gap between the magnets and the Hall sensors on the Forms Length Sensor Board (FL061). The gap should be 1.2 ±0.8 mm. **Is the adjustment correct?**	Go to Step 5.	• Readjust as necessary. • Run Driver Routine 3C to ensure that the mechanism is operating correctly. @
Step 5.	• Carefully check the timing adjustment between the magnets and the Hall sensors on the Forms Length Sensor Board (FL061) and the Stacker Length Rotary Board (FL041). **Are the adjustments correct?**	Go to Step 6.	• Readjust as necessary. • Run Driver Routine 3C to ensure that the adjustments are correct. @
Step 6.	Check the following connectors for pushed pins or poor connections: • PJ154 on the Stacker Control Card (SCxxx) • PJ183 on the Stacker Control Card (SCxxx) • PJ727 on the Stacker Length Rotary Board (FL041) • PJ830 on the Forms Length Sensor Board (FL061) **Are all of the connectors properly connected?**	Go to Step 7.	• Repair as necessary. @

Table 91. MAP 0177 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Run Driver Routine 3C. **Is the failure still occurring on every test?**	Install the new parts listed below, one at a time, until the problem is corrected: • Forms Length Sensor Board (FL061) • Stacker Length Rotary Board (FL041) • Stacker Control Card (SCxxx) @	• Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Retrace your steps through this MAP. • If you find no problems, go to MAP 0001: Introduction.
Step 8.	• Remove the input bin left side cover. • Visually check the condition of the stacker length drive belt, gears, and clamps. Look for broken, loose, or worn parts. **Are the stacker length drive belt, gears, and clamps operating correctly?**	Go to Step 9.	• Adjust, repair, or replace the item as necessary. • Run Driver Routine 3C to ensure that the mechanism is operating correctly. @

Table 91. MAP 0177 (continued)

Step	Questions/Actions	Yes	No
Step 9.	• Observe the Stacker Gate and watch for movement while you press and hold the Right (wide) arrow switch on the Stacker Control Panel (SW511). • Observe the Stacker Gate and watch for movement while you press and hold the Left (narrow) arrow switch on the Stacker Control Panel (SW511). **Did the Stacker Gate move?**	Either the problem is corrected or it is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Retrace your steps through this MAP. • If you find no problems, go to MAP 0001: Introduction.	• Check the Stacker Length Motor (M707) connector PJ742 and connector PJ479 on the B1 Board for good connection. If that is not the problem: Install the new parts listed below, one at a time, until the problem is corrected: • Stacker Length Motor (M707) • B1J5 Card • B1J9 Card @
Step 10.	The problem must be no response when the Forms Length arrow switches on the Stacker Control Panel (SW511) are pressed. The Forms Length arrow switches on the Stacker Control Panel (SW511) are disabled when the machine is in the Service Diagnostic mode, when the Stacker Gate is open, or when the Stacker Safety switch is on. • Check the Diagnostic Function Switch on the B1J11 Card to ensure that it is set to the normal operating position, **0**. **Is the Diagnostic Function Switch set to the normal operating position, 0 (zero)?**	Go to Step 11.	• Set the switch to **0**and raise the reset switch to return the machine to the normal operating mode. • Test the Forms Length arrow switches on the Stacker Control Panel (SW511) to determine if they operate correctly. If they do not operate correctly, go to Step 11. @

Table 91. MAP 0177 (continued)

Step	Questions/Actions	Yes	No
Step 11.	• Ensure that the Stacker Gate is closed and latched. • Check the operation of the Stacker Gate Safety Bail to ensure that it is not binding or sticking in the operated (up) position. Use the following procedure to test the Stacker Gate Safety Bail switches: • Lower the stacker table. • Press the **Stacker Table UP** switch. • If the Stacker Gate Safety Bail switches are operated, the Stacker Table will drop slightly instead of going up, and a `STACKER SAFETY SWITCH ON` message (SRC 0174) appears in the Display/Touch Screen. **Do you get an SRC 0174 (`STACKER SAFETY SWITCH` message) when you press the Stacker Table Up switch?**	There is a problem with the Stacker Gate Safety Bail switches. Go to MAP 0174: Stacker Safety Switch On.	Go to Step 12.
Step 12.	• Run Sensor Routine 7E to test the Forms Length arrow switches on the Stacker Control Panel (SW511). The Maintenance Panel indicates **on-6** when the Right arrow (wide) switch is pressed. The Maintenance Panel indicates **on-7** when the Left arrow (narrow) switch is pressed. **Do both of the Forms Length arrow switches on the Stacker Control Panel (SW511) test good?**	Either the problem is corrected or it is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Retrace your steps through this MAP. • If you find no problems, go to MAP 0001: Introduction.	Go to Step 13.

Table 91. MAP 0177 (continued)

Step	Questions/Actions	Yes	No
Step 13.	There is a problem with one of the Forms Length arrow switches on the Stacker Control Panel (SW511). Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Locate the PJ6012 connector on the Stacker Control Card (SCxxx). • Disconnect connector P6012 from the Stacker Control Card (SCxxx). Check continuity through the free connector half, not through the board. The pins you will be checking connect to pins J6012-14 and J6012-15 on the board. The switch should be open when it is not pressed. **Is there continuity between pins P6012-14 and P6012-15 when the Right arrow (wide) switch is pressed?**	Go to Step 14.	Do the following, one step at a time, until the problem is corrected: • Install a new Stacker Control Panel (SW511). • Repair an open circuit between one of the following pairs of connectors: – PJ6012-16 and PJ728-16 – PJ6012-17 and PJ728-17 @
Step 14.	**Is there continuity between pins P6012-16 and P6012-17 when the Left arrow (narrow) switch is pressed?**	• Install a new Fuser Control Card (FSxxx). @	Do the following, one step at a time, until the problem is corrected: • Install a new Stacker Control Panel (SW511). • Repair an open circuit between one of the following pairs of connectors: – PJ6012-16 and PJ728-16 – PJ6012-17 and PJ728-17 @

MAP 0178: Stacker Length Motor Driver Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Stacker Length Motor drive signal remains on.	• The B1J5 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams - CD36 - Stacker Length Motor (M707)
- Wiring Diagrams - WD53 - Motors M706 and M707
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Operate the Forms Length arrow switches on the Stacker Control Panel (SW511). Move the stacker length through its range of 7 inches to 14 inches. Observe the panel LED display for correct operation.
- Run Driver Routine 3C to check the Stacker Length Motor (M707) .
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 178 on the Display/Touch Screen or by **E0C6** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 3C to check the Stacker Length Motor (M707).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J5 Card	60%	B1 Logic Card Links		
B1J9 Card	40%	B1 Logic Card Links		

MAP 0178 BEGINS

Table 92. MAP 0178

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	There are no test points or diagnostic routines that will isolate among the possible failing parts. Go to POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Install new parts from this list, one at a time, until the problem is fixed.		

MAP 0182: Capstan Pinch Roll Cannot Be Lowered

Symptom Explanation	Conditions That Could Cause This Symptom
During autoload, the lower limit of the Pinch Roll travel could not be detected. This timeout occurs six seconds after the Capstan Pinch Roll Motor (M301) is started.	• A failure in the Capstan Pinch Roll Motor (M301) or its drive circuitry. • A problem with the Pinch Roll drive mechanism. • A failure in the Tension Arm Encoder Board (EN122), Tension Arm Encoder Board (EN123), or sensing circuitry.

REFERENCES

- Removals & Adjustments - Auto Load Bridge
- Circuit Diagrams -
  CD11 - Tension Arm Encoder
  CD38 - Capstan Pinch Roll Motor (M301)
- Wiring Diagrams -
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
  WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation.
  An error is indicated by an SRC 182 on the Display/Touch Screen or **E021** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 64 to display the Tension Arm positions.
- Run Driver Routine 13. This routine moves the Pinch Roll up and down. The possible errors are:
  - **E121** – same as SRC 188 or **E029** on the Maintenance Panel
  - **E126** – same as SRC 186 or **E026** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Capstan Pinch Roll Motor (M301)	35%	2125	3321	3028
Tension Arm Encoder Board (EN122)	20%	2125	3321	3090
Tension Arm Encoder Board (EN123)	20%	2125	3321	3090
Forms Width Sensor Board (PW091)	05%	2123	3333	3046
YS011 Card	05%	2116	3363	2627
Relay Board (RB101)	05%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	05%	B1 Logic Card Links		
Gears and couplings	05%		3321	3028
Open or short circuit in wiring	---			

MAP 0182 BEGINS

Table 93. MAP 0182

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 93. MAP 0182 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• Run Driver Routine 13. **Does the Tension Arm move during the test?**	This step assumes that the Capstan Pinch Roll Motor (M301) and drive mechanism are good. The problem appears to be in the Tension Arm Encoder circuitry. Do the following, one step at a time, until the problem is corrected: • Check the following connectors for correct contact: – PJ141 – PJ302 – PJ305 – PJ306 – PJ307 • Install the new parts listed below, one at a time, until the problem is corrected: – Tension Arm Encoder Board (EN123) – Tension Arm Encoder Board (EN122) – Forms Width Sensor Board (PW091) – YS011 Card @ (continued on next page)	Go to Step 2.

Table 93. MAP 0182 (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)		• Repair an open circuit between one of the following pairs of connectors: – PJ307-11 and PJ141-11 – PJ307-12 and PJ141-12 – PJ307-13 and PJ141-13 – PJ307-15 and PJ141-15 – PJ307-29 and PJ141-29 @	
Step 2.	There is a problem with the Capstan Pinch Roll Motor (M301), its drive circuitry, or its drive linkage. This check will test if voltage is applied to the motor. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the Maintenance Panel Extension Cable. • Set the multimeter to read a voltage of 200 V ac. • Connect the meter leads to the following points on the Capstan Pinch Roll Motor (M301) connector: – P310-1 – P310-2 • Run Driver Routine 13. **Is there 200 V ac between points P310-1 and P310-2 when the routine is running, and 0 V ac when the routine is stopped?**	Go to Step 3.	Do the following, one step at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Repair an open circuit between one of the following pairs of connectors: – PJ503-9 and PJ310-1 – PJ503-20 and PJ310-2 – PJ481-18 and PJ501-2 • Install a new Capstan Pinch Roll Motor (M301) and Capacitor (C301). These parts are supplied as one assembly. @

Table 93. MAP 0182 (continued)

Step	Questions/Actions	Yes	No
Step 3.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Capstan Pinch Roll Motor (M301). • Inspect the mechanical drive linkage between the Capstan Pinch Roll Motor (M301) and the Tension Arm and Pinch Roll, including the gear on the Capstan Pinch Roll Motor (M301). **Is the drive mechanism and linkage in good condition?**	• Install a new Capstan Pinch Roll Motor (M301) and Capacitor (C301). These parts are supplied as one assembly. @	• Repair any slipping, worn, or binding parts. @

MAP 0183: Bridge Cannot Be Raised (Autoload)

Symptom Explanation	Conditions That Could Cause This Symptom
During autoload, the upper limit of the Bridge travel could not be detected. This timeout occurs six seconds after the Bridge, Pinch Roll, and Capstan Roll are started. A second timeout condition can occur one second after detecting that the Tension Arm is down during Autoload. The Bridge Up Switch (S608) is normally closed, that is, with the Bridge in the down position. The switch should open when the Bridge reaches the raised position.	• The Bridge Up Switch (S608) is always closed. • A failure in the sensing circuitry. • A failure in the Bridge Lift Motor (M606) or its drive circuitry. • A problem with the Bridge lift mechanism.

REFERENCES

- Removals & Adjustments - Auto Load Bridge
- Circuit Diagrams -
  CD39 - Bridge Up Switch (S608)
  CD40 - Bridge Lift Motor (M606)
- Wiring Diagrams -
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
  WD31 - AC Motors (M603, M605, M606 & M609)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation.
  An error is indicated by an SRC 183 on the Display/Touch Screen or by **E022** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 6A to test the Bridge Up Switch (S608).
- Run Driver Routine 21. This routine moves the Bridge up and down. The possible errors are:
  - E122 – same as SRC 183 or **E022** on the Maintenance Panel.
  - E127 – same as SRC 182 or **E021** on the Maintenance Panel.
  - E12A – same as SRC 189 or **E02A** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Bridge Up Switch (S608)	60%	2059	3421	2209
Fuser Control Card FSxxx	20%	2131	3499	2528
Bridge Lift Motor (M606) and drive circuitry	05%	2059	3421	2202
Relay Board RB091/RB092	05%	2135, 2136	3501	
B1J9 Card	05%	B1 Logic Card Links		
Gears and couplings	05%		3421	2202
Short circuit in wiring	---			

MAP 0183 BEGINS

Table 94. MAP 0183

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 21. **Does the Bridge move during the test?**	Go to Step 2.	Go to Step 3.
Step 2.	Perform the following steps: • Run Driver Routine 21. • Press Start/Stop on the Maintenance Panel when the Bridge is in the up position. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ617 on the Bridge Up Switch (S608). If the Bridge drops, lift it to the up position when you make the resistance measurement. **Is there an open circuit (ohms reading of infinity) through the Bridge Up Switch (S608) between P617-1 and P617-2 when the Bridge is in the fully up position?**	Do the following, one step at a time, until the problem is corrected: • Install a new Fuser Control Card (FSxxx). • Repair a short circuit to ground in the wiring network described by the following points: – PJ612-23 – PJ617-1 @	The Bridge Up Switch (S608) is always closed. • Install a new Bridge Up Switch (S608). @

Table 94. MAP 0183 (continued)

Step	Questions/Actions	Yes	No
Step 3.	There is a problem with the Bridge Lift Motor (M606), its drive circuitry, or its drive linkage. This check tests if voltage is applied to the motor. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the Maintenance Panel Extension Cable. • Set the multimeter to read a voltage of 200 V ac. • Connect the meter leads to the following points on the Bridge Lift Motor (M606) connector: – P655-1 – P655-2 • Run Driver Routine 21. **Is there 200 V ac between points P655-1 and P655-2 when the routine is running, and 0 V ac when the routine is stopped?**	Go to Step 4.	Go to Step 5.
Step 4.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Bridge Lift Motor (M606). • Inspect the mechanical drive linkage between the Bridge Lift Motor (M606), the Bridge, and the Bridge Feed Pressure Rollers. **Is the drive linkage in good condition?**	• Install a new Bridge Lift Motor (M606) and Capacitor (C606). These parts are supplied as one assembly. @	• Repair any slipping, worn, or binding parts. @

Table 94. MAP 0183 (continued)

Step	Questions/Actions	Yes	No
Step 5.	This check tests if the relay pick circuit is operating. Do the following, one step at a time, until the problem is corrected: • Measure the voltage between PJ604-20 (negative lead) and PJ604-1 (+24 V dc). • Run Driver Routine 21. **Does the voltage change between +24 V dc and about +1.3 V dc as the routine is running?**	Do the following, one step at a time, until the problem is corrected: • Install a new Relay Board RB091/RB092 . Repair an open circuit between one of the following pairs of connectors: • PJ602-10 and PJ655-1 • PJ602-20 and PJ655-2 • On 200/208/220/230/240-V ac machines: – PJ601-1 and TB503 Terminal 6 – PJ601-12 and TB503 Terminal 4 • On 380/400/415 V ac machines: – PJ601-1 and TB503 Terminal 2 – PJ601-12 and TB503 Terminal 4 • Install a new Bridge Lift Motor (M606) and Capacitor (C606). These parts are supplied as one assembly. @	Do the following, one step at a time, until the problem is corrected: • Install a new B1J9 Card. • Repair an open circuit between one of the following pairs of connectors: – PJ480-31 and PJ604-20 – PJ480-25 and PJ604-1 @

MAP 0184: Transfer Station Forms Jam During Autoload

Symptom Explanation	Conditions That Could Cause This Symptom
The Upper Tractor Jam Sensor (Q301) has not sensed the passing of the forms after 20 inches have been fed.	• The forms are jammed. • The forms are torn. • The Transfer Station may be out of adjustment. • The sensor or tractor cover is covered with paper dust, chads, or adhesive. • The forms are not flat and tight over the sensor. • The detection circuitry has failed. • The Capstan Roll Motor (M302) or its drive circuitry has failed. • See the detail below for other causes.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams -
  CD41 - Capstan Roll Motor (M302)
  CD129 - Upper Tractor Jam Sensor (Q301)
- Wiring Diagrams -
  WD63 - Forms Path Sensors (YS011 Card)
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation.

  An error is indicated by an SRC 184 on the Display/Touch Screen or by **E024** on the Maintenance Panel.
- Run Sensor Routine 62.

QUICK CHECKS

If the forms or holes are torn, jammed, or lifted out of the upper tractor pins:

1. Thoroughly remove any pieces of paper jammed in the tractors or the forms path around the Transfer Station.
2. If the forms are light in weight, try widening the tractor setting slightly to put more tension on the forms.
3. If you are folding the first page over the second page, the leading edge may be too thick to pass through the transfer point, especially if the forms are heavy or have strong perforations. Try a single thickness, and be aware of the correct setting for the Forms Direction switches.
4. The leading edge of the forms may have a curl towards the drum, which is causing the jam when the forms catch under the Deflector Plate. This may result if the pin feed holes are not aligned when one sheet is folded over the other, or if the forms have a tendency to curl.

   See the *Forms Design Reference for: Continuous Forms Advanced Function Printers* regarding perforation accuracy.

   If the leading edge has a curl, or if the holes are not perfectly aligned in the doubled sheets, try the following suggestions:
   a. If possible, turn the box of forms around in the input area, so that you are printing on the other side of the form.
   b. Try reversing the curl by rolling it slightly upward with your hands.
   c. Check if the holes align when the first sheet is folded under the second.
   d. Fold the first sheet over the second, instead of under it. Be aware of the correct setting for the Forms Direction switches.
   e. You may also try autoloading without doubling the first sheet. Be aware of the correct setting for the Forms Direction switches.

5. Check for cuts on the outside edges of the perforation, which cause tearing. The perforations should have ties at the ends.
6. Check for clinging chads or other forms irregularities that cause the forms to be torn in the pre-measure gap. Check the jammed forms to see if the jam began at a pin feed hole. This usually indicates that the jam was caused by a chad.

   Check if the pin feed holes are being damaged at the Lower Tractor pins and catching in the pre-measure gap. In this case, there may be too much resistance in the input area, sometimes caused by roll feed equipment.
7. Ensure that the Urge Unit and Buffer/Flipper Unit are aligned correctly and operating properly. They may be causing too much resistance or drag on the forms.
8. Check for a stack lean problem, especially if the forms are lifting off the upper tractor pins.
9. Check the condition of the forms in the input area for tears or damage before they have reached the Transfer Station. This would indicate a problem in forms quality or handling.
10. Ensure that the forms are installed correctly on the tractor pins.
11. Ensure that the forms are positioned correctly in the input area. If the stack is too far to the rear or at an angle, the perforations can tear during feeding as the forms are twisted.
12. The forms may not be feeding freely from the box. If there is any resistance to pulling the forms from the box, remove the forms from the box.
13. The forms may not be feeding freely over the Input Static Brush.

If the forms are not torn or jammed:

1. Ensure that the Upper Tractor Jam Sensor (Q301) and the black area on the underside of the Upper Tractor Cover are free of scratches, dust, chads, and adhesive. Clean the Upper Tractor Jam Sensor (Q301). Use a pencil eraser if necessary.
2. If this error occurs only with one form, especially a form that has never run successfully, check for the following:
   - Printing or dark colors between the pin feed holes on the back of the form. This appears as a torn form to the logic.
   - If the form is heavy or stiff, it may not lie flat over the sensor.

- Oversized pin feed holes.

  Form problems cannot be fixed by any machine repair. The customer must work with the forms supplier to select a different form for their needs.

3. Ensure that the forms are installed so that they are tight and flat over the sensor.
4. Watch the forms during printing to see if they lift off the sensor. Use the MAP to determine the cause.
5. The Diagnostic Function Switch may have been left in position **9**, which would reduce the tolerance of the circuit and worsen any of the above problems. Set the Diagnostic Function Switch to position **0**.

SERVICE CHECKS

- LED D3 on the Forms Width Sensor Board (PW091) can be used to check the Upper Tractor Jam Sensor (Q301) and the wiring to the Forms Width Sensor Board (PW091). The LED should be off when the forms are covering the sensor, and on when the forms are removed.
- Run Sensor Routine 62.
- Run Driver Routine 12. This test runs the Capstan Roll Motor (M302) for five seconds. No errors are displayed.
- Run Adjustment Routine C6. This routine allows you to check the adjustment of the Tension Arm Encoder Board (EN123) and Tension Arm Encoder Board (EN122).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Forms or forms installation	---			
Tractor alignment	---			3142
Upper Tractor timing adjustment	---			3150
Lower Tractor timing adjustment	---			3146
Tension Arm Encoders (EN123/EN122)	---	2125	3321	3090
Premeasure Unit adjustment	---			3055
Capstan Pinch Roll adjustment	---			3025
Path Modifier position	---			3052
Upper Forms Guide adjustment	---			3044
Deflector Plate to PC Drum Gap	---			3040
Upper Tractor Jam Sensor (Q301)	20%	2123	3317	3152
Capstan Roll Motor (M302)	15%	2125	3321	3038
Capstan Roll Motor (M302) belt drive	15%	2125	3321	3038

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Tractor Motor Drive Belt	15%	2125	3325	3111
Forms Width Sensor Board (PW091)	10%	2123	3333	3046
YS011 Card	10%	2116	3363	2627
Relay Board (RB101)	05%	2084	3507 (200V) 3509 (400V)	
Tension Arm Encoders (EN122 and EN123)	04%	2125	3321	3090
B1J9 Card	03%	B1 Logic Card Links		
B1J8 Card	03%	B1 Logic Card Links		

Notes:

1. Most problems are caused by the forms curl or pieces of paper jammed in the tractor area.
2. The QUICK CHECKS are important in this MAP.
3. Forms jamming in the Upper Tractors, usually indicates that the forms are not loading onto the Upper Tractor pins. This condition is often caused by the Tractor Alignment and Upper and Lower Tractor Timing adjustments.

MAP 0184 BEGINS

Table 95. MAP 0184

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CHECKS, continue with the questions. This MAP requires that the error be present to use the following questions. It is important to use the forms with which the error occurs, and to watch the operator attempt to cause the problem. You may use the procedure in FIX VERIFICATION. **Can you cause the error to happen?**	Go to Step 2.	• Ask the operator to do the following the next time a jam occurs: – Trace the Lower Tractor Covers on the forms. This will help you later to determine the position of the jam. – Save the jammed forms for you to analyze. You may need about 3 sheets on either side of the jam. • Ensure that all of the QUICK CHECKS have been done. • Replace the parts listed in POSSIBLE FAILING PARTS OR ADJUSTMENTS. @

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The perforations, carrier strip, or pin feed holes may be torn. **Are the forms torn, lifted off of the tractor pins, misfeeding, or jammed in any way?**	Go to Step 3.	Go to Step 20.

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The most common cause of this problem is a downward curl in the forms, which catches under the Deflector Plate. This condition is difficult to observe because the forms are pulled out when the Transfer Station is opened. One clue is that the first few inches of the form are usually undamaged, in this case, the forms never reach the Upper Tractors. **Important** The PC Drum scratches easily. Never pull the Drum out when the forms are jammed against it. Perform the following steps: • Cause the jam to occur again. • Open the Transfer Station slowly, and look to see if the leading edge of the forms has caught under the Deflector Plate. **Did the forms catch under the Deflector Plate?**	Do the following, one step at a time, until the problem is corrected: • Remove the forms. • Perform the Check procedure under Deflector Plate to PC Drum Gap. Adjust if necessary. • There may be a problem with the forms. Try the following: – If possible, turn the box of forms around in the input area, so that you are printing on the other side of the form. – Try reversing the curl by rolling it slightly upward with your hands. – Check if the holes align when the first sheet is folded under the second. Try autoloading without doubling the first sheet. Be aware of the correct setting for the Forms Direction switches. (continued on next page)	Go to Step 4.

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 3 (cont.)		• Try the following (cont.): – Fold the first sheet over the second, instead of under it. Do not fold the form against its natural folding direction. Be aware of the correct setting for the Forms Direction switches. • If the above suggestions do not work, there may still be a problem with the printer. Go to Step 4.	
Step 4.	Cuts and ties are words used by forms suppliers to describe perforations. • The perforations should have ties at the ends. Check for cuts on the outside edges of the perforation. Small corners at these cuts can become raised and may cause tearing. **Are there ties at the ends of the perforations?**	Go to Step 5.	The problem may be caused by the form. • If the forms are not tearing, or if this does not seem to be the problem, go to Step 5.

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Perform the Check procedure under Tractor Alignment. **Is the Tractor Alignment correct?**	Go to Step 6.	If one Tractor can be moved while the other is held, there may be a tension problem with the Tractor Positioning Cables. If so, see Upper Tractor Positioning Cable A or Lower Tractor Positioning Cable B. • Perform the Tractor Alignment adjustment. • Verify the fix, and reenter this MAP if necessary. @
Step 6.	The Capstan Roll may not be driving. • Run Driver Routine 12. **Did the Capstan Roll drive during the routine?**	Go to Step 9.	Go to Step 7.
Step 7.	Perform the following steps: • Remove the Capstan Roll Drive Belt Cover from the front of the printer. It is located under the Upper Rear Tractor. • Check the Capstan Roll Drive Belt for tension, worn cogs, or other problems. **Is the Capstan Roll Drive Belt tight and in good condition?**	Go to Step 8.	• Tighten or install a new Capstan Roll Drive Belt, as necessary. @

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 8.	There is a problem with the Capstan Roll Motor (M302) or its drive circuitry. This check tests if voltage is applied to the motor. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Set the multimeter to read a voltage of 200 V ac. • Connect the meter leads to the following points on the Capstan Roll Motor (M302) connector: – P311-1 – P311-2 • Run Driver Routine 12. **Is there 200 V ac between points P311-1 and P311-2 when the routine is running, and 0 V ac when the routine is stopped?**	Install a new Capstan Roll Motor (M302) and Capacitor (C302). These parts are supplied as one assembly. @	There is a problem with the Capstan Roll Motor (M302) drive circuitry. Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Relay Board (RB101) – B1J9 Card • Repair an open circuit between one of the following pairs of connectors: – PJ311-1 and PJ503-8 – PJ311-2 and PJ503-19 – PJ481-19 and PJ501-4 • Install a new Capstan Roll Motor (M302) and Capacitor (C302). These parts are supplied as one assembly. @

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 9.	Perform the following steps: • Remove the Capstan Pinch Roll Cover. • Run Driver Routine 13. • As the routine is running, look for a slight deflection of the springs as the Capstan Pinch Rolls close against the Capstan Roll. **Do the Capstan Pinch Rolls fully close against the Capstan Roll?**	Go to Step 11.	Go to Step 10.
Step 10.	**Do the Capstan Pinch Rolls bind on the Upper Forms Guide when they are closing?**	• Perform the Upper Forms Guide adjustment. • Ensure that the gap between the PC Drum and the Upper Forms Guide is checked carefully, as it can scratch the PC Drum.	The Capstan Pinch Rolls are failing to close. • Perform the Capstan Pinch Roll adjustment. @
Step 11.	• Perform the Check procedure under Upper Forms Guide. @ **Is the gap between the Upper Forms Guide and the PC Drum correct?**	Go to Step 12.	• Perform the Upper Forms Guide adjustment. @
Step 12.	• Perform the Check procedure under Deflector Plate to PC Drum Gap. **Is the gap correct?**	Go to Step 13.	• Perform the Deflector Plate to PC Drum Gap adjustment. @

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 13.	In the following check, be aware that the coupling on the Retractor Motor (M304) may be loose. This may have caused the problem. • Perform the Check procedure under Retractor Detent Position. @ **Is the Retractor Detent Position correct?**	Go to Step 14.	• Perform the adjustment adjustment. @
Step 14.	• Perform the Check procedure under Path Modifier Position. @ **Is the Path Modifier Position correctly adjusted?**	Go to Step 15.	• Perform the Path Modifier Position adjustment. @
Step 15.	In the following Check, be aware that the Upper Tractor Drive Pulley may be loose. • Perform the Check procedure under Upper Tractor Timing. @ **Is the Upper Tractor Timing adjustment correct?**	Go to Step 16.	• Perform the Upper Tractor Timing adjustment. @
Step 16.	• Perform the Check procedure under Lower Tractor Timing. @ **Is the Lower Tractor Timing adjustment correct?**	Go to Step 17.	• Perform the Lower Tractor Timing adjustment. @

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 17.	The Premeasure Shaft will not be fully extended during autoload if the Tension Arm Encoder is not adjusted correctly. This happens because the autoload crank mechanism at the front of the Transfer Station will stop at the wrong position. The following check requires that forms be loaded into the printer. If you cannot use the autoload feature, load the forms by using the procedure “Loading Forms - Semiautomatic Load” in the *Operator’s Guide*. • Perform the Check procedure under Tension Arm Encoder Position. @ **Is the Tension Arm Encoder correctly adjusted?**	Go to Step 19.	Go to Step 18.

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 18.	• Perform the Tension Arm Encoder Position adjustment. @ **Were you able to correctly adjust the Tension Arm Encoder?**	• Perform an autoload procedure to verify the fix. @	Do the following, one step at a time, until the problem is corrected: • Check the following connectors for correct contact: – PJ141 – PJ302 – PJ305 – PJ306 – PJ307 • Install the new parts listed below, one at a time, until the problem is corrected: – Tension Arm Encoder Board (EN123) – Tension Arm Encoder Board (EN122) – Forms Width Sensor Board (PW091) – YS011 Card @ (continued on next page)

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 18 (cont.)			• Repair an open circuit between one of the following pairs of connectors: – PJ307-11 and PJ141-11 – PJ307-12 and PJ141-12 – PJ307-13 and PJ141-13 – PJ307-15 and PJ141-15 – PJ307-29 and PJ141-29

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 19.	• Perform the Check procedure under Pre-Measure Unit. @ **Is the Premeasure Unit correctly adjusted?**	Do the following, one step at a time, until the problem is corrected: • Ensure that all of the QUICK CHECKS have been done. The problem may have started at the Rear Tractor, usually by the forms failing to load correctly on the pins. You may verify this by stopping the autoload when the forms reach the Upper Tractors, and lifting the Tractor Covers to see if the forms have loaded on the pins. If the forms have a raised area along the pin feed holes, they have failed to load on the pins. • Recheck the Tractor Alignment. If the Tractor Alignment Gauge is not giving satisfactory results, use the forms as a guide. Remember that the forms should be slightly looser on top. @	• Perform the Pre-Measure Unit adjustment. @

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 20.	The following questions assume that a false error has been detected. This means that the forms are not damaged and have stopped for no apparent reason. The Upper Tractor Jam Sensor (Q301) may have failed in the on or off state. • Run Sensor Routine 62 using plain white paper. Fully cover and uncover the Upper Tractor Jam Sensor (Q301). **Are both on62 and oF62 displayed on the Maintenance Panel?**	Go to Step 21.	Go to Step 22.
Step 21.	**Are there any dark colors or printing on the back (sensor side) of the problem form?**	• Run Sensor Routine 62 to test this or any other form with this procedure: – Raise the tractor cover and move the carrier strip over the Upper Tractor Jam Sensor (Q301). – If both on and off states are detected, the form should run. Watch for printing on the back, however, that periodically spans several holes.	Go to Step 23.

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 22.	There is a problem with the sensing circuit. • Remove the forms as necessary to locate LED D3 on the Forms Width Sensor Board (PW091). • Cover and uncover the Upper Tractor Jam Sensor (Q301) with plain white paper. **Does LED D3 turn off and on?**	Install the new parts listed below, one at a time, until the problem is corrected: • YS011 Card • Forms Width Sensor Board (PW091) • B1J8 Card • Repair an open circuit or short circuit to ground between PJ307-37 and PJ141-37. @	• Clean the Upper Tractor Jam Sensor (Q301). Use a pencil eraser if necessary. • Check connector PJ301 for correct contact. • Install the new parts listed below, one at a time, until the problem is corrected: – Upper Tractor Jam Sensor (Q301) – Forms Width Sensor Board (PW091) @
Step 23.	The Tractors may not be driving. • Run Driver Routine 10. **Did the Tractors run correctly during the test?**	Go to Step 24.	• Inspect the Tractor Drive Belt, pulleys, clamping rings, and bearings, and correct as needed. Especially check the tension of the Tractor Drive Belt, and that the Tractor Drive Pulleys are tightly clamped to the Tractor Drive Shafts. @

Table 95. MAP 0184 (continued)

Step	Questions/Actions	Yes	No
Step 24.	The forms may be rising up over the Upper Tractor Jam Sensor (Q301). • Raise the Upper Front Tractor Cover and inspect the forms. You may try the following procedure if you are in doubt about whether the forms have lifted. • Run Sensor Routine 62 to determine if the forms are far enough above the Upper Tractor Jam Sensor (Q301) to cause an **oF62** error. **Are the forms lifting over the Upper Tractor Jam Sensor (Q301)?**	Go to Step 25.	No problem has been identified. Perform the following steps: • Clean the Upper Tractor Jam Sensor (Q301). Use a pencil eraser if necessary. • Check for oversized pin feed holes. • Ensure that the Diagnostic Function Switch is not in position **9**. • Check for a loose or incorrect Upper Tractor Jam Sensor (Q301) mounting. • Go to Step 25. @
Step 25.	Investigate the following possible causes of the lifting forms: • Tractor Alignment • Path Modifier adjustment • Lower Tractor Timing Adjustment (to set the forms tension around the Transfer Station) • Stiff, heavy forms or strong perforations • Wrinkled forms • Broken tractor pins • Play in the Tractor Belts • Retractor Detent Position Adjustment @		

MAP 0185: Upper Fuser Jam (Autoload)

Symptom Explanation	Conditions That Could Cause This Symptom
During autoload, the forms were late in arriving at the Stacker Jam Sensor (Q701).	• There is a failure in the Bridge Feed Motor (M605), its drive linkage, or its drive circuitry. • There is a failure in the Stacker Jam Sensor (Q701) or its sensing circuitry. • There is a failure in the Bridge Up Switch (S608) or its sensing circuitry. • There is a failure in the Bridge Lift Motor (M606), its drive linkage, its brake, or its drive circuitry. • The Bridge Up Switch (S608) circuit is always open. • The Scuff Roll Motor (M604), drive belt, Scuff Rolls, or Pressure Rolls may not be providing enough tension to feed the forms into the Pendulum. • The brake has failed on the Capstan Pinch Roll Motor (M301).
During autoload, the forms were late in arriving at the Upper Tractor Jam Sensor (Q301).	• There is a failure in the Upper Tractor Jam Sensor (Q301) or its sensing circuitry. Go to MAP 0184: Transfer Station Forms Jam During Autoload.

REFERENCES

- Removals & Adjustments -
  Auto Load Bridge
  Fuser
- Circuit Diagrams -
  CD40 - Bridge Lift Motor (M606)
  CD42 - Bridge Feed Motor (M605)
  CD39 - Bridge Up Switch (S608)
  CD15 -Scuff Roll Motor (M604)
  CD26 - Stacker Jam Sensor (Q701)
- Wiring Diagrams -
  WD33 - AC Motors (M604, M701, M702 & M803)
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation.

  An error is indicated by an SRC 185 on the Display/Touch Screen or by **E025** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 75 to test the Stacker Jam Sensor (Q701).
- Run Driver Routine 20. This routine runs the Bridge Feed Motor (M605) for five seconds. You must watch for rotation, as no errors are displayed.
- Run Driver Routine 21. This routine moves the Bridge up and down.
- Run Adjustment Routine C5.

  This test causes the autoload mechanisms to operate, but not the Tractors.

  Note: The Forms Feed keys work during this routine.

  Use this test to adjust Bridge position, and to drive the Bridge Feed Roll and the Capstan Roll.
- Run Driver Routine 29. This routine drives the Scuff Roll Motor (M604) for five seconds. You must watch for rotation, as no errors are displayed.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Scuff Rolls	10%	2073	3405	2590
Scuff Pressure Rolls	10%	2073	3379	2586
Bridge Lift Motor (M606)	10%	2059	3421	2202
Scuff Roll Motor (M604)	10%	2073	3403	2592
Bridge Feed Motor (M605)	10%	2059	3423	2198
Bridge Up Switch (S608)	10%	2059	3421	2209
Capstan Pinch Roll Motor (M301)	10%	2125	3321	3028
Stacker Jam Sensor (Q701)	5%	2117	3471	2978
Relay Board RB091/RB092	5%	2135, 2136	3501	
Stacker Jam LED (PL701)	04%	2117	3471	2978
Stacker Control Card SCxxx	04%	2120	3457	3019
B1J9 Card	04%	B1 Logic Card Links		
Gears and Couplings	04%			
Fuser Control Card FSxxx	02%	2131	3499	2528
Hot Roll Control Card HR091	02%	2064	3397	2534

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Bridge Height & Parallelism adjustment	---			2199
Open or short circuit in wiring	---			

MAP 0185 BEGINS

Table 96. MAP 0185

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP fixes only autoload failures between the Tension Arm and the Stacker. Sometimes there are jams at the transfer point or in the Upper Tractors. **Do the forms feed successfully (no jams) between the input area and the base of the Tension Arm?**	Go to Step 2.	There is a jam at the Transfer Station. Go to MAP 0184: Transfer Station Forms Jam During Autoload.
Step 2.	• Perform an autoload procedure. **Does the Bridge rise and stay up normally during an autoload?**	Go to Step 4.	Go to Step 3.

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 3.	**Does the Bridge rise briefly, and then fall back?**	Do the following, one step at a time, until the problem is corrected: • Perform the Check and Adjustment (if necessary) procedures of the Bridge Up Switch (S608). • If you have released the brake mechanism by removing the plate or springs, correct it now by reversing the procedure. • Install a new Bridge Lift Motor (M606). The internal brake mechanism in the Bridge Lift Motor (M606) appears to have failed. @	The following steps assume that the Bridge does not rise at all during an autoload, or is binding. Go to Step 16.

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 4.	**Does the Tension Arm move down and then spring back during an autoload procedure?**	The internal brake mechanism in the Capstan Pinch Roll Motor (M301) appears to have failed. Do the following, one step at a time, until the problem is corrected: • If you have released the brake mechanism by removing the plate or springs, correct it now by reversing the procedure. • Install a new Capstan Pinch Roll Motor (M301). @	Go to Step 5.
Step 5.	• Remove the forms from the printer. • Run Driver Routine 20. **Do the Bridge Feed Belts run during the routine?**	Go to Step 7.	Go to Step 6.
Step 6.	• Run Driver Routine 20 again, and this time watch the Bridge Feed Shaft. **Does the Bridge Feed Shaft turn during the routine?**	The Bridge Feed Motor (M605) is good. • Fix the Bridge Feed Gears at the front of the Bridge. @	Go to Step 19.

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 7.	The Stacker Jam Sensor (Q701) may be indicating a false error. • Run Sensor Routine 75. • Insert plain white paper into the Stacker Jam Sensor (Q701) **Is on75 displayed on the Maintenance Panel when you insert the paper?**	Go to Step 8.	The Stacker Jam Sensor (Q701) or its circuitry has failed. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Stacker Jam Sensor (Q701) – Stacker Jam LED (PL701) – Stacker Control Card (SCxxx) • Repair an open circuit between one of the following pairs of connectors: – PJ157-1 and PJ711-1 – PJ157-2 and PJ711-2 – PJ157-3 and PJ702-1 – PJ157-4 and PJ702-2 @
Step 8.	• Perform the Check procedure of Bridge Height and Parallelism. **Are the positions of the Bridge and Tension Arm correct?**	Go to Step 10.	Go to Step 9.

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 9.	The Tension Arm position should be checked first, followed by the Bridge height. • Perform the Tension Arm Position and Tension Arm Encoder Position Checks. **Is the Tension Arm correctly adjusted?**	The Bridge height is incorrect. • Perform the height adjustment in Bridge Height and Parallelism. @	• Adjust the Tension Arm as necessary.
Step 10.	• Perform the Parallelism Check in Bridge Height and Parallelism. **Is the Bridge parallel to the Tension Arm?**	Go to Step 11.	• Perform the parallelism adjustment in Bridge Height and Parallelism. @
Step 11.	• Inspect the Scuff Roll Drive Belt to determine if it is broken, stretched, or loose. It is easily visible behind the front fuser cover. **Is the Scuff Roll Drive Belt tight and in good condition?**	Go to Step 12.	• Tighten or install a new Scuff roll Drive Belt as necessary. @
Step 12.	There may be a problem with the Scuff Roll Motor (M604). The belt that you just checked is mounted on the Scuff Roll Drive Pulleys. • Run Driver Routine 29. **Do the Scuff Roll Drive Pulleys turn during the routine?**	Go to Step 14.	Go to Step 13.

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 13.	• Enter the looping option. • Run Driver Routine 29. (Use the Run Option for continuous looping. First press E0, ENTER, FF, ENTER, then START/STOP.) **Is the voltage 200 V ac across P653-2 and P653-3 while the routine is running, and 0 V ac when the routine is stopped?**	• Install a new Scuff Roll Motor (M604) and Capacitor (C604). These parts are shipped together under one part number. @	There is a problem with the drive circuit. Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Relay Board RB091/RB092 – B1J9 Card • Repair an open circuit between one of the following pairs of connectors: – PJ653-2 and PJ602-15 – PJ653-3 and PJ602-4 – PJ604-3 and PJ480-32 – PJ604-1 and PJ480-25 • Install a new Scuff Roll Motor (M604) and Capacitor (C604). These parts are shipped together under one part number. @

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 14.	 **CAUTION:** **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.** There may be some problem with the Scuff Rollers or the Pressure Rollers. • Open the Pressure Roll mounting rack, using the blue handle. • Check the Scuff Rolls and Pressure Rolls for missing, worn, or binding rollers. • If you have recently installed the Pendulum Assembly, check that its upper paper guide is not binding on the Scuff Rollers. **Are the Pressure Rollers and Scuff Rollers turning freely and in good condition?**	Go to Step 15.	• Repair or install new rollers as necessary. @

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 15.	No problem has been clearly found. Do the following, one step at a time, until the problem is corrected: • It is possible that the Scuff Roll is not providing enough tension to the forms. Perform the following checks: – Use this procedure to check the Scuff Roll tension: - Load the forms. - Ensure that `Channels Disabled` is displayed. - Press the **vacuum release** pushbutton. - Hold the Tension Arm down. - Press the **Stacker Table Up** button. - Release the Tension Arm. - If the Tension Arm rises up, the Scuff Rolls are not providing enough tension. – The Exit Release Wire may be too tight, preventing the Pressure Rolls from contacting the Scuff Rolls. – The Pressure Roll release lever may be contacting a bracket, preventing it from returning to the closed position. – If the Pressure Rolls are loaded against the Scuff Rolls, there may not be enough side force on the Scuff Rolls. Move the clip on the Scuff Roll shaft to give a greater spring compression. • Look for an obstacle in the forms path on which the forms are jamming. • Look for any of the following problems with the forms: – Forms very light in weight or curled. – Forms catching on the Preheat Platen caused by adhesive on the back of the forms. (Clean adhesive from the Preheat Platen.) – Leading edge or pin feed holes catching in grooves of the Preheat Platen. – Internal perforations collapsing, causing a jam. @		

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 16.	The Bridge never rises during an autoload. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ617. **Is there continuity through the Bridge Up Switch (S608) between P617-1 and P617-2?**	Go to Step 17.	The switch is always open. • Install a new Bridge Up Switch (S608). @

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 17.	**Note:** If the Bridge Up Switch (S608) appears open to the logic, it will not allow the Bridge Lift Motor (M606) to operate. This means that a Bridge Up Switch (S608) logic failure can look like a motor failure because the motor will not be driven. There is a problem with the Bridge Up Switch (S608) circuitry, the Bridge Lift Motor (M606), its drive circuitry, or its drive linkage. This check will test if voltage is applied to the motor. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the Maintenance Panel Extension Cable. • Set the multimeter to read a voltage of 200 V ac. • Connect the meter leads to the following points on the Bridge Lift Motor (M606) connector: – P655-1 – P655-2 • Run Driver Routine 21. **Is there 200 V ac between points P655-1 and P655-2 when the routine is running, and 0 V ac when the routine is stopped?**	Go to Step 18.	Do the following, one step at a time, until the problem is corrected: • Check the following connectors for proper contact: – PJ685 – PJ612 • Install the new parts listed below, one at a time, until the problem is corrected: – Fuser Control Card (FSxxx) – Relay Board RB091/RB092 – B1J9 Card • Repair an open circuit between one of the following pairs of connectors: – PJ612-23 and PJ617-1 – PJ612-24 and PJ617-2 – PJ602-10 and PJ655-1 @ (continued on next page)

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 17 (cont.)			• Repair an open circuit (cont.): – PJ602-20 and PJ655-2 – PJ480-31 and PJ604-20 – PJ480-25 and PJ604-1 – PJ601-1, PJ601-12, and PJ602-18 to Terminal Block TB503. • Install a new Bridge Lift Motor (M606) and Capacitor (C606). These parts are supplied as one assembly. @
Step 18.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Bridge Lift Motor (M606). • Inspect the mechanical drive linkage between the Bridge Lift Motor (M606), the Bridge, and the Bridge Feed Pressure Rollers. **Is the drive linkage in good condition?**	• Install a new Bridge Lift Motor (M606) and Capacitor (C606). These parts are supplied as one assembly. @	• Repair any slipping, worn, or binding parts.

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 19.	There is a problem with the Bridge Feed Motor (M605), its drive circuitry, or its drive mechanism. This check tests if voltage is applied to the motor. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the Maintenance Panel Extension Cable. • Set the multimeter to read a voltage of 200 V ac. • Connect the meter leads to the following points on the Bridge Feed Motor (M605) connector: – P654-1 – P654-2 • Run Driver Routine 20. **Is there 200 V ac between points P654-1 and P654-2 when the routine is running, and 0 V ac when the routine is stopped?**	Go to Step 20.	Do the following, one step at a time, until the problem is corrected: • Install a new Relay Board RB091/RB092 . • Install a new B1J9 Card. • Repair an open circuit between one of the following pairs of connectors: – PJ602-21 and PJ654-1 – PJ602-10 and PJ654-2 – PJ480-29 and PJ604-5 • Install a new Bridge Feed Motor (M605) and Capacitor (C605). These parts are supplied as one assembly. @
Step 20.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Inspect the Bridge Feed Gears. Ensure that the gears are not stripped and are engaged correctly. **Are the Bridge Feed Gears in good condition?**	Go to Step 21.	• Install new Bridge Feed Gears. @

Table 96. MAP 0185 (continued)

Step	Questions/Actions	Yes	No
Step 21.	See the Replacement procedure under Bridge Feed Motor (M605) and Gearbox. Refer to the instructions on how to ensure the correct gear engagement. **Is the gear on the Bridge Feed Motor (M605) gearbox shaft correctly engaged with the driven gear?**	Go to Step 22.	• Adjust as necessary to ensure the correct gear engagement. @
Step 22.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Bridge Feed Motor (M605). • Inspect the gear on the Bridge Feed Motor (M605), the feed shaft gear, and the gearbox. **Are the gears in good condition?**	Go to Step 23.	• Repair any slipping, worn, or binding parts. @
Step 23.	• With the motor removed, turn the Bridge Feed Belt Idler Roll by hand. **Do the Bridge Feed Belts turn without binding?**	• Install a new Bridge Feed Motor (M605) and Capacitor (C605). These parts are supplied as one assembly. @	• Repair any binding parts. @

MAP 0186: Capstan Pinch Roll Cannot Be Raised (Autoload)

Symptom Explanation	Conditions That Could Cause This Symptom
During autoload, the upper limit of the Capstan Pinch Roll travel could not be detected. This timeout occurs six seconds after the Capstan Pinch Roll Motor (M301) is started.	• There is a failure in the Capstan Pinch Roll Motor (M301) or its drive circuitry. • There is a problem with the Capstan Pinch Roll drive mechanism. • There is a failure in the Capstan Pinch Roll Open Switch (S301) or sensing circuitry.

REFERENCES

- Removals & Adjustments -
  Auto Load Bridge
  Transfer Station
- Circuit Diagrams -
  CD43 - Capstan Pinch Roll Open Switch (S301)
  CD38 - Capstan Pinch Roll Motor (M301)
- Wiring Diagrams -
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
  WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation. An error is indicated by an SRC 186 on the Display/Touch Screen or by **E026** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 66 to test the Capstan Pinch Roll Open Switch (S301).
- Run Driver Routine 13. This routine moves the Capstan Pinch Roll up and down.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Capstan Pinch Roll Motor (M301)	45%	2125	3321	3028
Capstan Pinch Roll Open Switch (S301)	40%	2122	3341	3031
YS011 Card	05%	2116	3363	2627
Relay Board (RB101)	05%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	05%	B1 Logic Card Links		
Gears and couplings	---		3321	3028
Open or short circuit in wiring	---			

MAP 0186 BEGINS

Table 97. MAP 0186

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 13. **Does the tension link move during the test?**	Go to Step 2.	Go to Step 4.

Table 97. MAP 0186 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The Capstan Pinch Roll Motor (M301) is working correctly. The Capstan Pinch Roll Open Switch (S301) may have failed in the open or closed position. Perform the following steps: • Remove the Transfer Station Front Cover. • Run Driver Routine 13. Stop the test at any time when the interrupter blade is not in the Capstan Pinch Roll Open Switch (S301). • Select a thick, steel, thickness gauge blade. The blade must be attracted to a magnet. Do not use the tools for setting the Doctor and Scraper blade gaps. • Run Sensor Routine 66 to test the Capstan Pinch Roll Open Switch (S301). The normal displays are: – **on66** when a steel interrupter is in the switch – **oF66** when the interrupter is removed. **Are both on66 and oF66 displayed on the Maintenance Panel as you insert and remove the thickness gauge blade?**	The Capstan Pinch Roll Open Switch (S301) circuit is working correctly. The position of the Capstan Pinch Roll Open Switch (S301) must be too low to sense the interrupter. • Raise or otherwise adjust the position of the Capstan Pinch Roll Open Switch (S301). @	Go to Step 3.

Table 97. MAP 0186 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The Capstan Pinch Roll Open Switch (S301) circuit has failed. The Capstan Pinch Roll Open Switch (S301) may have failed in the open or closed position. Perform the following steps: • For the following check, leave the Capstan Pinch Roll linkage as it is. That is, the interrupter should not be in the Capstan Pinch Roll Open Switch (S301) • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ304 on the Forms Width Sensor Board (PW091). • Measure the resistance (continuity) through the Capstan Pinch Roll Open Switch (S301) between points P304-1 and P304-2 as the thickness gauge blade is inserted and removed through the sensor. **Does the Capstan Pinch Roll Open Switch (S301) open and close (approximately 0 to infinity ohms between P304-1 and P304-2) as you insert and remove the thickness gauge blade?**	The Capstan Pinch Roll Open Switch (S301) sensing circuit is assumed to have failed. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check the following connectors for proper contact: – PJ307 – PJ141 • Install the new parts listed below, one at a time, until the problem is corrected: – Forms Width Sensor Board (PW091) – YS011 Card • Repair an open circuit between one of the following pairs of connectors: – PJ307-9 and PJ141-9 – PJ307-10 and PJ141-10 @ (continued on next page)	The Capstan Pinch Roll Open Switch (S301) is always open or always closed. • Install a new Capstan Pinch Roll Open Switch (S301). @

Table 97. MAP 0186 (continued)

Step	Questions/Actions	Yes	No
Step 3 (cont.)		• Repair a short circuit to ground in the wiring network described by the following points: – PJ307-9 – PJ141-9	
Step 4.	There is a problem with the Capstan Pinch Roll Motor (M301), its drive circuitry, or its drive linkage. This check tests if voltage is applied to the motor. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the Maintenance Panel Extension Cable. • Set the multimeter to read a voltage of 200 V ac. • Connect the meter leads to the following points on the Capstan Pinch Roll Motor (M301) connector: – P310-1 – P310-2 • Run Driver Routine 13. **Is there 200 V ac between points P310-1 and P310-2 when the routine is running, and 0 V ac when the routine is stopped?**	Go to Step 5.	Do the following, one step at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Repair an open circuit between one of the following pairs of connectors: – PJ503-9 and PJ310-1 – PJ503-20 and PJ310-2 – PJ481-18 and PJ501-2 • Install a new Capstan Pinch Roll Motor (M301) and Capacitor (C301). These parts are supplied as one assembly. @

Table 97. MAP 0186 (continued)

Step	Questions/Actions	Yes	No
Step 5.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Capstan Pinch Roll Motor (M301). • Inspect the mechanical drive linkage between the Capstan Pinch Roll Motor (M301) and the Tension Arm and the Capstan Pinch Roll, including the gear on the Capstan Pinch Roll Motor (M301). **Is the drive linkage in good condition?**	• Install a new Capstan Pinch Roll Motor (M301) and Capacitor (C301). These parts are supplied as one assembly. @	• Repair any slipping, worn, or binding parts. @

MAP 0187: Bridge Cannot Be Lowered (Autoload)

Symptom Explanation	Conditions That Could Cause This Symptom
During autoload, the lower limit of the Bridge travel could not be detected. This timeout occurs six seconds after the Bridge Lift Motor (M606) is started.	• There is a failure in the Bridge Lift Motor (M606) or its drive circuitry. • There is a problem with the Bridge drive mechanism. • Bridge Down Switch (S609) is always closed. It should be open when the Bridge is in the down position. • There is a failure in the sensing circuitry.

REFERENCES

- Removals & Adjustments - Auto Load Bridge
- Circuit Diagrams -
  CD44 - Bridge Down Switch (S609)
  CD40 - Bridge Lift Motor (M606)
- Wiring Diagrams -
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
  WD31 - AC Motors (M603, M605, M606 & M609)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation.
  An error is indicated by an SRC 187 on the Display/Touch Screen or by **E027** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 6B to test the Bridge Down Switch (S609).
- Run Driver Routine 21. This routine moves the Bridge up and down. The possible errors are:
  - E122 – same as SRC 187 or **E022** on the Maintenance Panel.
  - E127 – same as SRC 182 or **E021** on the Maintenance Panel.
  - E12A – same as SRC 189 or **E02A** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Bridge Down Switch (S609)	80%	2059	3423	2195
Fuser Control Card FSxxx	10%	2131	3499	2528
Gears and clamping screws	10%			
Short circuit in wiring	---			

MAP 0187 BEGINS

Table 98. MAP 0187

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	The following step requires that the routine be run more than once. It can be run as many times as necessary after that. • Run Driver Routine 21. Run it a second time to set the Bridge in the correct position to use this MAP. **Does the Bridge move when routine 21 runs the second time?**	Go to Step 2.	Go to Step 3.

Table 98. MAP 0187 (continued)

Step	Questions/Actions	Yes	No
Step 2.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ618. • Run Driver Routine 21. Run it a second time to set the Bridge in the correct position to answer this question. **Does the Bridge move when routine 21 runs the second time?**	The Bridge Down Switch (S609) is good, but there is a problem in the sensing circuit. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install a new Fuser Control Card (FSxxx). • Repair a short circuit to ground in the wiring network described by the following points: – PJ618-1 – PJ612-25 @	The Bridge Down Switch (S609) is always closed. • Install a new Bridge Down Switch (S609). @

Table 98. MAP 0187 (continued)

Step	Questions/Actions	Yes	No
Step 3.	This question assumes that the Bridge is in the up position. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ618. • Measure the resistance through the Bridge Down Switch (S609) between points P618-1 and P618-2. **Is there an open circuit through between P618-1 and P618-2?**	The Bridge Down Switch (S609) is always open. • Install a new Bridge Down Switch (S609). @	The Bridge Down Switch (S609) is good, but there is a problem in the sensing circuit. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check the following connectors for correct contact: – PJ685 – PJ612 • Install a new Fuser Control Card (FSxxx). • Repair an open circuit between one of the following pairs of connectors: – PJ612-25 and PJ618-1 – PJ612-26 and PJ618-2 @

MAP 0188: Capstan Pinch Roll Initial Position Error

Symptom Explanation	Conditions That Could Cause This Symptom
After autoload error was reset, the upper limit of the Capstan Pinch Roll travel could not be detected. This timeout occurs ten seconds after the Capstan Pinch Roll Motor (M301) is started.	• There is a failure in the Capstan Pinch Roll Motor (M301) or its drive circuitry. • There is a problem with the Capstan Pinch Roll drive mechanism. • There is a failure in the Capstan Pinch Roll Open Switch (S301) or its sensing circuitry.

REFERENCES

- Removals & Adjustments -
  Auto Load Bridge
  Transfer Station
- Circuit Diagrams -
  CD43 - Capstan Pinch Roll Open Switch (S301)
  CD38 - Capstan Pinch Roll Motor (M301)
- Wiring Diagrams -
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
  WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation.
  An error is indicated by an SRC 188 on the Display/Touch Screen or by **E029** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 66 to test the Capstan Pinch Roll Open Switch (S301).
- Run Driver Routine 13. This routine moves the Capstan Pinch Roll up and down. The possible errors are:
  - E121 – same as SRC 188 or **E029** on the Maintenance Panel
  - E126 – same as SRC 186 or **E026** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Capstan Pinch Roll Open Switch (S301)	40%	2122	3341	3031
Capstan Pinch Roll Motor (M301)	40%	2125	3321	3028
Forms Width Sensor Board (PW091)	05%	2123	3333	3046
YS011 Card	05%	2116	3363	2627
Relay Board (RB101)	05%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	05%	B1 Logic Card Links		
Gears and couplings	---		3321	3028
Short circuit in wiring	---			

MAP 0188 BEGINS

Table 99. MAP 0188

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 13. **Does the tension link move during the test?**	Go to Step 2.	Go to Step 4.

Table 99. MAP 0188 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The Capstan Pinch Roll Motor (M301) is working correctly. The Capstan Pinch Roll Open Switch (S301) may have failed in the open or closed position. Perform the following steps: • Remove the Transfer Station Front Cover. • Run Driver Routine 13. Stop the test at any time when the interrupter blade is not in the Capstan Pinch Roll Open Switch (S301). • Select a thick, steel, thickness gauge blade. The blade must be attracted to a magnet. Do not use the tools for setting the Doctor and Scraper blade gaps. • Run Sensor Routine 66 to test the Capstan Pinch Roll Open Switch (S301). The normal displays are: – **on66** when a steel interrupter is in the switch – **oF66** when the interrupter is removed. **Are both on66 and oF66 displayed on the Maintenance Panel as you insert and remove the thickness gauge blade?**	The Capstan Pinch Roll Open Switch (S301) circuit is working correctly. The position of the Capstan Pinch Roll Open Switch (S301) must be too low to sense the interrupter. • Raise or otherwise adjust the position of the Capstan Pinch Roll Open Switch (S301). @	Go to Step 3.

Table 99. MAP 0188 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The Capstan Pinch Roll Open Switch (S301) circuit has failed. The Capstan Pinch Roll Open Switch (S301) may have failed in the open or closed position. Perform the following steps: • For the following check, leave the Capstan Pinch Roll linkage as it is. That is, the interrupter should not be in the Capstan Pinch Roll Open Switch (S301) • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ304 on the Forms Width Sensor Board (PW091). • Measure the resistance (continuity) through the Capstan Pinch Roll Open Switch (S301) between points P304-1 and P304-2 as the thickness gauge blade is inserted and removed through the sensor. **Does the Capstan Pinch Roll Open Switch (S301) open and close (approximately 0 to infinity ohms between P304-1 and P304-2) as you insert and remove the thickness gauge blade?**	The Capstan Pinch Roll Open Switch (S301) sensing circuit is assumed to have failed. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check the following connectors for correct contact: – PJ307 – PJ141 • Install the new parts listed below, one at a time, until the problem is corrected: – Forms Width Sensor Board (PW091) – YS011 Card • Repair an open circuit between one of the following pairs of connectors: – PJ307-9 and PJ141-9 – PJ307-10 and PJ141-10 @ (continued on next page)	The Capstan Pinch Roll Open Switch (S301) is always open or always closed. • Install a new Capstan Pinch Roll Open Switch (S301). @

Table 99. MAP 0188 (continued)

Step	Questions/Actions	Yes	No
Step 3 (cont.)		• Repair a short circuit to ground in the wiring network described by the following points: – PJ307-9 – PJ141-9	
Step 4.	There is a problem with the Capstan Pinch Roll Motor (M301), its drive circuitry, or its drive linkage. This check will test if voltage is applied to the motor. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the Maintenance Panel Extension Cable. • Set the multimeter to read a voltage of 200 V ac. • Connect the meter leads to the following points on the Capstan Pinch Roll Motor (M301) connector: – P310-1 – P310-2 • Run Driver Routine 13. **Is there 200 V ac between points P310-1 and P310-2 when the routine is running, and 0 V ac when the routine is stopped?**	Go to Step 5.	Do the following, one step at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Repair an open circuit between one of the following pairs of connectors: – PJ503-9 and PJ310-1 – PJ503-20 and PJ310-2 – PJ481-18 and PJ501-2 • Install a new Capstan Pinch Roll Motor (M301) and Capacitor (C301). These parts are supplied as one assembly. @

Table 99. MAP 0188 (continued)

Step	Questions/Actions	Yes	No
Step 5.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Capstan Pinch Roll Motor (M301). • Inspect the mechanical drive linkage between the Capstan Pinch Roll Motor (M301) and the Tension Arm and the Capstan Pinch Roll, including the gear on the Capstan Pinch Roll Motor (M301). **Is the drive linkage in good condition?**	• Install a new Capstan Pinch Roll Motor (M301) and Capacitor (C301). These parts are supplied as one assembly. @	• Repair any slipping, worn, or binding parts. @

MAP 0189: Bridge Home Position Error (Autoload)

Symptom Explanation	Conditions That Could Cause This Symptom
After an autoload error has been cleared, the lower limit of the Bridge travel could not be detected. This timeout occurs ten seconds after the Bridge Lift Motor (M606) is started.	• There is a failure in the Bridge Lift Motor (M606) or its drive circuitry. • There is a problem with the Bridge drive mechanism. • Bridge Down Switch (S609) is closed. • There is a failure in the sensing circuitry.

REFERENCES

- Removals & Adjustments - Auto Load Bridge
- Circuit Diagrams - CD44 - Bridge Down Switch (S609)
- Wiring Diagrams -
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Perform an autoload operation.
  An error is indicated by an SRC 189 on the Display/Touch Screen or by **E02A** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Sensor Routine 6B to test the Bridge Down Switch (S609).
- Run Driver Routine 21. This routine moves the Bridge up and down. The possible errors are:
  - E122 – same as SRC 189 or **E022** on the Maintenance Panel
  - E127 – same as SRC 182 or **E021** on the Maintenance Panel.
  - E12A – same as SRC 189 or **E02A** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Bridge Down Switch (S609)	90%	2059	3423	2195
Fuser Control Card FSxxx	10%	2131	3499	2528
Short circuit in wiring	---			
Connector P612TC	---	2131		

MAP 0189 BEGINS

Table 100. MAP 0189

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Note:** Connector P612TC can be plugged in upside down. If plugged upside down, error code 0189 (**E02A**) occurs. The connector should be installed so that the top of the connector has fewer wires above the breakout cable for the Preheat Platen. The following step requires that the routine be run more than once. You can run it as many times as necessary after that. • Run Driver Routine 21. Then, run it a second time to set the Bridge in the correct position to use this MAP. **Does the Bridge move when you run routine 21 the second time?**	Go to Step 2.	Go to Step 3.

Table 100. MAP 0189 (continued)

Step	Questions/Actions	Yes	No
Step 2.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ618. • Run Driver Routine 21. Then, run it a second time to set the Bridge in the correct position to answer this question. **Does the Bridge move when you run routine 21 the second time?**	The Bridge Down Switch (S609) is good, but there is a problem in the sensing circuit. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install a new Fuser Control Card (FSxxx). • Repair a short circuit to ground in the wiring network described by the following points: – PJ618-1 – PJ612-25 @	The Bridge Down Switch (S609) is always closed. • Install a new Bridge Down Switch (S609). @

Table 100. MAP 0189 (continued)

Step	Questions/Actions	Yes	No
Step 3.	This question assumes that the Bridge is in the up position. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ618. • Measure the resistance through the Bridge Down Switch (S609) between points P618-1 and P618-2. **Is there an open circuit between P618-1 and P618-2?**	The Bridge Down Switch (S609) is always open. • Install a new Bridge Down Switch (S609). @	The Bridge Down Switch (S609) is good, but there is a problem in the sensing circuit. Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check the following connectors for correct contact: – PJ685 – PJ612 • Install a new Fuser Control Card (FSxxx). • Repair an open circuit between one of the following pairs of connectors: – PJ612-25 and PJ618-1 – PJ612-26 and PJ618-2 @

MAP 018A: Autoload Reset Error

Symptom Explanation	Conditions That Could Cause This Symptom
During autoload, neither the upper limit of the Pinch Roll travel nor the lower limit of the Bridge travel could be detected. This timeout occurs ten seconds after the Bridge drive signal is activated.	• There may be a problem in the printer microcode or logic. • There is a failure in the Capstan Pinch Roll Motor (M301) or its drive circuitry. • There is a problem with the Pinch Roll drive mechanism. • There is a failure in the Capstan Pinch Roll Open Switch (S301) or sensing circuitry. • There is a failure in the Bridge Lift Motor (M606) or its drive circuitry. • There is a problem with the Bridge drive mechanism. • The Bridge Down Switch (S609) is closed. • There is a failure in the Bridge Down Switch (S609) sensing circuitry.

MAP 018A BEGINS

Table 101. MAP 018A

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This problem could be caused by the printer microcode. Contact your next level of support before you replace any parts. Do the following, one step at a time, until the problem is corrected: • Use MAP 0186: Capstan Pinch Roll Cannot Be Raised (Autoload). • Use MAP 0187: Bridge Cannot Be Lowered (Autoload).		

MAP 0190: Autoload Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Autoload Start Key was pressed, but autoloading is impossible because of one of the following conditions.	• An operator error has occurred. • A switch or logic card has failed in the active state.

REFERENCES

See the individual MAPs listed in the Autoload Error Table.

FIX VERIFICATION

- Press the Autoload Start Key.
  An error is indicated by one of the messages displayed, below, or by an **E0** code on the Maintenance Panel.

QUICK CHECKS

- Press **Check Reset** to clear this error.

SERVICE CHECKS

See the individual MAPs listed in the following table.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

See the individual MAPs listed in Autoload Error Table.

MAP 0190 BEGINS

CAUTION:
<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.

Locate the Maintenance Panel display in the left column (labelled E0xx), and perform the corrective action (see the Operator's Guide). If the problem remains, go to the MAP indicated for the message that you have.

Table 102. Errors Occurring during Autoload

E0xx	SRC	Display/Touch Screen	Corrective Action	MAP
E0E1	0191	UPPER TRACTOR FORMS JAM (AUTOLOAD)	Remove the forms covering the Upper Tractor Jam Sensor (Q301).	MAP 0119: Upper Tractor Forms Jam
E0E2	0192	STACKER FORMS JAM (AUTOLOAD)	Remove the forms covering the Stacker Jam Sensor (Q701).	MAP 0161: Stacker Jams (Light Never Sensed)
E0E3	0193	DEVELOPER RUNNING (AUTOLOAD)	Wait for the Developer to stop running.	MAP 078B: Developer Running
E0E5	0195	CHECK RESET PRESSED (AUTOLOAD)	Press **Check Reset** to clear the error. This error means that Check Reset was received by the printer during an autoload. It may be necessary to do a Power-on Reset and re-enter the MAPs with any new error that occurs at power-on. (See Power-On Reset.)	None
E0E6	0196	SPLICE LEVER DOWN (AUTOLOAD)	Move the splice lever to the run position.	MAP 0782: Splice Station Vacuum Switch

Table 102. Errors Occurring during Autoload (continued)

E0xx	SRC	Display/Touch Screen	Corrective Action	MAP
E0E7	0197	TRANSFER STATION OPEN (AUTOLOAD)	Latch the Transfer Station.	MAP 0783: Transfer Station Open
E0E8	0198	END OF FORMS (AUTOLOAD)	Splice or install new forms.	MAP 078A: End Of Forms Sensor 1
E0E9	0199	STACKER TABLE DOWN (AUTOLOAD)	Press the **Stacker Table Up** key.	MAP 0798: Stacker Table Down
E0EA	019C	STACKER GATE OPEN (AUTOLOAD)	Close the Stacker Gate.	MAP 0797: Stacker Gate Open
E0EB	019A	STACKER SAFETY SWITCH ON (AUTOLOAD)	Clear any interference with the Stacker Gate Safety Switch (S713).	MAP 0174: Stacker Safety Switch On
E0EC	019B	AUTOLOAD STOPPED	Press the **Autoload Stop Key** again to reset the autoload mechanism. If the key appears to be always on, use the wiring diagrams to diagnose the problem.	None

MAP 0211: Charge Corona Voltage Error

Symptom Explanation	Conditions That Could Cause This Symptom
An out of range voltage condition was detected in the charge corona circuit	• The Charge Corona is not inserted completely. • The Charge Corona Wires are dirty or broken. • The Charge Corona is dirty. • The High-Voltage Power Supply is defective. • The PC Drum is causing arcing. • The PC Drum grounding is defective. • The Charge Corona to PC drum gap is not correct. • The PC Drum Surface Voltage adjustment is not correct. • One of the following is defective: – Toner Control Card (PCxxx) – Sequence Control Card (SQ081/SQ082) – DC 2 Power Supply

REFERENCES

- Removals & Adjustments - Coronas & High Voltage Power Supply
- Circuit Diagrams - CD45 - Charge Corona
- Wiring Diagrams -
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)
  WD40 - High Voltage to Coronas
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

1. Ensure that the Charge Corona assembly is seated correctly.
2. Ensure that the Charge Corona wires are not broken or damaged.
3. Ensure that the Charge Corona assembly is clean.
4. Ensure that the high-voltage connector is OK.

SERVICE CHECKS

1. Run Driver Routine 0C from the Maintenance Panel. An error is indicated by **E138** on the Maintenance Panel.
2. Inspect the charge corona assembly, Corona Wires, and high voltage connector.
3. Inspect the PC drum and hubs for irregularities that could cause arcing. Deep scratches in the PC drum can cause arcs. Sometimes small metal shavings, burrs, or gouges on the edge of the drum or hubs can also cause arcs.
4. Adjust the PC Drum Surface Voltage.
5. Adjust the Charge Corona to PC Drum Gap.
6. Ensure that the PC drum grounding is good and that the grounding brush moves freely.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Dirty Charge Corona	40%	2082	3211	2314
PC Drum	20%	2082	3261	2467
Charge Corona Wire	20%	2082	3211	2313
High Voltage Power Supply	07%	2059	3205	2328
Charge Corona	04%	2082	3211	2313
HV Connector or Cable	02%	2059	3231	2328
Toner Control Card PCxxx	02%	2053	3199	2402
Charge Corona gap	01%	- -	- -	2316
Drum Surface Voltage	01%	- -	- -	2331
PC Drum grounding	01%			2478
SQ081/SQ082 Card	01%	2142	3507 (200 V) 3509 (400 V)	2642
DC 2 Power Supply	01%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641

MAP 0211 BEGINS

Table 103. MAP 0211

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CKECKS. • If the 9 Mft PM is due, replace the Charge Corona Wires. • Run Driver Routine 0C from the Maintenance Panel. An error is indicated by **E138** on the Maintenance Panel. **Did an E138 error occur?**	Go to Step 2.	Go to Step 3.

Table 103. MAP 0211 (continued)

Step	Questions/Actions	Yes	No
Step 2.	To help isolate the problem, the high-voltage output for the Charge Corona will be applied to the Precharge Corona cable and hardware while you run Driver Routine 0C. • Unplug CH1 and CH5 from the High Voltage Power Supply. Plug the CH5 cable into the CH1 position. Clean the Precharge Corona assembly if necessary. • Run Driver Routine 0C. **Did an E138 error occur?**	• Reconnect CH1 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Ensure that PJ115 and PJ116 are connected and that there are no pushed pins. • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx). • Install a new SQ081/SQ082 Card. • Install a new DC 2 Power Supply. @ (continued on next page)	• Reconnect CH1 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Check the high-voltage cable CH1 for opens or shorts. Repair or replace as necessary. • Check the Charge Corona high-voltage connector. Correct any problems. • Check the area around the Charge Corona for anything that may be causing the corona to discharge. Correct any problems. • Install new Charge Corona wires if not previously installed. • Install a new Charge Corona. @

Table 103. MAP 0211 (continued)

Step	Questions/Actions	Yes	No
Step 2 (cont.)		• Repair any wiring problems in the Charge Corona circuit. Check for opens or shorts between the following connectors: – PJ116-1 to PJ507-6 – PJ510-9 to PJ1003-74 – PJ510-10 to PJ1003-73 – PJ115-10 to PJ1006-10 – PJ115-11 to PJ1006-11 – PJ115-16 to PJ1006-16 – PJ115-21 to PJ1006-21 If the problem still exists, ensure that all items listed in the SERVICE CHECKS are OK.	
Step 3.	• Print the Primary Print Sample. Run the test for up to a full box of paper **Did a 211 error occur?**	Go to Step 4.	If the problem persists as an intermittent error, go to Intermittent Failures.

Table 103. MAP 0211 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Check the PC drum for any deep scratches or irregularities anywhere on the the surface or edges. This includes the hub area. Sometimes small metal shavings, burrs, or gouges on the edge of the drum or hubs can cause arcing. **Is the PC drum in good condition?**	Go to Step 5.	• Repair or replace the PC drum or hubs. **Hint** Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run the **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @
Step 5.	• Do SERVICE CHECKS items 2 and 6. Correct any problems you find. • Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 211 error occur?**	Go to Step 6.	The actions completed during the SERVICE CHECKS corrected the problem.

Table 103. MAP 0211 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Check the 2331. **Is the drum surface voltage correct?**	Install the following, one at a time, until the problem is corrected: • Charge Corona • High Voltage Power Supply • Toner Control Card (PCxxx) @	• Correct the 2331. Do the following: • Adjust CH1 on the High Voltage Power Supply. • Adjust the Charge Corona housing. @

MAP 0212: Transfer Corona Voltage Error

Symptom Explanation	Conditions That Could Cause This Symptom
An out-of-range voltage condition was detected in the transfer corona circuit.	• The Transfer Corona is not inserted completely. • The Transfer Corona Wire is dirty or broken. • The Transfer Corona is dirty. • The transfer voltage is not adjusted correctly. • The forms have conductive material or large cutouts. • The Transfer Corona Shield is defective. • The High-Voltage Power Supply is defective. • The Toner Control Card (PCxxx) is defective. • The Path Modifier to frame ground resistor is defective.

REFERENCES

- Removals & Adjustments - Coronas & High Voltage Power Supply
- Circuit Diagrams - CD46 - Tansfer Corona
- Wiring Diagrams - WD40 - High Voltage to Coronas
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample to see if the error occurs during printing.

QUICK CHECKS

1. Ensure that the Transfer Corona is inserted completely.
2. Ensure that the Transfer Corona Wire is not broken.
3. Ensure that the Transfer Corona Assembly is clean.
4. Check the customer forms that were running when the problem was reported. Forms with metallic labels, conductive material or large cutouts can cause 212 errors. Explain to the users that if these forms are run, they will experience these errors.

SERVICE CHECKS

1. Run Driver Routine 0E from the Maintenance Panel. An error is indicated by **E139** on the Maintenance Panel.
2. Inspect the Transfer Corona assembly, corona wire, Transfer Corona Shield that moves with the rear tractor, path modifier, and the high-voltage connector.
3. Measure the transfer corona test point at CH3 on the High Voltage Power Supply while you print or run Driver Routine 0E. Voltage should be as shown in Corona Voltage Settings
4. Measure resistance from the Upper Retractor to frame ground. Resistance should be 1000 K ±200 K ohm when the retractors have moved toward the drum.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Transfer Corona dirty	50%	2123	3337	2321
Transfer Corona Wire	30%	2123	3337	2320
Transfer Corona	10%	2123	3337	2320
HV Connector or Cable	03%	2059	3231	2328
Transfer Corona Shield	03%	2123	3331	3154
High Voltage Power Supply	02%	2059	3205	2328
Toner Control Card (PCxxx)	01%	2053	3199	2402
Path Modifier Resistor	01%	2123	3351	3051
Transfer Corona voltage adjustment	---	--	--	2339
Forms	--	--	--	--

MAP 0212 BEGINS

Table 104. MAP 0212

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CKECKS. • If the 9 Mft PM is due, replace the Transfer Corona Wire. • Run Driver Routine 0E from the Maintenance Panel. An error is indicated by **E139** on the Maintenance Panel. @ **Did an E139 error occur?**	Go to Step 2.	Go to Step 4.
Step 2.	• Exchange the Precharge Corona and the Transfer Corona assemblies. Clean the Precharge Corona assembly, if necessary. • Run Driver Routine 0E. **Did an E139 error occur?**	Go to Step 3.	• Return the Precharge Corona assembly to its original position. • Repair or replace the Transfer Corona assembly. @

Table 104. MAP 0212 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Return the Precharge Corona and Transfer Corona assemblies to their original positions. To help isolate the problem, the high voltage output from the power supply will be applied to another corona cable and hardware while you run Driver Routine 0E. • Unplug CH3 and CH5 from the High Voltage Power Supply. Plug the CH5 cable into the CH3 position. Run Driver Routine 0E. **Did an E139 error occur?**	• Reconnect CH3 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Do SERVICE CHECKS item 3 and adjust if possible. • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx) • Repair any wiring problems in the Transfer Corona circuit. Check for opens or shorts between the following connectors: – PJ115-13 to PJ1006-13 – PJ115-18 to PJ1006-18 – PJ115-21 to PJ1006-21 @	• Reconnect CH3 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Check the high voltage cable CH3 for opens or shorts. Repair or replace as necessary. • Do SERVICE CHECKS items 2 through 4. Correct any problems you find.
Step 4.	• Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 212 error occur?**	Go to Step 5.	When complete, if the problem persists as an intermittent error, go to Intermittent Failures.
Step 5.	• Exchange the Precharge Corona and the Transfer Corona assemblies. Clean the Precharge Corona assembly, if necessary. • Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 212 error occur?**	Go to Step 6.	• Return the Precharge Corona assembly to its original position. • Repair or replace the Transfer Corona assembly. @

Table 104. MAP 0212 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Return the Precharge Corona and Transfer Corona assemblies to their original positions. • Do SERVICE CHECKS items 2 through4. Adjust or repair any problems you find. • Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 212 error occur?**	Do the following, one at a time, until the problem is corrected: • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx). • Repair any wiring problems in the Transfer Corona circuit. Check for opens or shorts between the following connectors: – PJ115-13 to PJ1006-13 – PJ115-18 to PJ1006-18 @	The actions taken during the SERVICE CHECKS corrected the problem.

MAP 0213: Preclean Corona Voltage Error

Symptom Explanation	Conditions That Could Cause This Symptom
An out-of-range voltage condition was detected in the preclean corona circuit.	• The High-Voltage Power Supply is defective. • The Toner Control Card (PCxxx) is defective. • The Preclean Corona Wire is broken or dirty. • The Preclean Corona is dirty. • The High-Voltage Cable or Connector is defective.

REFERENCES

- Removals & Adjustments - Coronas & High Voltage Power Supply
- Circuit Diagrams - CD47 - Preclean Corona
- Wiring Diagrams - WD40 - High Voltage to Coronas
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

1. Ensure that the Preclean Corona is inserted completely.
2. Ensure that the Preclean Corona Wire is not broken.
3. Ensure that the Preclean Corona Assembly is clean.

SERVICE CHECKS

1. Run Driver Routine 0D from the Maintenance Panel. An error is indicated by **E136** on the Maintenance Panel.
2. Inspect the Preclean Corona assembly, corona wire, and high-voltage connector.
3. Measure the preclean corona test point at CH4 on the High Voltage Power Supply. Voltage should be as shown in Corona Voltage Settings.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
High Voltage Power Supply	50%	2059	3205	2328
Toner Control Card PCxxx	30%	2053	3199	2402
Preclean Corona Wire	10%	2082	3209	2320
HV Connector or Cable	05%	2059	3231	2328
Dirty Preclean Corona	05%	2082	3209	2321
Preclean Corona voltage adjustment	---	---	---	2339

MAP 0213 BEGINS

Table 105. MAP 0213

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CKECKS. • If the 9 Mft PM is due, replace the Preclean Corona Wire. • Do SERVICE CHECKS item 2 and correct any problems. • Run Driver Routine 0D from the Maintenance Panel. An error is indicated by **E136** on the maintenance panel. **Did an E136 error occur?**	Go to Step 2.	Go to Step 4.
Step 2.	• Exchange the Precharge Corona and the Preclean Corona assemblies. Clean the Precharge Corona assembly if necessary. • Run Driver Routine 0D. **Did an E136 error occur?**	Go to Step 3.	• Return the Precharge Corona assembly to its original position. • Repair or replace the Preclean Corona assembly. @

Table 105. MAP 0213 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Return the Precharge Corona and Preclean Corona assemblies to their original positions. To help isolate the problem, the high-voltage output from the power supply will be applied to another corona cable and hardware while you run Driver Routine 0D. • Unplug CH4 and CH5 from the High Voltage Power Supply. Plug the CH5 cable into the CH4 position. Run Driver Routine 0D. **Did an E136 error occur?**	• Reconnect CH4 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Do SERVICE CHECKS item 3 and adjust if possible. • Install a new Preclean Corona. • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx). • Repair any wiring problems in the Preclean Corona circuit. Check for opens or shorts between the following connectors: – PJ115-14 to PJ1006-14 – PJ115-19 to PJ1006-19 – PJ115-10 to PJ1006-10 – PJ115-21 to PJ1006-21 @	• Reconnect CH4 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Check the high voltage cable CH4 for opens or shorts. Repair or replace as necessary. • Check the preclean high-voltage connector. Correct any problems. • Check the area around the preclean corona for anything that may be causing the corona to discharge. Correct any problems. @
Step 4.	• Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 213 error occur?**	Go to Step 5.	When complete, if the problem persists as an intermittent error, go to Intermittent Failures.

Table 105. MAP 0213 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Exchange the Precharge Corona and the Preclean Corona assemblies. Clean the Precharge Corona assembly if necessary. • Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 213 error occur?**	Go to Step 6.	• Return the Precharge Corona assembly to its original position. • Repair or replace the Preclean Corona assembly. @
Step 6.	• Return the Precharge Corona and Preclean Corona assemblies to their original positions. • Do SERVICE CHECKS item 3 and adjust if necessary. • Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 213 error occur?**	Do the following, one at a time, until the problem is corrected: • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx). • Repair any wiring problems in the Preclean Corona circuit. Check for opens or shorts between the following connectors: – PJ115-14 to PJ1006-14 – PJ115-19 to PJ1006-19 – PJ115-10 to PJ1006-10 – PJ115-21 to PJ1006-21 @	The actions done during the SERVICE CHECKS corrected the problem.

MAP 0214: Precharge Corona Voltage Error

Symptom Explanation	Conditions That Could Cause This Symptom
An out-of-range voltage condition was detected in the Precharge Corona circuit.	• The Precharge Corona is not inserted completely. • The Corona Wires are dirty or broken. • The Precharge Corona is dirty because the cleaner housing air system is clogged or defective. This problem includes leaks around the Fine Filter, the Fine Filter door being open, and a defective Cyclone Blower. • The High Voltage Power Supply is defective. • The PC Drum is causing arcing. • The PC Drum grounding is defective. • The Toner Control Card (PCxxx) is defective. • The Precharge Corona voltage adjustment is not correct

REFERENCES

- Removals & Adjustments - Coronas & High Voltage Power Supply
- Circuit Diagrams - CD48 - Precharge Corona
- Wiring Diagrams - WD40 - High Voltage to Coronas
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- Ensure that the Precharge Corona Assembly is seated correctly.
- Ensure that the Corona Wires are not broken.
- Ensure that the Precharge Corona Assembly is clean and not damaged.
- Ensure that the Precharge Corona high voltage connector is not damaged.
- Ensure that the cleaner housing air system is not clogged or defective. Check for leaks around the Fine Filter, the Fine Filter door being open, and a defective Cyclone Blower.

SERVICE CHECKS

1. Run Driver Routine 1F from the Maintenance Panel. An error is indicated by **E13A** on the Maintenance Panel.
2. Inspect the Precharge Corona assembly, Corona Wires, and high voltage connector.
3. Inspect the PC Drum and Hubs for irregularities that could cause arcing. Sometimes small metal shavings, burrs, or gouges on the edge of the drum or hubs can also cause arcs.
4. Measure the Precharge Corona test point at CH5 on the High Voltage Power Supply. Voltage should be as shown in Corona Voltage Settings.
5. Ensure that the PC Drum grounding is good and that the grounding brush moves freely.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Dirty Precharge Corona	40%	2082	3209	2321
PC Drum	20%	2082	3261	2467
Precharge Corona Wire	20%	2082	3209	2320
Precharge Corona	15%	2082	3209	2320
HV Connector or Cable	02%	2059	3231	2328
High Voltage Power Supply	01%	2059	3205	2328
Toner Control Card PCxxx	01%	2053	3199	2402
PC Drum grounding	01%			2478
Precharge voltage adjustment	---	---	---	2339

MAP 0214 BEGINS

Table 106. MAP 0214

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CHECKS. • If the 9 Mft PM is due, replace the Precharge Corona Wire. • Run Driver Routine 1F from the Maintenance Panel. An error is indicated by **E13A** on the Maintenance Panel. **Did an E13A error occur?**	Go to Step 2.	Go to Step 4.
Step 2.	• Exchange the Precharge Corona and the Preclean Corona assemblies. Clean the Preclean Corona assembly, if necessary. • Run Driver Routine 1F. **Did an E13A error occur?**	Go to Step 3.	• Return the Preclean Corona assembly to its original position. • Repair or replace the Precharge Corona assembly. @

Table 106. MAP 0214 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Return the Precharge Corona and Preclean Corona assemblies to their original positions. To help isolate the problem, the high-voltage output from the power supply will be applied to another corona cable and hardware while you run Driver Routine 1F. • Unplug CH4 and CH5 from the High Voltage Power Supply. Plug the CH4 cable into the CH5 position. Run Driver Routine 1F. **Did an E13A error occur?**	• Reconnect CH4 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Do SERVICE CHECKS item 3 and adjust if possible. • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx). • Repair any wiring problems in the Precharge Corona circuit. Check for opens or shorts between the following connectors: – PJ115-20 to PJ1006-20 – PJ115-21 to PJ1006-21 – PJ115-15 to PJ1006-15 @	• Reconnect CH4 and CH5 to their correct positions. Do the following, one at a time, until the problem is corrected: • Check the high voltage cable CH5 for opens or shorts. Repair or replace as necessary. • Check the Precharge Corona high-voltage connector. Correct any problems. • Check the area around the Precharge Corona for anything that may be causing the corona to discharge. Correct any problems. @
Step 4.	• Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 214 error occur?**	Go to Step 5.	When complete, if the problem persists as an intermittent error, go to Intermittent Failures.

Table 106. MAP 0214 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Exchange the Precharge Corona and the Preclean Corona assemblies. • Clean the Preclean Corona assembly, if necessary. • Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 214 error occur?**	Go to Step 6.	• Return the Preclean Corona assembly to its original position. • Repair or replace the Precharge Corona assembly. @
Step 6.	• Return the Precharge Corona and Preclean Corona assemblies to their original positions. • Do SERVICE CHECKS items 2 and 5. Correct any problems. • Print the Primary Print Sample. Run test for up to a full box of paper. **Did a 214 error occur?**	Go to Step 7.	The actions done during the SERVICE CHECKS corrected the problem.

Table 106. MAP 0214 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Check the PC Drum for any deep scratches or irregularities anywhere on the surface or edges. This includes the Hub area. Sometimes small metal shavings, burrs, or gouges on the edge of the drum or hubs can cause arcing. **Is the PC Drum in good condition?**	Do the following, one at a time, until the problem is corrected: • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx). • Repair any wiring problems in the Precharge Corona circuit. Check for opens or shorts between the following connectors: – PJ115-20 to PJ1006-20 – PJ115-21 to PJ1006-21 – PJ115-15 to PJ1006-15 @	• Repair or Replace the PC Drum or Hubs. **Hints** Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run the **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @

MAP 0221: Mirror Motor Operating Error

Symptom Explanation	Conditions That Could Cause This Symptom
There is an under speed error from the Mirror Motor (M201) after it has successfully reached operating speed. This check is made every 20 ms.	• There is a failure in the Mirror Motor (M201) or its drive circuitry. • There is a failure in the sensing circuitry.
There is an under speed error from the Mirror Motor (M201) at power on.	• PJ515 is not connected properly to the SQ081/SQ082 Card. • PJ481 is not connected properly to the B1 Board.

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD49 - Mirror Motor M201 (Fixed Resolution Printheads)
  CD50 - Mirror Motor M201 — (Switchable Resoluiton Printheads)
- Wiring Diagrams -
  WD46 - Motor M201 (Fixed Resolution Printhead)
  WD67 - Printer Speed Control (Single Beam Printhead)
- Wiring Diagrams -
  WD46 - Motor M201 (Fixed Resolution Printhead)
  WD67.1 - Printer Speed Control (Two Beam 240 Printhead)
- Wiring Diagrams -
  WD46.1 - Motor M201 (Switchable Printhead)
  WD67.2 - Printer Speed Control (Two Beam 240/300, Four or Five Beam Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the All White Print Sample.

  An error is indicated by an SRC 221 on the Display/Touch Screen or by **E048** on the Maintenance Panel.

QUICK CHECKS

- Ensure that PJ515 is connected to the top of the SQ081/SQ082 Card.
- Ensure that PJ481 is connected to the B1 Board.

SERVICE CHECKS

- Run Driver Routine 01. This routine drives the Mirror Motor (M201) for one minute.

  Listen to the motor to check if it is running.
- Cover the Return Mirror with paper.
- Run Adjustment Routine C1. This routine drives the Mirror Motor (M201) constantly.

  This check allows you to verify that the mirror is turning, because you can see the scanning beam on the Return Mirror in the printhead. This is useful when the environment is too noisy to hear the Mirror Motor (M201) running.

  – Press **Enter** to turn the AO Modulator (AM201) off and on to see the scanning beam on the Return Mirror.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mirror Motor (M201)	45%	Printhead Links		
Mirror Motor Driver Board (MDxxx)	25%	Printhead Links		
Printhead Interface Card (VIxxx)	15%	Printhead Links		
Toner Control Card PCxxx	10%	2053	3199	2402
B1J8 Card	05%	B1 Logic Card Links		

Notes:

1. There is an intermittent problem with the Mirror Motor (M201), because it reaches operating speed and then slows down. For the MAPs to be useful, the problem must be solid. If the problem becomes solid, an SRC 223 (**E04A** on the Maintenance Panel) or an SRC 224 (**E04b** on the Maintenance Panel) will be displayed.
2. The Mirror Motor (M201) is an expensive unit. Use this MAP to find other causes of this problem. Replace the parts in the order given.

MAP 0221 BEGINS

Table 107. MAP 0221

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Reseat the following cards and connectors: – PJ515 on the SQ081/SQ082 Card – PJ481 on the B1 Board – PJ1003 on the Toner Control Card (PCxxx) – PJ1007 or PJ1020 on the Toner Control Card (PCxxx) – B1J8 Card • Print the **Print Pack** (1569). **Does the problem still occur?**	Go to Step 2.	The problem was fixed by reseating the cards.
Step 2.	Perform the following steps: • Correct any interventions at the printer, so that only this error appears following an IML (and not END OF FORMS, for example). • SHUTDOWN AND POWER OFF THE PRINTER. • Power on the printer. **Did E04b appear on the Maintenance Panel?**	Go to MAP 0224: Mirror Motor Start-Up Error.	Go to Step 3.

Table 107. MAP 0221 (continued)

Step	Questions/Actions	Yes	No
Step 3.	**Did an E04A error occur?**	Go to MAP 0223: Mirror Motor Drive Error.	The problem is intermittent. Install the new parts listed below, one at a time, until the problem is corrected: • Mirror Motor Driver Board (MDxxx) • Mirror Motor (M201) • Toner Control Card (PCxxx) • Printer Interface Card (VIxxx) • B1J8 Card @

MAP 0222: Video Data Active

Symptom Explanation	Conditions That Could Cause This Symptom
The Video Data signal (CVD) from the control unit to the Printhead is at a continuously high level, which would produce an all-black print. This check is made in the time between when the Laser beam scan crosses the Beam Detect sensor and when it reaches the beginning of the printable area. The Laser should not be modulated (on) at this time. On the forms, this area is the first half-inch inward from the front of the printer (surrounding the front tractor pin feed holes).	• An Image Generator or microcode problem is causing the Laser beam to be modulated (on) when it should not be. • A failure in the sensing circuitry is causing Beam Detect to be on when it should not be.

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Circuit Diagrams -
  CD51 - Video Data (Single Beam Printhead)
  CD123 - Beam Detect (BD121) — (Single Beam)
- Wiring Diagrams -
  WD42 - Laser Modulator and Beam Detect (Single Beam Printhead)
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD125 - Video Data for All Two Beam Printheads
  CD126 - Two Beam Printheads
- Wiring Diagrams -
  WD42.2 - Laser Modulator (Two Beam Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the All White Print Sample.
  An error is indicated by an SRC 222 on the Display/Touch Screen or by **E04d** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mechanism Interface Card (MIC)	40%	Control Unit Links		
PQE Card	20%	Control Unit Links		
Printhead Interface Card (VIxxx)	10%	Printhead Links		
Toner Control Card PCxxx	10%	2053	3199	2402
Beam Detect Card (BDxxx)	10%	Printhead Links		
B1J8 Card	10%	B1 Logic Card Links		
Microcode	---			
Open or short in wiring	---			

MAP 0222 BEGINS

Table 108. MAP 0222

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Printhead cover. • Place paper over the Return Mirror to protect the PC Drum. • Power on the printer. Wait until the Printer Status window appears on the Display/Touch Screen. The scanning beam may be difficult to see in well lighted areas. You can better observe the beam at the return mirror if you hold something over the mirror to shade it. You may want to observe the beam as it exits the scanning mirror and before the F-theta lens. **Did you see a scanning beam on the paper?**	The Laser is sensed to be modulated (on) when it should not be, because the CVD or DBD signal is always active. Install the new parts listed below, one at a time, until the problem is corrected: • Mechanism Interface Card (MIC) • PQE Card • Printhead Interface Card (VIxxx) @	Go to Step 2.

Table 108. MAP 0222 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The problem may occur only on certain print applications. If you are unsure about the following question, do the following: • Install the Inner Printhead Cover. • Print the **Print Pack** (1569). Look for any registration or magnification problems. • If you find no problems, try printing the customer's applications. **Do some print jobs run successfully, but others fail with an SRC 222?**	There appears to be an unusual microcode or Image Generator problem. Contact your next level of support.	Go to Step 3.

Table 108. MAP 0222 (continued)

Step	Questions/Actions	Yes	No
Step 3.	Check the following connectors: • PJ212 • PJ211 • PJ203 • PJU7 (MIC Card) • BD (480/600 DPI PQE Card) • PJ136 **Are all connectors properly connected?**	No print job runs successfully. There is a failure in the CVD-sensing circuitry. Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Printhead Interface Card (VIxxx) – Beam Detect Card (BDxxx) – B1J8 Card • Fix an open or short circuit in between the following pairs of points: – PJ210-9 and PJ136-9 – PJ1003-65 and PJ464-65 – PJ464-65 and B1J8-A81 • Install a new Toner Control Card (PCxxx). @	• Reseat all connectors.

MAP 0223: Mirror Motor Drive Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Mirror Motor (M201) failed to rotate six seconds after the drive signal was issued.	• There is a failure in the Mirror Motor (M201) or its drive circuitry. • There is a failure in the sensing circuitry.

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD49 - Mirror Motor M201 (Fixed Resolution Printheads)
  CD50 - Mirror Motor M201 — (Switchable Resoluiton Printheads)
- Wiring Diagrams -
  WD24 - Printer DC Power Units and Sequence Card
- Wiring Diagrams -
  WD46 - Motor M201 (Fixed Resolution Printhead)
  WD67 - Printer Speed Control (Single Beam Printhead)
- Wiring Diagrams -
  WD46 - Motor M201 (Fixed Resolution Printhead)
  WD67.1 - Printer Speed Control (Two Beam 240 Printhead)
- Wiring Diagrams -
  WD46.1 - Motor M201 (Switchable Printhead)
  WD67.2 - Printer Speed Control (Two Beam 240/300, Four or Five Beam Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- SHUTDOWN AND POWER OFF THE PRINTER.

- Power on the printer. An error is indicated by an SRC 223 on the Display/Touch Screen or by **E04A** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 01. This routine drives the Mirror Motor (M201) for one minute.

  Listen to the motor to check if it is running.

  The possible errors are:

  – E148 – same as SRC 221 or **E048** on the Maintenance Panel.
- Cover the Return Mirror with paper.
- Run Adjustment Routine C1. This routine drives the Mirror Motor (M201) constantly.

  This check allows you to verify that the mirror is turning, because the scanning beam can be seen on the Return Mirror in the printhead. It is useful when the environment is too noisy to hear the Mirror Motor (M201) running.

  – Press **Enter** to turn the AO Modulator (AM201) off and on to see the scanning beam on the Return Mirror.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mirror Motor (M201)	45%	Printhead Links		
Mirror Motor Driver Board (MDxxx)	25%	Printhead Links		
Printhead Interface Card (VIxxx)	15%	Printhead Links		
Toner Control Card PCxxx	10%	2053	3199	2402
B1J8 Card	05%	B1 Logic Card Links		
Open or short circuit in wiring	---			
R5/VR4 adjustment.	---	Printhead Links		
DC 1 Power Supply	%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	

MAP 0223 BEGINS

Important

The Mirror Motor (M201) is an expensive unit. Use this MAP to find other causes of this problem. Replace the parts in the order given.

Table 109. MAP 0223

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Reseat the following cards and connectors on the cards: – Toner Control Card (PCxxx) – B1J8 Card • Print the **Print Pack** (1569). **Does the problem still occur?**	Go to Step 2.	You fixed the problem by reseating the cards.

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Printhead cover. • Place paper over the Return Mirror to protect the PC Drum. • Run Adjustment Routine C1. • Press **ENTER** to turn the AO Modulator (AM201) off and on in order to see the scanning beam at the Return Mirror. The scanning beam may be difficult to see in well lighted areas. You can better observe the beam at the return mirror if you hold something over the mirror to shade it. You may want to observe the beam as it exits the scanning mirror and before the F-theta lens. **Can you see a scanning beam on the paper?**	Go to Step 3.	Go to Step 6.

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The Mirror Motor (M201) is rotating. Its speed may be incorrect, or the sensing circuitry may have failed. • Check LEDs D1 and D2 on the Printhead Interface Card (VIxxx) while you run routine C1. **Are both LEDs D1 and D2 on the Printhead Interface Card (VIxxx) on while the scanning beam is on?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ136-3 and PJ210-3 – PJ136-5 and PJ210-5 – PJ136-7 and PJ210-7 – PJ1003-63 and PJ464-63 • Install the new parts listed below, one at a time, until the problem is corrected: – Printhead Interface Card (VIxxx) – Toner Control Card (PCxxx) – B1J8 Card @	Go to Step 4.
Step 4.	**Are connectors PJ208 and PJ210 on the Printhead Interface Card (VIxxx) connected correctly?**	Go to Step 5.	• Reconnect connectors PJ208 and PJ210 as necessary.

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Perform the switch R5/VR4 adjustment. @ **Did you correctly adjust switch R5/VR4?**	The problem was fixed by the adjustment.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ136-11 and PJ210-11 – PJ136-13 and PJ210-13 • Install the new parts listed below, one at a time, until the problem is corrected: – Printhead Interface Card (VIxxx) – Mirror Motor (M201) – Toner Control Card (PCxxx) – Mirror Motor Driver Board (MDxxx) @
Step 6.	**Are connectors PJ219, PJ224, PJ225 and PJ226 (PJ262 on 480/600 DPI printers) connected correctly?**	Go to Step 7.	• SHUTDOWN AND POWER OFF THE PRINTER. • Fully seat the connectors as necessary.

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 7.	In the following questions, power should be present at P224 whenever the printer is powered on. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ224. • Set the Diagnostic Function Switch to position **3**. • Power on the printer. (continued on next page)		

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 7 (cont.)	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Measure the voltage between P224-1 + lead and P224-4. – For a Four or Five Beam Printhead machine, the voltage should be +120 V dc. – For a Two Beam Swicthable Resolution Printhead, the voltage should be +140 V dc. – For a Single or Two Beam Fixed Resolution Printhead @ 150 PPM, the voltage should be +140 V dc. – For a Single or Two Beam Fixed Resolution Printhead @ 229 PPM, the voltage should be +260 V dc. **Is the voltage correct between P224-1 + lead and P224-4?**	Go to Step 8.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ224-1 and PJ584-1 – PJ224-4 and PJ584-2 • Install a new DC 1 Power Supply. @

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 8.	**Is the voltage +12 V dc between P224-2 + lead and P224-5?**	Go to Step 9.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ224-2 and PJ585-1 – PJ224-5 and PJ585-2 • Install a new DC 1 Power Supply. @
Step 9.	**Is the voltage +5 V dc between P224-3 + lead and P224-6?**	Go to Step 10.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ224-3 and PJ585-3 – PJ224-6 and PJ585-4 • Install a new DC 1 Power Supply. @

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Do the following, one step at a time, until the problem is corrected: Repair an open circuit between one of the following pairs of connectors: **Note:** This list is for all printers with PC211 or PC531 and MD141 Cards. • PJ226-1 and PJ1007-29 • PJ226-2 and PJ1007-30 • PJ226-3 and PJ1007-31 • PJ226-4 and PJ1007-32 • PJ226-5 and PJ1007-34 • PJ226-6 and PJ1007-33 • PJ219-1 and PJ225-1 • PJ219-2 and PJ225-2 • PJ219-3 and PJ225-3 **Note:** This list is for all printers with PC551 and MD141 Cards. • PJ226-1 and PJ1020-10 • PJ226-2 and PJ1020-11 • PJ226-3 and PJ1020-12 • PJ226-4 and PJ1020-14 • PJ226-5 and PJ1020-15 • PJ226-6 and PJ1020-13 • PJ219-1 and PJ225-1 • PJ219-2 and PJ225-2 • PJ219-3 and PJ225-3 @ (continued on next page)		

Table 109. MAP 0223 (continued)

Step	Questions/Actions	Yes	No
Step 10 (cont.)	Repair an open circuit between one of the following pairs of connectors: (cont.) **Note:** The following list is for printer with PC551 and MD192 Cards. • PJ262-36 and PJ1020-10 • PJ262-37 and PJ1020-11 • PJ262-38 and PJ1020-12 • PJ262-40 and PJ1020-14 • PJ262-41 and PJ1020-15 • PJ262-42 and PJ1020-16 • PJ219-1 and PJ225-1 • PJ219-2 and PJ225-2 • PJ219-3 and PJ225-3 Install the new parts listed below, one at a time, until the problem is corrected: • Toner Control Card (PCxxx) • Mirror Motor Driver Board (MDxxx) • Mirror Motor (M201) @		

MAP 0224: Mirror Motor Start-Up Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Mirror Motor (M201) had an under speed condition 37 seconds after the drive signal was issued. The error was still present after three retries.	• There is a failure in the Mirror Motor (M201) or its drive circuitry. • There is a failure in the sensing circuitry. • Connector PJ515 on the SQ081/SQ082 Card is disconnected. • Connector PJ460 on the B1J9 Card is disconnected.

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD49 - Mirror Motor M201 (Fixed Resolution Printheads)
  CD50 - Mirror Motor M201 — (Switchable Resoluiton Printheads)
- Wiring Diagrams -
  WD46 - Motor M201 (Fixed Resolution Printhead)
  WD67 - Printer Speed Control (Single Beam Printhead)
- Wiring Diagrams -
  WD46 - Motor M201 (Fixed Resolution Printhead)
  WD67.1 - Printer Speed Control (Two Beam 240 Printhead)
- Wiring Diagrams -
  WD46.1 - Motor M201 (Switchable Printhead)
  WD67.2 - Printer Speed Control (Two Beam 240/300, Four or Five Beam Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- SHUTDOWN AND POWER OFF THE PRINTER.

- Power on the printer. An error is indicated by an SRC 224 on the Display/Touch Screen or by **E04b** on the Maintenance Panel.

QUICK CHECKS

- Ensure that connector PJ515 on the SQ081/SQ082 Card is connected properly.
- Ensure that connector PJ481 on the B1 Board is connected properly.

SERVICE CHECKS

- Run Driver Routine 01. This routine drives the Mirror Motor (M201) for one minute.
  Listen to the motor to check if it is running.
  The possible errors are:
  – E148 – same as SRC 221 or **E048** on the Maintenance Panel.
- Cover the Return Mirror with paper.
- Run Adjustment Routine C1. This routine drives the Mirror Motor (M201) constantly.

This check allows you to verify that the mirror is turning, because the scanning beam can be seen on the Return Mirror in the printhead. This is useful when the environment is too noisy to hear the Mirror Motor (M201) running.

- Press **Enter** to turn the AO Modulator (AM201) off and on to see the scanning beam on the Return Mirror.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mirror Motor (M201)	45%	Printhead Links		
Mirror Motor Driver Board (MDxxx)	25%	Printhead Links		
Printhead Interface Card (VIxxx)	10%	Printhead Links		
Toner Control Card PCxxx	10%	2053	3199	2402
SQ081/SQ082 Card	05%	2142	3507 (200 V) 3509 (400 V)	2642
B1J8 Card	05%	B1 Logic Card Links		
R5/VR4 adjustment.	---	Printhead Links		
DC 1 Power Supply	%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637
Open or short circuit in wiring	---			

MAP 0224 BEGINS

Important

The Mirror Motor (M201) is an expensive unit. Use this MAP to find other causes of the problem. Replace the parts in the order given.

Table 110. MAP 0224

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Reseat the following cards and connector: – PJ515 on the SQ081/SQ082 Card – PJ481 on the B1 Board – PJ1003 on the Toner Control Card (PCxxx) – PJ1007 or PJ1020 on the Toner Control Card (PCxxx) – B1J8 Card • Print the **Print Pack** (1569). **Does the problem still occur?**	Go to Step 2.	The problem was fixed by reseating the cards.

Table 110. MAP 0224 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Printhead cover. • Place paper over the Return Mirror to protect the PC Drum. • Run Adjustment Routine C1. • Press **Enter** to turn the AO Modulator (AM201) off and on to see the scanning beam at the Return Mirror. **Can you see a scanning beam on the paper?**	Go to Step 3.	Go to Step 5.
Step 3.	The Mirror Motor (M201) is rotating. Its speed may be incorrect, or the sensing circuitry may have failed. • Check LEDs D1 and D2 on the Printhead Interface Card (VIxxx) while you run routine C1. **Are both LEDs D1 and D2 on the Printhead Interface Card (VIxxx) on while the scanning beam is on?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ136-3 and PJ210-3 – PJ136-5 and PJ210-5 – PJ136-7 and PJ210-7 – PJ1003-63 and PJ464-63 • Install the new parts listed below, one at a time, until the problem is corrected: – Printhead Interface Card (VIxxx) – Toner Control Card (PCxxx) – B1J8 Card @	Go to Step 4.

Table 110. MAP 0224 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Perform the switch R5/VR4 adjustment. @ **Could you correctly adjust switch R5/VR4?**	The problem was fixed by the adjustment.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ136-11 and PJ210-11 – PJ136-13 and PJ210-13 • Install the new parts listed below, one at a time, until the problem is corrected: – Printhead Interface Card (VIxxx) – Mirror Motor (M201) – Toner Control Card (PCxxx) – Mirror Motor Driver Board (MDxxx) @
Step 5.	**Are connectors PJ219 and PJ225 connected correctly?**	Go to Step 6.	• SHUTDOWN AND POWER OFF THE PRINTER. • Fully seat the connectors as necessary.

Table 110. MAP 0224 (continued)

Step	Questions/Actions	Yes	No
Step 6.	In the following voltage checks, ensure that: • Routine C1 is running (the Mirror Motor (M201) is always driven during this routine). • The ground lead on the voltmeter is connected to point PJ1007-3 (PJ1020-13). **Is the voltage approximately +5 V dc at both PJ1007-29 and PJ1007-31 (PJ1020-10 and PJ1020-12)?**	Go to Step 7.	• Install a new Toner Control Card (PCxxx). @
Step 7.	**Is the voltage less than +2.0 V dc (logic low level) at both PJ1007-30 and PJ1007-32 (PJ1020-11 and PJ1020-14)?**	Go to Step 8.	• Install a new Toner Control Card (PCxxx). @

Table 110. MAP 0224 (continued)

Step	Questions/Actions	Yes	No
Step 8.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Measure the voltage between P224-1 + lead and P224-4. – For a Four or Five Beam Printhead machine, the voltage should be +120 V dc. – For a Two Beam Swicthable Resolution Printhead, the voltage should be +140 V dc. – For a Single or Two Beam Fixed Resolution Printhead @ 150 PPM, the voltage should be +140 V dc. – For a Single or Two Beam Fixed Resolution Printhead @ 229 PPM, the voltage should be +260 V dc. **Is the voltage correct between PJ224-1 + lead and PJ224-4?**	Go to Step 9.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ224-1 and PJ584-1 – PJ224-4 and PJ584-2 • Install a new DC 1 Power Supply. @

Table 110. MAP 0224 (continued)

Step	Questions/Actions	Yes	No
Step 9.	**Is the voltage +12 V dc between PJ224-2 + lead and PJ224-5 while the you run routine?**	Go to Step 10.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ224-2 and PJ585-1 – PJ224-5 and PJ585-2 • Install a new DC 1 Power Supply. @
Step 10.	**Is the voltage +5 V dc between PJ224-3 + lead and PJ224-6 while you run the routine?**	Go to Step 11.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ224-3 and PJ585-3 – PJ224-6 and PJ585-4 • Install a new DC 1 Power Supply. @

Table 110. MAP 0224 (continued)

Step	Questions/Actions	Yes	No
Step 11.	Do the following, one step at a time, until the problem is corrected: Repair an open circuit between one of the following pairs of connectors: **Note:** The following list is for printers with PC211 or PC531 and MD141 Cards. • PJ226-1 and PJ1007-29 • PJ226-2 and PJ1007-30 • PJ226-3 and PJ1007-31 • PJ226-4 and PJ1007-32 • PJ226-5 and PJ1007-34 • PJ226-6 and PJ1007-33 • PJ219-1 and PJ225-1 • PJ219-2 and PJ225-2 • PJ219-3 and PJ225-3 **Note:** The following list is for printers with PC551 and MD141 Cards • PJ226-1 and PJ1020-10 • PJ226-2 and PJ1020-11 • PJ226-3 and PJ1020-12 • PJ226-4 and PJ1020-14 • PJ226-5 and PJ1020-15 • PJ226-6 and PJ1020-13 • PJ219-1 and PJ225-1 • PJ219-2 and PJ225-2 • PJ219-3 and PJ225-3 @ (continued on next page)		

Table 110. MAP 0224 (continued)

Step	Questions/Actions	Yes	No
Step 11 (cont.)	**Note:** The following list is for printers with PC551 and MD192 Cards. • PJ262-36 and PJ1020-10 • PJ262-37 and PJ1020-11 • PJ262-38 and PJ1020-12 • PJ262-40 and PJ1020-14 • PJ262-41 and PJ1020-15 • PJ262-42 and PJ1020-16 • PJ219-1 and PJ225-1 • PJ219-2 and PJ225-2 • PJ219-3 and PJ225-3 Install the new parts listed below, one at a time, until the problem is corrected: • Mirror Motor Driver Board (MDxxx) • SQ081/SQ082 Card • Mirror Motor (M201) @		

MAP 0225: Resolution Lens Initial Position Error

Symptom Explanation	Conditions That Could Cause This Symptom
Initial position of the resolution switching lens cannot be determined and the resolution switching lens does not move.	• Defective Resolution Switching Lens Motor (M202) • Defective Mirror Motor Driver Board (MDxxx) • Defective PC551 Card • Defective B1J11 Card
Initial position of the resolution switching lens cannot be determined but the resolution switching lens does move.	• Defective Resolution Switching Lens Motor Position Sensor (S202) • Defective PC551 Card • Defective B1J11 Card • The Resolution Switching Lens Motor Position Sensor (S202) plate is not adjusted correctly.
The resolution switching lens cannot be manually rotated.	• Bind in the resolution switching lens mechanism

REFERENCES

- Circuit Diagrams - CD56 - Rresolution Switching Lens Motor Position Sensor (S202)
- Wiring Diagrams - WD46.2 - Motor M202 / Sensor S202 (Switchable Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 3F. This routine checks the Resolution Switching Lens Motor (M202).
- Toggle the reset switch on the B1J11 Card. An error is indicated by an SRC 225 on the Display/Touch Screen or by **E054** on the Maintenance Panel.

QUICK CHECKS

- Manually move the resolution switching lens arm by rotating the cam to check for binds.

SERVICE CHECKS

- Run Driver Routine 3F. This routine checks the Resolution Switching Lens Motor (M202).
- Run Sensor Routine 9D. This routine checks the Resolution Switching Lens Motor Position Sensor (S202).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Resolution Switching Lens Motor (M202)	25%	Printhead Links		
Resolution Switching Lens Motor Position Sensor (S202)	20%	Printhead Links		
Resolution Switching Lens Motor Postion Sensor adjustment	15%	Printhead Links		
Loose or binding Resolution mechanism	15%	Printhead Links		
Toner Control Card (PC551)	10%	2053	3199	2402
Mirror Motor Driver Board (MD192)	10%	Printhead Links		
B1J11 Card	05%	B1 Logic Card Links		

MAP 0225 BEGINS

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

MAP 0226: Resolution Lens Motor Overcurrent

Symptom Explanation	Conditions That Could Cause This Symptom
The Resolution Switching Lens Motor (M202) is drawing too much current.	• The Resolution Switching Lens Motor (M202) is defective. • The motor drive circuit has failed. • The current sensing circuit has failed. • Bind in the resolution switching lens mechanism.

REFERENCES

- Circuit Diagrams - CD56 - Rresolution Switching Lens Motor Position Sensor (S202)
- Wiring Diagrams - WD46.2 - Motor M202 / Sensor S202 (Switchable Printhead)

FIX VERIFICATION

- Print the Print Pack. An error is indicated by an SRC 226 on the Display/Touch Screen or by **E055** on the Maintenance Panel.

QUICK CHECKS

- Manually move the resolution switching lens arm by rotating the cam to check for binds.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Resolution Switching Lens Motor (M202)	30%	Printhead Links		
Mirror Motor Driver Board (MD192)	30%	Printhead Links		
Resolution menchanism Loose or binding	25%	Printhead Links		
Toner Control Card PC551	10%	2053	3199	2402
B1J11 Card	05%	B1 Logic Card Links		

MAP 0226 BEGINS

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

MAP 022A: PC Drum Cover Is Open

Symptom Explanation	Conditions That Could Cause This Symptom
The PC Drum cover is open, causing the PC Drum Cover Interlock Switch (S122) to become closed.	• There is a failure in the PC Drum Cover interlock circuit. • There is a short circuit to ground in the PC Drum Cover Interlock Switch (S122) circuit. • There is a hardware failure in the PC Drum Cover Interlock Switch (S122), Laser Power Supply, Laser, or the Toner Control Card (PCxxx).

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD57 - PC Drum Cover Interlock Switch (S122) — (20 mW)
  CD58 - PC Drum Cover Interlock Switch (S122) — (30 mW)
- Wiring Diagrams -
  WD41 - Laser Power & Control and Drum Cover Interlock (except 30 mW laser)
  WD41.1 - Laser Power & Control and Drum Cover Interlock (for 30 mW laser)

FIX VERIFICATION

- Power off, and then power on the printer.
  An error is indicated by an SRC 22A on the Display/Touch Screen or by **E035** on the Maintenance Panel.

QUICK CHECKS

- Ensure that the PC Drum cover is installed correctly.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
PC Drum Cover Interlock Switch (S122)	90%	2055	3203	2476
Toner Control Card PCxxx	10%	2053	3199	2402
Short circuit in wiring	---			

MAP 022A BEGINS

Table 111. MAP 022A

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. **Is the PC Drum cover correctly installed?**	Go to Step 2.	• Install the PC Drum cover to open the PC Drum Cover Interlock Switch (S122).
Step 2.	**Is connector PJ136 correctly seated at the Toner Control Card (PCxxx)?**	Go to Step 3.	• Correctly seat connector PJ136.

Table 111. MAP 022A (continued)

Step	Questions/Actions	Yes	No
Step 3.	Perform the following steps: • Remove the PC Drum cover. • Remove the PC Drum Cover Interlock Switch (S122) cover. • Disconnect connector PJ198 on the PC Drum Cover Interlock Switch (S122). • Insert a thickness gauge in the PC Drum Cover Interlock Switch (S122). Ensure that the thickness gauge is attracted to a magnet. • Check continuity through the PC Drum Cover Interlock Switch (S122) by measuring across points P198-1 and P198-2. **Is the circuit open (reading infinity)?**	Do the following, one step at a time, until the problem is corrected: • Adjust the position of the PC Drum Cover. PC Drum Cover Interlock Switch (S122), if necessary, to operate with the PC Drum Cover in place. • Install a new Toner Control Card (PCxxx). • Repair a short circuit to ground in the wiring network described by the following points: – PJ198-1 – PJ136-17 @	• Install a new PC Drum Cover Interlock Switch (S122). @

MAP 022B: Laser Power Dropped

Symptom Explanation	Conditions That Could Cause This Symptom
Although the Laser powered-on successfully, the beam power later dropped. This error is detected within the Laser and has nothing to do with the lenses, mirrors, or circuit boards in the printhead.	• The primary cause is a failure of the Laser. The Laser contains both the power and check circuits. • The Laser Power Supply or Toner Control Card (PCxxx) may be falsely giving the error indication.

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD57 - PC Drum Cover Interlock Switch (S122) — (20 mW)
  CD58 - PC Drum Cover Interlock Switch (S122) — (30 mW)
- Wiring Diagrams -
  WD41 - Laser Power & Control and Drum Cover Interlock (except 30 mW laser)
  WD41.1 - Laser Power & Control and Drum Cover Interlock (for 30 mW laser)

FIX VERIFICATION

- SHUTDOWN AND POWER OFF THE PRINTER.
- Power on the printer. An error is indicated by an SRC 22B on the Display/Touch Screen or by **E056** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Laser	90%	Printhead Links		
Laser Power Supply	05%	Printhead Links		
Toner Control Card PCxxx	05%	2053	3199	2402
Open circuit in wiring	---			

MAP 022B BEGINS

Table 112. MAP 022B

Step	Questions/Actions	Yes	No
	DANGER **<19> Abnormally high laser power may be present.** **Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 112. MAP 022B (continued)

Step	Questions/Actions	Yes	No
Step 1.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Laser – Laser Power Supply – Toner Control Card (PCxxx) • Repair an open circuit between PJ136-34 and PJ595-35 (except for the 30 mw laser). Check between PJ136-34 and PJ595-8 (for the 30 mw laser). @		

MAP 022C: Laser Power-Up Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Laser power is still low twenty-five minutes after the printer was powered on. This error is detected within the Laser and has nothing to do with the lenses, mirrors, or circuit boards in the printhead.	• The primary cause is a failure of the Laser. The Laser contains both the power and check circuits. • The Laser Power Supply or Toner Control Card (PCxxx) may be falsely giving the error indication.

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD57 - PC Drum Cover Interlock Switch (S122) — (20 mW)
  CD58 - PC Drum Cover Interlock Switch (S122) — (30 mW)
- Wiring Diagrams -
  WD41 - Laser Power & Control and Drum Cover Interlock (except 30 mW laser)
  WD41.1 - Laser Power & Control and Drum Cover Interlock (for 30 mW laser)

FIX VERIFICATION

- Power on the printer and wait for 10 minutes.

  An error is indicated by an SRC 22C on the Display/Touch Screen or by **E057** or **E059** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Laser	90%	Printhead Links		
Laser Power Supply	05%	Printhead Links		
Toner Control Card PCxxx	05%	2053	3199	2402
Open circuit in wiring	---			

MAP 022C BEGINS

Table 113. MAP 022C

Step	Questions/Actions	Yes	No
	DANGER **<19> Abnormally high laser power may be present.** **Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 113. MAP 022C (continued)

Step	Questions/Actions	Yes	No
Step 1.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Install the new parts listed below, one at a time, until the problem is corrected: – Laser – Laser Power Supply – Toner Control Card (PCxxx) • Repair an open circuit between one of the following pairs of connectors: (except for the 30 mw laser) – PJ136-33 and PJ595-34 – PJ136-39 and PJ595-6 – PJ136-40 and PJ595-7 **Note:** For the 30 mw laser use the following points. – PJ136-33 and PJ595-7 – PJ136-39 and PJ595-1 – PJ136-40 and PJ595-2 @		

MAP 022D: Laser Power Supply Error

Symptom Explanation	Conditions That Could Cause This Symptom
Following an IML, the Laser Power Supply failed to reach the operating current of the Laser. This error is detected within the Laser Power Supply and has nothing to do with the lenses, mirrors, or circuit boards in the printhead.	• The switch or key on the Laser Power Supply is set to the off position. • The fuse or interlock jumper is open on the Laser Power Supply. • There is an open wire in the Laser Power Supply circuit. • There is a hardware failure in the Laser Power Supply, the Laser, or the Toner Control Card (PCxxx).

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD57 - PC Drum Cover Interlock Switch (S122) — (20 mW)
  CD58 - PC Drum Cover Interlock Switch (S122) — (30 mW)
- Wiring Diagrams -
  WD41 - Laser Power & Control and Drum Cover Interlock (except 30 mW laser)
  WD41.1 - Laser Power & Control and Drum Cover Interlock (for 30 mW laser)

FIX VERIFICATION

- Power off, and then power on the printer. An error is indicated by an SRC 22D on the Display/Touch Screen or by **E058** on the Maintenance Panel.

QUICK CHECKS

- Ensure that the PC Drum cover is correctly installed.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Laser Power Supply	70%	Printhead Links		
Toner Control Card PCxxx	20%	2053	3199	2402
Laser	05%	Printhead Links		
Relay (K503)	03%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Printer AC Power Supply	02%	2084	3507 (200V) 3509 (400V)	2635

MAP 022D BEGINS

Table 114. MAP 022D

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Ensure that the printer is powered on. The thermal warning light is behind connector. It will be red if it is on. **Is the Laser Power Supply thermal warning light off?**	Go to Step 2.	The red light is on, which means that a thermal error has occurred within the Laser Power Supply. • Install a new Laser Power Supply. @
Step 2.	**Is the voltage 115 V ac across J597-1 and J597-2, or for the 30 mw laser, 200 V ac across J597-1 and J597-2?**	Go to Step 3.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check connector PJ523 for correct contact. • Install a new Relay (K503). If present, the problem will be an open circuit between terminals L4 and T4. @ (continued on next page)

Table 114. MAP 022D (continued)

Step	Questions/Actions	Yes	No
Step 2 (cont.)			• Repair an open circuit between one of the following pairs of connectors: – The following must both be open: - PJ597-1 and PJ534-1 - PJ597-1 and PJ534-2 – The following must both be open: - PJ597-2 and PJ534-3 - PJ597-2 and PJ534-4 – Terminal L4 on Relay (K503) to terminal T1 on Relay (K502) – Terminal T4 on Relay (K503) to PJ523 • Install a new Printer AC Power Supply. @
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. **Are connectors PJ595 and PJ596 correctly seated at the Laser Power Supply?**	Go to Step 4.	• Correctly seat connectors PJ595 and PJ596.
Step 4.	**Are both the key and the toggle switch on the Laser Power Supply set to the On position?**	Go to Step 5.	• Set both the key and the toggle switch to the On position.

Table 114. MAP 022D (continued)

Step	Questions/Actions	Yes	No
Step 5.	If the printer has a 30 mw laser, go to Step 7. **Is the interlock jumper PJ598 correctly installed on the Laser Power Supply?**	Go to Step 6.	• Install the interlock jumper PJ598. @
Step 6.	• Disconnect the interlock jumper PJ598 on the Laser Power Supply. **Is there continuity through the interlock jumper PJ598?**	Go to Step 7.	• Repair the interlock jumper PJ598. @
Step 7.	• Install the interlock jumper PJ598. • Remove the fuse in the Laser Power Supply. **Is there continuity through the fuse?**	Go to Step 8.	Do the following, one step at a time, until the problem is corrected: • Check for a short circuit in the Laser power cable by ensuring that it is not pinched or damaged. Examine the cable between the Laser and connector PJ596. • Install a new Laser Power Supply fuse. If the fuse blows again, install new parts, one at a time, until the problem is corrected: – Laser Power Supply – Laser @

Table 114. MAP 022D (continued)

Step	Questions/Actions	Yes	No
Step 8.	Do the following: • Install the Laser Power Supply fuse. Do the following, one step at a time, until the problem is corrected: **Note:** The following is for all except the 30 mw laser. • Repair an open circuit between one of the following pairs of connectors: – PJ136-39 to PJ595-6 – PJ136-40 to PJ595-7 – PJ136-37 to PJ595-8 – PJ136-38 to PJ595-9 – PJ136-35 to PJ595-24 – PJ136-36 to PJ595-25 – PJ136-33 to PJ595-34 – PJ136-34 to PJ595-35 • Repair an open circuit between one of the following pairs of connectors: **Note:** The following is for the 30 mw laser. – PJ136-39 to PJ595-1 – PJ136-40 to PJ595-2 – PJ136-37 to PJ595-3 – PJ136-38 to PJ595-4 – PJ136-35 to PJ595-5 – PJ136-36 to PJ595-6 – PJ136-33 to PJ595-7 – PJ136-34 to PJ595-8 @ (continued on next page)		

Table 114. MAP 022D (continued)

Step	Questions/Actions	Yes	No
Step 8 (cont.)	• Install the new parts listed below, one at a time, until the problem is corrected: – Laser Power Supply – Laser – Toner Control Card (PCxxx) @		

MAP 0231: Mag Brush Bias Error

Symptom Explanation	Conditions That Could Cause This Symptom
An out-of-range voltage condition was detected in the Mag Brush Bias circuit.	• The PC Drum or hub is causing arcing. • The PC Drum grounding is defective. • The High-Voltage Power Supply is defective. • The error detection Toner Control Card (PCxxx) is defective. • The developer mix has debris in it. • The developer has a mechanical problem.

REFERENCES

- Removals & Adjustments -
  Drum Drive and Photoconductor (PC)
  Coronas & High Voltage Power Supply
  Developer
- Circuit Diagrams - CD59 - Mag Brush Bias
- Wiring Diagrams - WD40 - High Voltage to Coronas

FIX VERIFICATION

- Print the Primary Print Sample. Run the test for a full box of paper to see if the error occurs during printing.

QUICK CHECKS

- Ensure that the PC Drum is installed correctly.

SERVICE CHECKS

1. Perform Mag Brush Bias Voltage check.
2. Perform the Developer to PC Drum Gap adjustment.
3. Visually inspect the PC drum and hubs for irregularities that could cause arcing. Deep scratches in the PC drum can cause arcs. Sometimes small metal shavings, burrs, or gouges on the edge of the drum or hubs can cause arcs.
4. Ensure that the rear drum seal is installed correctly. The metal part of the seal should not touch any metal surface of the developer.
5. Ensure that the PC drum grounding is good and that the grounding brush moves freely.
6. Run Driver Routine 06. The routine runs the Toner Control Motor (M103) for 5 seconds, which turns the scavenger roll and toner control shaft through the toner control belt. If the scavenger roll does not rotate while the routine is running, check the toner control belt and drive mechanism.
7. Dump the developer mix and thoroughly clean the developer. Ensure that the doctor blade, scraper blade, and Developer Adjustments adjustments are correct. Install new developer mix.
8. Inspect the entire developer mechanism for damage or possible shorts to the mag brush bias.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
PC Drum	55%	2082	3261	2467
Toner Control Belt	15%	2068	3253	2369
High Voltage Power Supply	10%	2059	3205	2328
Toner Control Card PCxxx	10%	2053	3199	2402
HV Connector or Cable	06%	2059	3231	2328
Mag Brush Rolls to Doctor Blade adjustment	02%			2453
PC Drum grounding	02%			2478
Foreign object in the mix	---			

MAP 0231 BEGINS

Table 115. MAP 0231

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CKECKS. • Run Driver Routine 0F. An error is indicated by **E137** on the Maintenance Panel. **Did an E137 error occur?**	Go to Step 2.	Go to Step 3.
Step 2.	• Disconnect the High-Voltage Bias cable at CH2 on the High Voltage Power Supply. Move the cable at least 1 inch away from CH2 to prevent arcing. • Run Driver Routine 0F from the Maintenance Panel. **Did an E137 error occur?**	• Install the following, one at a time, until the problem is corrected: – High Voltage Power Supply – Toner Control Card (PCxxx) • Repair any wiring problems in the Mag Brush Bias circuit. @	There must be a short in the bias circuit beyond the High Voltage Power Supply. The short could be in the wiring from the High Voltage Power Supply to the developer or in the developer itself. • Isolate the short and repair it.
Step 3.	• Print the Primary Print Sample. Run the test for up to a box of paper. **Did an SRC 231 error occur?**	Go to Step 4.	The problem is intermittent. Go to Intermittent Failures.

Table 115. MAP 0231 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Print samples can be made with the Mag Brush Bias disconnected for debug purposes. The print will be lighter and there will be high background, but no 231 errors should occur if there is nothing defective in the High Voltage Power Supply circuit. • Disconnect the High Voltage Bias cable at CH2 on the High Voltage Power Supply. Move the cable at least 1 inch away from CH2 to prevent arcing. • Print the Primary Print Sample. Run the test for up to a box of paper. **Did an SRC 231 error occur?**	Install the following, one at a time, until the problem is corrected: • High Voltage Power Supply • Toner Control Card (PCxxx) @	• Reconnect the Mag Brush Bias cable at CH2. • Do the SERVICE CHECKS one at a time. Repair or replace as necessary until the problem is solved.

MAP 0232: Conveyor Roll Rotation Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Conveyor Roll does not rotate.	• The Mag Brush Belt is defective or loose. • A mechanical bind is preventing the Conveyor Roll from turning. Possible binding components are: – Mag Brush Rolls – Conveyor Roll – Idler pulleys • The Mag Brush Motor (M101) is defective. • The drive pulley on the Mag Brush Motor (M101) is loose or slipping. • The magnets are loose inside the Conveyor Roll • The Relay Board (RB101) is defective. • The B1J9 Card is defective.
The Conveyor Roll rotates, but the Conveyor Roll Rotation Sensor (S113) does not detect the rotation.	• The Conveyor Roll Rotation Sensor (S113) is defective. • The Toner Control Card (PCxxx) is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments -
  Developer
  Air System
- Circuit Diagrams - CD60 - Mag Brush Motor (M101) and Conveyor Roll Rotation Sensor (S113)
- Wiring Diagrams -
  WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
  WD57- Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Fixed Resolution Printhead)
  WD57.1 - Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Switchable Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- Check to see if the Mag Brush Belt is loose or broken.

SERVICE CHECKS

- Run Driver Routine 09. This routine runs the Mag Brush Motor (M101) for 5 seconds.
- Run Sensor Routine 57. This routine tests the operation of the Conveyor Roll Rotation Sensor (S113).
- Run Encoder Routine A9. This routine is the margin test for the Conveyor Roll Rotation Sensor (S113).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mag Brush Belt	40%		3237	2369
Mag Brush Motor (M101)	35%	2070	3241	2389
Conveyor Roll Rotation Sensor (S113)	07%	2067	3243	2368
Mag Brush Rolls	07%	2067	3237	2392
Conveyor roll	06%	2067	3237	2363
Relay Board (RB101)	02%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	01%	B1 Logic Card Links		
Toner Control Card PCxxx	01%	2053	3199	2402
B1J8 Card	01%	B1 Logic Card Links		

MAP 0232 BEGINS

Table 116. MAP 0232

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. **Note:** You may be able to see the mag brush operate by removing the small cover at the rear of the developer. If not, continue. • Perform the Fine Filter Case removal procedure. • Check the condition and operation of the Mag Brush Belt. **Is the Mag Brush Belt installed and operating correctly?**	Go to Step 2.	• Repair or replace the Mag Brush Belt. @
Step 2.	• Install the Maintenance Panel extension cable for the following tests. • Power on the printer. • Run Driver Routine 09. • Observe the Conveyor Roll during the test. **Does the Conveyor Roll rotate correctly during the test?**	Go to Step 3.	Go to Step 5.

Table 116. MAP 0232 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The Conveyor Roll is rotating correctly, but there is a problem with the sensing circuit. • Separate the Control Unit frame from the Printer frame so you can access the connectors on the right side of the Developer. • Measure the voltage between PJ113-3 (positive lead) and PJ113-4 (negative lead). **Is the voltage greater than +4.5 V dc?**	Go to Step 4.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between – PJ113-3 and PJ135-33 – PJ113-4 and PJ135-34 • Install a new Toner Control Card (PCxxx). @
Step 4.	• Measure the voltage between PJ113-5 (positive lead) and PJ113-4 (negative lead). • Manually rotate the Mag Brush drive belt to cause the magnet on the Conveyor Roll pulley to rotate past the Conveyor Roll Rotation Sensor (S113). **Does the voltage change between approximately +5.0 V dc and 0 V dc as the magnet passes the sensor?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between the PJ1003-57 and PJ464-57 connectors. • Install the new parts listed below, one at a time, until the problem is corrected: – Toner Control Card (PCxxx) – B1J8 Card @	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between one of the following pairs of connectors: – PJ107-1 and PJ113-3 – PJ107-2 and PJ113-5 – PJ113-5 and PJ135-35 – PJ107-3 and PJ113-4 • Install a new Conveyor Roll Rotation Sensor (S113). • Install a new Toner Control Card (PCxxx). @

Table 116. MAP 0232 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Check for loose or broken pulleys on the Mag Brush Motor (M101) and the Conveyor Roll. **Are the Mag Brush Motor (M101) and Conveyor Roll pulleys in good condition?**	Go to Step 6.	• Adjust, repair, or replace the item as necessary. @
Step 6.	• Check for binds in any component driven by the Mag Brush Belt that would prevent the Conveyor Roll from rotating. Possible binding components are: – Mag Brush Rolls – Conveyor Roll – Idler pulleys **Does the mechanism operate correctly without binding?**	Go to Step 7.	• Adjust, repair, or replace the item as necessary. @
Step 7.	The Mag Brush Motor (M101) is a three-phase AC motor. You will be asked to make three voltage measurements in each of the following steps to determine if the correct AC voltage is present. • Run Driver Routine 09 and measure the voltage between the following connectors while the routine is running. – PJ502-6 and PJ502-7 – PJ502-6 and PJ502-8 – PJ502-7 and PJ502-8 **Are all three voltage measurements greater than 180 V ac?**	Go to Step 8.	There is a 200 V ac distribution problem. • SHUTDOWN AND POWER OFF THE PRINTER. Repair an open circuit between one of the following pairs of connectors: • TB503-1 and PJ533-1 and PJ502-8 • TB503-3 and PJ533-2 and PJ502-6 • TB503-5 and PJ533-3 and PJ502-7 @

Table 116. MAP 0232 (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Run Driver Routine 09 and measure the voltage between the following connectors while the routine is running. – PJ503-12 and PJ503-13 – PJ503-12 and PJ503-14 – PJ503-13 and PJ503-14 **Are all three voltage measurements greater than 180 V ac?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between one of the following pairs of connectors: – PJ503-12 and PJ193-4 – PJ193-4 and PJ106-3 – PJ503-14 and PJ193-5 – PJ193-5 and PJ106-2 – PJ503-13 and PJ193-6 – PJ193-6 and PJ106-1 • Install a new Mag Brush Motor (M101). @	Go to Step 9.
Step 9.	• Run Driver Routine 09. Measure the voltage at PJ501-7 while the routine is running. **Does the voltage switch from approximately +24 V dc to 0 V dc when the routine runs?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Install a new Relay Board (RB101). @	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between – PJ501-7 and PJ481-15 • Install a new B1J9 Card. @

MAP 0233: Mag Roll Motor Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Mag Brush Motor (M101), causing an overtemperature condition.	• The Mag Brush Motor (M101) is defective. • A mechanical bind in the Mag Roll mechanism is causing an overload of the Mag Brush Motor (M101). • The Mag Brush Motor (M101) Gear Head is defective.
A Mag Brush Motor (M101) overtemperature condition is detected, but the Mag Brush Motor (M101) is not overheated.	• The thermal sensor in the Mag Brush Motor (M101), or the sensor wiring, is defective. • The Toner Control Card (PCxxx) is defective. • The +24VE circuit is open. • The DC 2 Power Supply is defective.

REFERENCES

- Removals & Adjustments - Developer
- Circuit Diagrams - CD61 - Mag Brush Motor and Thermal Sense (M101)
- Wiring Diagrams -
  WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
  WD24 - Printer DC Power Units and Sequence Card
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 09. This routine operates the Mag Brush Motor (M101) and checks the operation of the motor and drive system. An error is indicated by **E13E** on the Maintenance Panel.
- Print the **alternate** print sample (1604). An error is indicated by an SRC 233 on the Display/Touch Screen or by **E03E** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 233 on the Display/Touch Screen or by **E03E** on the Maintenance Panel.

QUICK CHECKS

- Determine if the Mag Brush Motor (M101) is actually hot, or if the overtemperature error is false.

SERVICE CHECKS

- Run Driver Routine 09. This routine operates the Mag Brush Motor (M101) and checks the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mag Brush Motor (M101)	70%	2070	3241	2389
Mag Roll drive mechanism	15%		3241	
Mag Brush Motor (M101) gearhead	10%	2070	3241	2389
DC 2 Power Supply	03%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Toner Control Card PCxxx	01%	2053	3199	2402
SQ081/SQ082 Card	01%	2142	3507 (200 V) 3509 (400 V)	2642

MAP 0233 BEGINS

Table 117. MAP 0233

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This step determines if the Mag Brush Motor (M101) is actually overheating, or if the errors are false. • Run the machine long enough to create the failure again. **Is the Mag Brush Motor (M101) overheating?**	There is a problem with the Mag Brush Motor (M101), causing it to overheat. Do the following, one step at a time, until the problem is corrected: • Check for a bind in the Mag Roll drive mechanism. • Install a new Mag Brush Motor (M101). • Install a new Mag Brush Motor (M101) Gear Head. @	Go to Step 2.
Step 2.	The thermal errors are false, caused by a failure in the thermal sensing circuit. • Separate the Control Unit frame from the Printer frame so you can access the connectors on the right side of the Developer. • Measure the voltage at PJ113-2. **Is the voltage +24 V dc?**	Go to Step 3.	Go to Step 4.

Table 117. MAP 0233 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ113. • Measure the resistance between J113-1 and J113-2 (the motor side of the connector). **Is there continuity between J113-1 and J113-2?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between the PJ113-1 and PJ135-31 connectors. • Install a new Toner Control Card (PCxxx). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ118-1 and PJ113-2 – PJ118-2 and PJ113-1 • Install a new Mag Brush Motor (M101). @
Step 4.	• Measure the voltage at PJ469-1. **Is the voltage +24 V dc?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between one of the following pairs of connectors: – PJ1003-77 and PJ464-77 – PJ1003-79 and PJ464-79 – PJ464-77 and PJ469-1 – PJ113-2 and PJ135-32 • Install a new Toner Control Card (PCxxx). @	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between one of the following pairs of connectors: – PJ469-1 and PJ507-1 – PJ514-9 and PJ594-9 • Install a new DC 2 Power Supply. • Install a new SQ081/SQ082 Card. @

MAP 0234: Toner Overfeed Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Toner concentration as measured by the Toner Control Sensor (L101) is too high. This error is posted when the toner control voltage at TP1 is higher than 2.6 V dc.	• The Toner Control Card (PCxxx) is defective. • The Relay Board (RB101) is defective. • The Toner Control Sensor (L101) is defective. • The B1J9 Card is defective. • No Developer Mix or the wrong kind of Developer Mix was installed. • The Toner Control Motor (M103), belt, or mechanism is defective. • The one-way clutch on the toner feed shaft pulley is installed backwards or is defective. • The magnetic roll punch marks (especially roll 'C') are installed upside down.

REFERENCES

- Removals & Adjustments - Developer
- Circuit Diagrams - CD62 - Toner Control Sensor (L101) and Toner Control Motor (M103)
- Wiring Diagrams -
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)

FIX VERIFICATION

- After you correct the cause of the 234 error, you will need to install new developer mix TP1 on the Toner Control Card (PCxxx) is above 2.55 V dc.
- Print the Primary Print Sample. See if the error occurs during printing. Monitor TP1 on the Toner Control Card (PCxxx) to ensure that the toner control circuit is OK.

QUICK CHECKS

- Add new mix. If new mix does not fix the problem, continue in this MAP.

SERVICE CHECKS

- Measure the toner control voltage at TP1 on the Toner Control Card (PCxxx) while the Developer is running. A voltage outside the range of 1.4 V dc to 2.6 V dc causes an error to be posted.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Mix	35%			
Toner Control Card PCxxx	30%	2053	3199	2402
Relay Board (RB101)	20%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	05%	B1 Logic Card Links		
Toner Control Sensor (L101)	05%	2068	3253	2412
Toner Control Motor (M103) gear head assembly	02%	2067	3199	2407
Toner Control Motor (M103)	01%	2067	3247	2407
Toner Control Belt	01%		3253	2369
Toner Feed Shaft Pulley	01%	2066	3255	2425

Note: If the developer has just been worked on, ensure the punch mark on the end of the mag brush roll shaft is at the top of the slot (especially mag roll 'C').

MAP 0234 BEGINS

Table 118. MAP 0234

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Print the Primary Print Sample. Run test for up to a full box of paper. **Did an SRC 234 error occur?**	Go to Step 2.	The problem is intermittent. Go to Intermittent Failures.
Step 2.	• Remove the developer cover and check to see if the toner control shaft is turning while the developer is running. Pushing the **Developer Run** button on the front of the developer runs the developer for about a minute. The toner control shaft is below and to the right of the scavenger roll. **Does the shaft turn?**	Go to Step 3.	Go to Step 7.

Table 118. MAP 0234 (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Measure the voltage at TP1 on the Toner Control Card (PCxxx) while the developer is running. **Was the voltage greater than 2.4 V dc?**	Go to Step 4.	Go to Step 8.
Step 4.	• Check the toner feed shaft while the developer is running. The end of this shaft can be seen from the front of the developer and is to the right of the developer input chute. The shaft should not rotate; it should remain stationary. **Does the shaft remain stationary?**	Go to Step 5.	The toner feed motor is running when it should not. After the toner feeding problem is corrected, you should install new developer mix because 234 errors will continue to be posted because of the build up of toner in the developer. Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problems in the Toner Feed Motor (M102) circuit. @

Table 118. MAP 0234 (continued)

Step	Questions/Actions	Yes	No
Step 5.	If the one-way clutch on the toner feed shaft pulley or the toner feed drive circuit is defective, toner can be fed into the developer mix when the Toner Supply pushbutton is pushed. The toner feed shaft should remain stationary when the Toner Supply pushbutton is pushed. • Push the Toner Supply pushbutton. **Did the toner feed shaft remain stationary?**	Go to Step 6.	Go to Step 10.

Table 118. MAP 0234 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Dump the developer mix and install new, unused mix. • Perform the toner control adjustments on the Toner Control Card (PCxxx). Do not reinstall the old developer mix in the printer after the adjustment is complete. • If it is impossible to adjust the Toner Control Card (PCxxx) to specifications, do the following one at a time until the adjustment can be made: – Install a new Toner Control Card (PCxxx). – Repair any shorts to ground in the circuit from PJ135-45 to PJ135-46. – Install a new Toner Control Sensor (L101). – Repair any damage or blockage of the Toner Control Sensor (L101) chute and mechanism. • Print the Primary Print Sample. Run up to a full box while you monitor the voltage at TP1. If the voltage reaches 2.4 V dc, stop printing. @ **Did TP1 stay below 2.4 V dc?**	Finished.	Do the following, one at a time, until the problem is corrected: • Install a new Toner Control Card (PCxxx) if not previously installed. • Install a new B1J9 Card. • Install a new Relay Board (RB101). • A problem in the developer is allowing excess toner to reach the developer mix. Correct the mechanical problem in the developer. @

Table 118. MAP 0234 (continued)

Step	Questions/Actions	Yes	No
Step 7.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Measure the voltage between PJ196-5 and PJ196-4 while the developer is running. **Was the voltage more than 180 V ac?**	Do the following, one at a time, until the problem is corrected: • Check the Toner Control Belt . Adjust or replace as necessary. • Correct any wiring problems from PJ196 to the Toner Control Motor (M103), including Capacitor 103. • The toner control shaft and scavenger roll mechanism that are driven by the Toner Control Motor (M103) should turn with light to moderate force. If this mechanism is binding, repair or replace the binding component. Removing the Toner Control Belt may aid in isolating the failing item. • Install a new Toner Control Motor (M103). A new Capacitor 103 comes with the new motor and should be installed at the same time as the new motor. @	Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problems in the Toner Control Motor (M103) circuit. @

Table 118. MAP 0234 (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Dump the developer mix and install new, unused mix. • Perform the toner control adjustments on the Toner Control Card (PCxxx). Do not reinstall the old developer mix in the printer after the adjustment is complete. **Can the toner control adjustments be made?**	Finished.	Go to Step 9.
Step 9.	• Disconnect PJ135 on the Toner Control Card (PCxxx). Check for continuity from P135-45 to P135-46. **Is there approximately 30 ohms?**	• Install a new Toner Control Card (PCxxx). @	Do the following, one at a time, until the problem is corrected: • Repair any open from PJ135 to Toner Control Sensor (L101). • Install a new Toner Control Sensor (L101). @
Step 10.	**When viewed from the front of the developer, did the toner feed shaft turn clockwise?**	Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problems in the Toner Feed Motor (M102) circuit. Check for opens or shorts from PJ501-5 to PJ481-20. @	The one-way clutch is either installed backward or is defective. • Repair or replace the one-way clutch on the toner feed shaft. Install new developer mix. @

MAP 0235: Toner Underfeed Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Toner concentration as measured by the Toner Control Sensor (L101) is too low. This error is posted when the toner control voltage at TP1 is less than 1.4 V dc.	• The Toner Feed Scraper Blade is installed incorrectly, or is defective. • The Toner Feed Belt is defective. • The Toner Feed Motor (M102) is defective. • An “add toner” condition is not sensed because of a defective Toner Empty Sensor (S106) circuit. • The Toner Feed Motor (M102) gear head assembly is defective. • The toner feed mechanism is defective. • The one-way clutch on the toner feed shaft pulley is installed backward or is defective. • The toner is caking in the toner hopper. • The Toner Control Card (PCxxx) is defective. • The Relay Board (RB101) is defective. • The B1J9 Card is defective. • The Toner Control Sensor (L101) is defective. • The Toner Control Motor (M103), belt, or mechanism is defective. • The Developer Mix is insufficient. (Check for mix leaking into the drain hose.) • The wrong kind of Developer Mix was installed. • The conveyor roll is not correctly installed or is defective. • Mag Brush Rolls B and C are worn. • The magnetic roll punch marks (especially roll “C”) are installed upside down.

REFERENCES

- Removals & Adjustments - Developer
- Circuit Diagrams - CD62 - Toner Control Sensor (L101) and Toner Control Motor (M103)
- Wiring Diagrams -
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

Note: Many of the failures identified with this MAP cause a lack of toner condition. To recover from a lack of toner condition after making a repair, run Adjustment Routine C3 from the Maintenance Panel. It will run the developer and feed toner until the control voltage at TP1 reaches the correct value.

QUICK CHECKS

1. Incorrect phase rotation can cause a 235 error. Phase rotation can be quickly checked by opening the splicing lever and checking whether there is vacuum or pressure. If there is a motion of air present, the phasing is wrong. See installation instructions for correct power phasing.
2. Insufficient developer mix in the developer can cause a 235 error. Check the developer mix drain hose for mix that may have been accidentally drained or has leaked out. If you are not sure that the developer contains a full load of mix, dump the mix and refill with new mix.
3. If the print is extremely light or there is high background, dump the developer mix and install new mix.
4. If the developer has been “worked on” immediately prior to this problem, ensure that the conveyor roll and mag brush rolls have been installed in the correct position and that the angles are set correctly.

SERVICE CHECKS

- Measure the toner control voltage at TP1 on the Toner Control Card (PCxxx) while running the developer. A voltage less than 1.4 V dc will cause a 235 error to be posted.
- Run Driver Routine 0A from the Maintenance Panel. Check to see if the toner feed mechanism operates.
- Run Adjustment Routine C3 from the Maintenance Panel to recover from a lack of toner condition. It runs the developer and feeds toner until the control voltage at TP1 on the Toner Control Card (PCxxx) reaches the correct value.
- Inspect toner hopper to see if an add toner condition was sensed. You can run Sensor Routine 58 from the Maintenance Panel to check the operation of the sensor circuit.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Feed Scraper Blade	45%		3255	2421
Toner Control Belt	10%		3253	2369
Toner Empty Sensor (S106)	05%	2068	3257	2414
Toner Feed Motor (M102)	05%	2067	3257	2419
Toner Feed Motor (M102) gear head	05%	2067	3257	2419
Toner Feed Belt	05%		3257	2369
Mag Brush B	05%	2067	3237	2392
Mag Brush C	05%	2067	3237	2392
Toner Control Sensor (L101)	04%	2068	3253	2412
Toner Feed mechanism	03%		3257	
Toner Control Motor (M103)	02%	2067	3247	2407
Toner Control Motor (M103) gear head assembly	01%	2067	3199	2407
Toner Feed Shaft Pulley	01%	2066	3255	2425
Toner Control Card PCxxx	01%	2053	3199	2402
Relay Board (RB101)	01%	2084	3507 (200V) 3509 (400V)	

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J9 Card	01%	B1 Logic Card Links		
Conveyor roll	01%	2067	3237	2363
Developer Mix	---			
Toner caking	---			

MAP 0235 BEGINS

Note: Many of the failures identified with this MAP cause a lack of toner condition. To recover from a lack of toner condition after making a repair, run Adjustment Routine C3 from the Maintenance Panel. It runs the developer and feed toner until the control voltage at TP1 on the Toner Control Card (PCxxx) reaches the correct value.

Table 119. MAP 0235

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CKECKS. • Print the Primary Print Sample. Run the test for 3000 pages. **Did an SRC 235 error occur?**	Go to Step 2.	If you took a corrective action during the QUICK CKECKS, this appears to have solved the problem. If you took no actions in the QUICK CKECKS, the problem is intermittent. Go to Intermittent Failures.
Step 2.	• Remove the developer cover and check to see if the toner control shaft is turning while the developer is running. Pushing the **Developer Run** button on the front of the developer runs the developer for about a minute. The toner control shaft is located below and to the right of the scavenger roll. **Does the shaft turn?**	Go to Step 3.	Go to Step 7.

Table 119. MAP 0235 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Measure the voltage between TP1 and TPG on the Toner Control Card (PCxxx) while the developer is running. **Was the voltage less than 1.60 V dc?**	Go to Step 4.	• Install a new Toner Control Card (PCxxx). @
Step 4.	**Was the voltage greater than 0.2 V dc?**	Go to Step 5.	Go to Step 8.
Step 5.	• Run Driver Routine 0A from the Maintenance Panel. Check to see if the toner feed shaft rotates. The end of this shaft can be seen from the front of the developer and is located to the right of the developer input chute. Driver Routine 0A runs the toner feed motor for 5 seconds. **Did the shaft rotate at least one full rotation?**	Go to Step 6.	Go to Step 9.
Step 6.	• Run Adjust Routine C3 from the Maintenance Panel. This runs the developer and feeds toner until the control voltage at TP1 reaches the correct value. Monitor TP1 while Routine C3 is running. If the voltage does not rise at least 0.2 V dc every minute, stop the routine and answer No to the next question. **Did Routine C3 complete successfully?**	You found no trouble. Feeding toner corrected the temporary problem.	Go to Step 10.

Table 119. MAP 0235 (continued)

Step	Questions/Actions	Yes	No
Step 7.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Measure the voltage between PJ196-5 and PJ196-4 while the developer is running. **Was the voltage more than 180 V ac?**	Do the following, one at a time, until the problem is corrected: • Check the Toner Control Belt . Adjust or replace as necessary. • Correct any wiring problems from PJ196 to the Toner Control Motor (M103), including Capacitor 103. • The toner control shaft and scavenger roll mechanism that are driven by the Toner Control Motor (M103) should turn with light to moderate force. If this mechanism is binding, repair or replace the binding component. Removing the Toner Control Belt may aid in isolating the failing item. • Install a new Toner Control Motor (M103). A new Capacitor 103 comes with the new motor and should be installed at the same time as the new motor. @	Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problems in the Toner Control Motor (M103) circuit. @

Table 119. MAP 0235 (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Disconnect PJ135 on the Toner Control Card (PCxxx). Check for continuity from P135-45 to P135-46. **Is there approximately 30 ohms?**	Install a new Toner Control Card (PCxxx).	Do the following, one at a time, until the problem is corrected: • Repair any open from PJ135 to Toner Control Sensor (L101). • Install a new Toner Control Sensor (L101). @

Table 119. MAP 0235 (continued)

Step	Questions/Actions	Yes	No
Step 9.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Measure the voltage between PJ196-1 and PJ196-3 while you run Driver Routine 0A. **Was the voltage more than 180 V ac?**	Do the following, one at a time, until the problem is corrected: • Check the Toner Feed Belt. Adjust or replace as necessary. • Correct any wiring problems from PJ196 to the Toner Feed Motor (M102), including Capacitor (C102). • The toner feed mechanism should turn with moderate to heavy force. If the mechanism is binding, repair or replace the failing component. Removing the Toner Feed Belt may aid in isolating the binding item. • Check the one-way clutch on the toner feed shaft pulley. The toner feed shaft should rotate when the pulley is turned counterclockwise from the rear of the developer. If the pulley does not operate correctly, install a new pulley. @ (continued on next page)	Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problems in the toner feed circuit. @

Table 119. MAP 0235 (continued)

Step	Questions/Actions	Yes	No
Step 9 (cont.)		• Install a new Toner Feed Motor (M102). A new Capacitor (C102) comes with the new motor and should be installed at the same time as the new motor. @	

Table 119. MAP 0235 (continued)

Step	Questions/Actions	Yes	No
Step 10.	The toner feed roll is turning, but no increase in toner concentration is being sensed. • Pull the developer out on its rails and remove the toner hopper cover. • Check the toner hopper to see if an add toner condition was not sensed. **Was toner covering the toner feed shaft?**	Go to Step 11.	The Toner Empty Sensor (S106) circuit did not sense an add toner condition. Do the following one at a time until the problem is corrected: • If toner is caking on the Toner Empty Sensor (S106), repair, replace, or adjust the sensor or the paddle in the toner hopper. See Developer for correct installation of the Toner Empty Sensor (S106) and operation of the toner paddle. • Install a new Toner Empty Beat Plate. • Install a new Toner Empty Sensor (S106). • Install a new Toner Control Card (PCxxx). • Correct any wiring problems between the Toner Empty Sensor (S106) and the Toner Control Card (PCxxx). • Correct any wiring problems between the Toner Control Card (PCxxx) and the 12 V dc supply. @

Table 119. MAP 0235 (continued)

Step	Questions/Actions	Yes	No
Step 11.	• Dump the developer mix and install new, unused mix. Perform the Toner Control adjustments on the PC211/PC531/PC551 Card. Do not reinstall the old developer mix in the printer after the adjustment is complete. If it is impossible to adjust to the correct values on the Toner Control Card (PCxxx), do the following, one at a time, until the adjustment can be made: – Remove the mag brushes and conveyor roll. Verify that toner is getting into the mix by turning the toner feed roll manually. If the toner being dumped into the mix does not appear to be enough, check the following parts for wear and correct adjustment: - Toner Feed Shaft - Toner Feed Plate - Toner Feed Scraper – Install a new Mag Brush Roll B and C. – Install a new Toner Control Card (PCxxx). – Repair any shorts to ground in the circuit from PJ135-45 to PJ135-46. – Install a new Toner Control Sensor (L101). – Repair any damage or blockage of the Toner Control Sensor (L101) chute and mechanism. – Clean out the developer mix, correct any problems you find. Install and adjust all items that could affect the mix flow. If you find no problem, install a new conveyor roll. @		

MAP 0241: Primary Erase Lamp Never On

Symptom Explanation	Conditions That Could Cause This Symptom
The Primary Erase Lamp (PL102) detection circuit did not detect the erase lamp after the “ER LMP1 ON” signal was sent to the lamp starter.	• The Primary Erase Lamp (PL102) is defective. • The Primary Erase Lamp Starter (ST102) is defective. • The Primary Erase Lamp Sensor (Q101) is defective. • The YS011 Card is defective. • The B1J9 Card is defective. • There is an open in the 24 V dc to the Lamp Starter. • There is an open in the lamp sensor circuit.

REFERENCES

- Removals & Adjustments - Erase Lamps
- Circuit Diagrams - CD63 - Primary Erase Lamp (PL102), Starter (ST102), and Sensor (Q101)
- Wiring Diagrams -
  WD39 - Erase Lamp and Usage Meter (Single Beam or Two Beam 240 Printhead)
  WD39.1 - Erase Lamp and Usage Meter (Two Beam 240/300, Four or Five Beam Printhead)
  WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 0B from the Maintenance Panel. An error is indicated by **E1D3**.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Primary Erase Lamp (PL102)	80%	2082	3207	2490
Primary Erase Lamp Starter (ST102)	16%	2059	3207	2498
YS011 Card	01%	2116	3363	2627
Primary Erase Lamp Sensor (Q101)	01%	2055	3215	2492
B1J9 Card	01%	B1 Logic Card Links		

MAP 0241 BEGINS

Table 120. MAP 0241

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 0B from the Maintenance Panel. An error is indicated by **E1D3**. **Did an E1D3 error occur?**	Go to Step 2.	The problem is intermittent. • Install a new Primary Erase Lamp (PL102) If the problem remains intermittent, install the following, one at a time, until the problem is corrected: • Primary Erase Lamp Starter (ST102) • Primary Erase Lamp Sensor (Q101) • B1J9 Card • YS011 Card @

Table 120. MAP 0241 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Remove the erase lamp cover to gain access to the Primary Erase Lamp Sensor (Q101). • Run Sensor Routine 5C from the Maintenance Panel. • Shine a flashlight or high-intensity light on the Primary Erase Lamp Sensor (Q101). For correct operation of the sensing circuit, the Maintenance Panel should change between on and off as the flashlight is directed on and off the sensor. **Did Sensor Routine 5C operate correctly?**	Go to Step 3.	Go to Step 8.
Step 3.	• Verify the Secondary Erase Lamp (PL101) circuit operation first with Driver Routine 07. • Run Driver Routine 07 from the Maintenance Panel. An error is indicated by **E1CC**. **Did the test complete successfully?**	Go to Step 4.	Go to Step 7.
Step 4.	• Replace Primary Erase Lamp (PL102). • Run Driver Routine 0B from the Maintenance Panel to see if this different erase lamp will work. An error is indicated by a display of **E1D3**. @ **Did an E1D3 error occur?**	Go to Step 5.	The Primary Erase Lamp (PL102) was defective.

Table 120. MAP 0241 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Replace the Primary Erase Starter (ST102). • Run Driver Routine 0B to see if the Primary Erase Lamp (PL102) now lights. An error is indicated by **E1D3**. @ **Did an E1D3 error occur?**	Go to Step 6.	The Primary Erase Lamp Starter (ST102) was defective.
Step 6.	The problem remains, even with a good lamp and starter. The 24 V dc supply to the lamp starter could be the problem. • Measure the voltage between P160-2 and P160-3. **Was the voltage greater than 20 V dc?**	Do the following, one at a time, until the problem is corrected: • Install a new B1J9 Card. • Repair any wiring problem in the erase lamp circuit from the B1J9 Card to the lamp. @	• Repair the wiring that supplies 24 V dc to the Primary Erase Lamp Starter (ST102).
Step 7.	Because both the Primary Erase Lamp (PL102) and the Secondary Erase Lamp (PL101) circuits are failing, the problem must be in the control card or wiring to the lamp starters. • Measure the the voltage between P160-2 and P160-3. **Was the voltage greater than 20 V dc?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following one at a time until the problem is corrected: • Install a new B1J9 Card. • Repair the wiring from the B1J9 Card to the lamp starters. @	• Repair the wiring that supplies 24 V dc to the lamp starters.

Table 120. MAP 0241 (continued)

Step	Questions/Actions	Yes	No
Step 8.	The problem appears to be in the sensing circuit, because the Sensor Routine did not detect the flashlight. • Measure the voltage between P147-1 and P147-2 as you move a flashlight over the sensor. **Does the voltage change from approximately 5 V dc to less than 2.5 V dc when the sensor goes from dark to light?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Install a new YS011 Card. @	Go to Step 9.
Step 9.	• Unplug the Primary Erase Lamp Sensor (Q101) at PJ147 and measure the voltage between P147-1 and P147-2. **Is the voltage approximately 5 V dc?**	• Install a new Primary Erase Lamp Sensor (Q101). @	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one at a time, until the problem is corrected: • Install a new YS011 Card. • Repair the wiring from the YS011 Card to the Primary Erase Lamp Sensor (Q101). @

MAP 0242: Secondary Erase Lamp Never On

Symptom Explanation	Conditions That Could Cause This Symptom
The Secondary Erase Lamp (PL101) detection circuit did not detect the lamp after the “ER LMP2 on” signal was sent to the lamp starter.	• The Secondary Erase Lamp (PL101) is defective. • The Secondary Erase Lamp Starter (ST101) is defective. • The Secondary Erase Lamp Sensor (Q102) is defective. • The YS011 Card is defective. • The B1J9 Card is defective. • There is an open in the 24 V dc to the Lamp Starter. • There is an open in the lamp sensor circuit.

REFERENCES

- Removals & Adjustments - Erase Lamps
- Circuit Diagrams - CD63 - Primary Erase Lamp (PL102), Starter (ST102), and Sensor (Q101)
- Wiring Diagrams -
  WD39 - Erase Lamp and Usage Meter (Single Beam or Two Beam 240 Printhead)
  WD39.1 - Erase Lamp and Usage Meter (Two Beam 240/300, Four or Five Beam Printhead)
  WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 07 from the Maintenance Panel. An error is indicated by **E1CC**.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Secondary Erase Lamp (PL101)	80%	2082	3211	2493
Secondary Erase Lamp Starter (ST101)	16%	2059	3207	2498
Secondary Erase Lamp Sensor (Q102)	01%	2055	3213	2495
B1J9 Card	01%	B1 Logic Card Links		
YS011 Card	01%	2116	3363	2627

MAP 0242 BEGINS

Table 121. MAP 0242

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 07 from the Maintenance Panel. An error is indicated by **E1CC**. **Did an E1CC error occur?**	Go to Step 2.	The problem is intermittent. • Install a new Secondary Erase Lamp (PL101). If the problem remains intermittent, install the following, one at a time, until the problem is corrected: • Secondary Erase Lamp Starter (ST101) • Secondary Erase Lamp Sensor (Q102) • B1J9 Card • YS011 Card @

Table 121. MAP 0242 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Remove the secondary erase lamp holder. • Run Sensor Routine 86 from the Maintenance Panel. • Shine a flashlight or high intensity light on the Secondary Erase Lamp Sensor (Q102). For correct operation of the sensing circuit, the Maintenance Panel should change between on and off as the flashlight is directed on and off the sensor. **Does Sensor Routine 86 operate correctly?**	Go to Step 3.	Go to Step 8.
Step 3.	• Run Driver Routine 0B to verify the Primary Erase Lamp (PL102) circuit operation. An error is indicated by a display of **E1D3**. **Did the test complete successfully?**	Go to Step 5.	Go to Step 4.
Step 4.	Because both the Secondary Erase Lamp (PL101) and the Primary Erase Lamp (PL102) circuits are failing, the problem must be in the control card or wiring to the lamp starters. • Measure the voltage between P159-2 and P159-3. **Was the voltage greater than 20 V dc?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one at a time, until the problem is corrected: • Install a new B1J9 Card. • Repair the wiring from the B1J9 Card to the lamp starters. @	• Repair the wiring that supplies 24 V dc to the lamp starters. @

Table 121. MAP 0242 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Install new Secondary Erase Lamp (PL101). • Run Driver Routine 07 to see if this different erase lamp will work. An error is indicated by **E1CC**. @ **Did an E1CC error occur?**	Go to Step 6.	The Secondary Erase Lamp (PL101) was defective.
Step 6.	• Replace Secondary Erase Lamp Starter (ST101) • Run Driver Routine 07. An error is indicated **E1CC**. @ **Did an E1CC error occur?**	Go to Step 7.	The Secondary Erase Lamp Starter (ST101) was defective.
Step 7.	The problem remains, even with a good lamp and starter. The 24 V dc supply to the lamp starter could be the problem. • Measure the voltage between P159-2 and P159-3. **Was the voltage greater than 22 V dc?**	Do the following, one at a time, until the problem is corrected: • Install a new B1J9 Card. • Repair any wiring problem in the erase lamp circuit from the B1J9 Card to the lamp. @	• Repair the wiring that supplies 24 V dc to the Secondary Erase Lamp Starter (ST101). @

Table 121. MAP 0242 (continued)

Step	Questions/Actions	Yes	No
Step 8.	The problem appears to be in the sensing circuit because the Sensor Routine did not detect the flashlight. • Measure the voltage between P148-1 and P148-2 as you move a flashlight over the sensor. Removing the Printer Right Top Cover gives you access to PJ148. **Did the voltage change from approximately 5 V dc to less than 2.5 V dc when the sensor goes from dark to light?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Install a new YS011 Card. @	Go to Step 9.
Step 9.	• Unplug the Secondary Erase Lamp Sensor (Q102) at PJ148 and measure the voltage between P148-1 and P148-2. **Is the voltage approximately 5 V dc?**	• Install a new Secondary Erase Lamp Sensor (Q102). @	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one at a time, until the problem is corrected: • Install a new YS011 Card. • Repair the wiring from the YS011 Card to the Secondary Erase Lamp Sensor (Q102). @

MAP 0243: Primary Erase Lamp Always On

Symptom Explanation	Conditions That Could Cause This Symptom
The Primary Erase Lamp (PL102) detection circuit detects the erase lamp when no “ER LMP1 ON” signal is active.	• The Primary Erase Lamp Starter (ST102) is defective. • The Primary Erase Lamp Sensor (Q101) is defective. • The YS011 Card is defective. • The B1J9 Card is defective. • If printer covers are open, a camera flash or bright light near the printer can cause this error. • The “ER LMP1 ON” line is shorted to ground.

REFERENCES

- Removals & Adjustments - Erase Lamps
- Circuit Diagrams - CD63 - Primary Erase Lamp (PL102), Starter (ST102), and Sensor (Q101)
- Wiring Diagrams -
  WD39 - Erase Lamp and Usage Meter (Single Beam or Two Beam 240 Printhead)
  WD39.1 - Erase Lamp and Usage Meter (Two Beam 240/300, Four or Five Beam Printhead)
  WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- If printer covers are open, a camera flash or bright light near the printer can cause this error. Eliminate or block the source of light.

SERVICE CHECKS

- Run Driver Routine 0B from the Maintenance Panel. An error is indicated by **E1D4**.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Primary Erase Lamp Starter (ST102)	90%	2059	3207	2498
Primary Erase Lamp Sensor (Q101)	05%	2055	3215	2492
B1J9 Card	02%	B1 Logic Card Links		
YS011 Card	02%	2116	3363	2627
Wiring	01%			

MAP 0243 BEGINS

Table 122. MAP 0243

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Run Driver Routine 0B from the Maintenance Panel. An error is indicated by **E1D4**. **Did an E1D4 error occur?**	Go to Step 2.	The problem is intermittent. If printer covers are open, a camera flash or bright light near the printer can cause this error. Eliminate or block possible sources of bright or flashing lights around the printer. Inform the customer of the possibility of this machine check if there are bright or flashing lights while the printer covers are open. If the problem remains intermittent with the covers closed, go to Intermittent Failures.
Step 2.	**Is the Secondary Erase Lamp (PL101) on all the time?**	Go to Step 3.	Go to Step 5.

Table 122. MAP 0243 (continued)

Step	Questions/Actions	Yes	No
Step 3.	First should be verified with Driver Routine 07. • Run Driver Routine 07 to verify the Primary Erase Lamp (PL102) circuit operation . An error is indicated by **E1CC** or **E1CD**. **Did the test complete successfully?**	Go to Step 4.	Because both the Secondary Erase Lamp (PL101) and the Primary Erase Lamp (PL102) circuits are failing, the problem must be in the control card or wiring to the lamp starters. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one at a time, until the problem is corrected: • Install a new B1J9 Card. • Repair or replace the wiring from the B1J9 Card to the Primary Erase Lamp Starter (ST102). @

Table 122. MAP 0243 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Replace the Primary Erase Starter (ST102). Run Driver Routine 0B to see if a different starter eliminates the problem. An error is indicated by **E1D4**. @ **Did an E1D4 error occur?**	The problem remains, even with a good lamp starter. The control card or wiring to the lamp starter are defective. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following one at a time until the problem is corrected: • Install a new B1J9 Card. • Repair or replace the wiring from B1J9 Card to the Primary Erase Lamp Starter (ST102). @	The Primary Erase Lamp Starter (ST102) was defective.
Step 5.	The problem appears to be in the sensing circuit, because the lamp is off but is detected as being on. • Measure the voltage between P147-1 and P147-2 as you move a flashlight over the sensor. **Does the voltage change from approximately 5 V dc to less than 2.5 V dc when the sensor goes from dark to light?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Install a new YS011 Card. @	Go to Step 6.

Table 122. MAP 0243 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Unplug the Primary Erase Lamp Sensor (Q101) at PJ147 and measure the voltage between P147-1 and P147-2. **Is the voltage approximately 5 V dc?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Install a new Primary Erase Lamp Sensor (Q101). @	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following one at a time until the problem is corrected: • Install a new YS011 Card. • Repair the cabling from the YS011 Card to the Primary Erase Lamp Sensor (Q101). @

MAP 0244: Secondary Erase Lamp Always On

Symptom Explanation	Conditions That Could Cause This Symptom
The Secondary Erase Lamp (PL101) detection circuit detects the erase lamp when no “ER LMP2 ON” signal is active.	• The Secondary Erase Lamp Starter (ST101) is defective. • The Secondary Erase Lamp Sensor (Q102) is defective. • The YS011 Card is defective. • The B1J9 Card is defective. • If printer covers are open, a camera flash or bright light near the printer can cause this error. • The “ER LMP2 ON” line is shorted to ground.

REFERENCES

- Removals & Adjustments - Erase Lamps
- Circuit Diagrams - CD64 - Secondary Erase Lamp (PL101), Starter (ST101), and Sensor (Q102)
- Wiring Diagrams -
  WD39 - Erase Lamp and Usage Meter (Single Beam or Two Beam 240 Printhead)
  WD39.1 - Erase Lamp and Usage Meter (Two Beam 240/300, Four or Five Beam Printhead)
  WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- If printer covers are open, a camera flash or bright light near the printer can cause this error. Eliminate or block the source of light.

SERVICE CHECKS

- Run Driver Routine 07 from the Maintenance Panel. An error is indicated by **E1CD**.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Secondary Erase Lamp Starter (ST101)	90%	2059	3207	2498
Secondary Erase Lamp Sensor (Q102)	05%	2055	3213	2495
B1J9 Card	02%	B1 Logic Card Links		
YS011 Card	01%	2116	3363	2627
Wiring	01%			

MAP 0244 BEGINS

Table 123. MAP 0244

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 07 from the Maintenance Panel. An error is indicated by **E1CD**. **Did an E1CD error occur?**	Go to Step 2.	The problem is intermittent. If printer covers are open, a camera flash or bright light near the printer can cause this error. Eliminate or block possible sources of bright or flashing lights around the printer. Inform the customer of the possibility of this machine check if there are bright or flashing lights while the printer covers are open. If the problem remains intermittent with the covers closed, go to Intermittent Failures.
Step 2.	**Is the Secondary Erase Lamp (PL101) on all the time?**	Go to Step 3.	Go to Step 5.

Table 123. MAP 0244 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Driver Routine 0B from the Maintenance Panel. An error is indicated by **E1D3** or **E1D4**. **Did the test complete successfully?**	Go to Step 4.	Because both the Secondary Erase Lamp (PL101) and Primary Erase Lamp (PL102) circuits are failing, the problem must be in the control card or wiring to the lamp starters. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one at a time, until the problem is corrected: • Install a new B1J9 Card. • Repair or replace the wiring from the B1J9 Card to Secondary Erase Lamp Starter (ST101). @

Table 123. MAP 0244 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Replace the Secondary Erase Lamp Starter (ST101). • Run Driver Routine 07 to see if a different starter eliminates the problem. An error is indicated by **E1D3**. @ **Did an E1D3 error occur?**	The problem remains, even with a good lamp starter. The control card or wiring to the lamp starter are defective. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one at a time, until the problem is corrected: • Install a new B1J9 Card. • Repair or replace the wiring from the B1J9 Card to Secondary Erase Lamp Starter (ST101). @	The Secondary Erase Lamp Starter (ST101) was defective.
Step 5.	The problem appears to be in the sensing circuit because the lamp is off but is detected as being on. • Measure the voltage between P148-1 and P148-2 as you move a flashlight over the sensor. **Does the voltage change from approximately 5 V dc to less than 2.5 V dc when the sensor goes from dark to light?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Install a new YS011 Card. @	Go to Step 6.

Table 123. MAP 0244 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Unplug the Secondary Erase Lamp Sensor (Q102) at PJ148 and measure the voltage between J148-1 and J148-2. **Is the voltage approximately 5 V dc?**	• Install a new Secondary Erase Lamp Sensor (Q102). @	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one at a time, until the problem is corrected: • Install a new YS011 Card. • Repair the cabling from the YS011 Card to the Secondary Erase Lamp Sensor (Q102). @

MAP 0251: Cleaner Brush Rotation Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Hall sensor on the front hub of the Cleaner Brush does not detect the brush rotating.	• The Cleaner Brush is missing or improperly installed. • The Cleaner Brush Drive Belt is defective or loose. • The Relay Board (RB101) is defective. • The Cleaner Brush Motor (M108) is defective. • The drive pulley on the Cleaner Brush Motor (M108) is slipping. Motor and pulley are replaced as one assembly. • The B1J9 Card is defective. • The Cleaner Brush Rotation Sensor (S114) is defective. • The Toner Control Card (PCxxx) is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Cleaner
- Circuit Diagrams - CD65 - Cleaner Brush Motor (M108) and Rotation Sensor (S114)
- Wiring Diagrams -
  WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
  WD57- Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Fixed Resolution Printhead)
  WD57.1 - Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Switchable Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- Check to see if the cleaner brush is installed correctly.

SERVICE CHECKS

- Run Driver Routine 04 from the Maintenance Panel. An error is indicated by **E1E3** This routine also displays the brush speed if an error is not posted. Normal brush speed is 1100 ±150 RPM.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Cleaner Brush Drive Belt	50%		3221	2222
Cleaner Brush Motor (M108)	45%	2053	3221	2228
Relay Board (RB101)	01%	2084	3507 (200V) 3509 (400V)	
Cleaner Brush Rotation Sensor (S114)	01%	2055	3223	2230
B1J9 Card	01%	B1 Logic Card Links		
Toner Control Card PCxxx	01%	2053	3199	2402
B1J8 Card	01%	B1 Logic Card Links		
DC 2 Power Supply	%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Cleaner Brush	---	2082	3225	2220

MAP 0251 BEGINS

Table 124. MAP 0251

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CHECKS. • Run Driver Routine 04 from the Maintenance Panel. An error is indicated by **E1E3**. **Did an E1E3 error occur?**	Go to Step 3.	Go to Step 2.
Step 2.	• Run Driver Routine 05 from the Maintenance Panel. An error is indicated by **E1E3**. **Did an E1E3 error occur?**	Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Repair an open between PJ501-6 and PJ481-14. @	The problem is intermittent. Go to Intermittent Failures.
Step 3.	• Check to see if the brush is turning while Driver Routine 04 is running. **Did the brush turn?**	Go to Step 4.	Go to Step 7.

Table 124. MAP 0251 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Remove the sensor cover on the front cap of the cleaner station and open the front cap. @ The front cleaner brush hub should turn easily and the sensor magnet on the outside of the front cap should rotate as the hub is turned. **Are the front hub and magnet OK?**	Go to Step 5.	• If the hub is binding or the magnet does not rotate when the hub is turned, repair or replace the failing item.
Step 5.	There must be a problem in the Cleaner Brush Rotation Sensor (S114) circuit. • Measure the voltage between PJ135-2 and PJ135-3. PJ135 is on the Toner Control Card (PCxxx) card. **Was the voltage approximately +5 V dc?**	Go to Step 6.	• Install a new Toner Control Card (PCxxx). @
Step 6.	• Measure the voltage between PJ135-1 and PJ135-2 as the magnet rotates slowly clockwise past the Cleaner Brush Rotation Sensor (S114). **Does the voltage change from approximately +5 V dc and 0 as the magnet goes past the sensor?**	Do the following, one at a time, until the problem is corrected: • Install a new Toner Control Card (PCxxx). • Install a new B1J8 Card. • Repair an open between PJ1003-59 and PJ464-59. @	Do the following, one at a time, until the problem is corrected: • Install a new Cleaner Brush Rotation Sensor (S114). • Correct any wiring problem from PJ135 to the Cleaner Brush Rotation Sensor (S114). @

Table 124. MAP 0251 (continued)

Step	Questions/Actions	Yes	No
Step 7.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Measure the voltage between the pins listed below while Driver Routine 04 is running. – PJ120-1 to PJ120-2 – PJ120-1 to PJ120-3 **Was the voltage more than 180 V ac on both measurements?**	Do the following, one at a time, until the problem is corrected: • Inspect the cleaner brush drive belt. Adjust or replace if necessary. • The drive hub and the front hub for the cleaner brush should both turn with light to moderate force. If they are binding, repair or replace the item that is binding. • Install a new Cleaner Brush Motor (M108). @	Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problem in the Cleaner Brush Motor (M108) drive circuit. Check for opens between the following: – PJ120-1 to PJ503-2 – PJ120-2 to PJ503-3 – PJ120-3 to PJ503-1 – PJ501-8 to PJ481-13 – PJ501-9 to PJ481-11 – PJ507-10 to PJ471-11 • Install a new DC 2 Power Supply. @

MAP 0252: Cleaner Brush Motor Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
An over temperature condition is sensed in the Cleaner Brush Motor (M108).	• The Cleaner Brush Motor (M108) is defective. • The drive mechanism on the Cleaner Brush Motor (M108) is binding. • The Toner Control Card (PCxxx) is defective. • The Relay Board (RB101) is defective. • The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments -
  Cleaner
  Air System
- Circuit Diagrams - CD66 - Cleaner Brush Motor and Thermal (M108)
- Wiring Diagrams - WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 04 from the Maintenance Panel. An error is indicated by **E1E3**. This routine also displays the brush speed if an error is not posted.
- Print the Primary Print Sample. Run test for a full box of paper.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Cleaner Brush Motor (M108)	50%	2053	3221	2228
Cleaner Brush Drive mechanism	46%		3223	
Toner Control Card PCxxx	02%	2053	3199	2402
Relay Board (RB101)	01%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	01%	B1 Logic Card Links		

MAP 02252 BEGINS

Table 125. MAP 0252

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the rear cover to gain access to the cleaner brush motor. • Locate connector PJ134. If a 252 error occurs, measure the resistance at PJ134, quickly before the motor cools down and resets the thermal. • Check the Cleaner Brush Motor (M108) by touch to see if it is hot. If the motor is hot, wait a few minutes and let the motor cool down to give the thermal a chance to reset. • Set the the digital switch on the B1J11 Card to position **3**, Diagnostic Mode. • Power on the printer. **Was an E046 error posted on the Maintenance Panel (this is the Diagnostic equivalent of a 252)?**	Go to Step 2.	Go to Step 3.

Table 125. MAP 0252 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect PJ134 to check the thermal line. • Measure the resistance between J134-1 and J134-2. **Is the thermal open (high resistance)?**	• Install a new Cleaner Brush Motor (M108) @	Do the following, one at a time, until the problem is corrected: • Correct an open between: – PJ134-1 and PJ135-26 – PJ134-2 and PJ135-25 • Install a new Toner Control Card (PCxxx). @
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the PC Drum and store in a safe place. • Cover the developer area with a piece of paper to prevent toner from the cleaner housing falling into it. • Open the front cap on the cleaner station. The front hub should turn easily with light force. **Does the front hub turn easily?**	Go to Step 4.	• Repair or replace the item that is binding the front hub. @

Table 125. MAP 0252 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Remove the cleaner brush. The rear cleaner brush hub in the cleaner housing should turn easily with light force. **Does the rear hub turn easily?**	Go to Step 5.	• Repair or replace the item that is binding the rear hub. Removing the cleaner motor belt may aid in isolating the binding item. • If the cleaner brush and housing are packed with toner, clean the housing thoroughly and install a new brush. @
Step 5.	It is normal for the cleaner housing to have loose toner covering most of its surfaces and for the cleaner brush to be loaded with toner. It is not normal for the cleaner brush and housing to be packed with toner to the extent that the brush cannot turn easily. **Was the condition of the cleaner brush and housing normal?**	Go to Step 6.	Do the following: • Thoroughly clean the cleaner housing and air passage. • Install a new cleaner brush. • Ensure that the cleaner housing home position is correct. • Ensure the cyclone blower air system is in good condition. If a 252 error still occurs during FIX VERIFICATION, go to Step 7. @

Table 125. MAP 0252 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Reinstall the cleaner brush. • Reinstall the PC Drum. • Print the Primary Print Sample for a full box. **Did a 252 error occur?**	Go to Step 7.	The problem is intermittent. Go to Intermittent Failures.
Step 7.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect PJ134 to check the thermal line. • Measure the resistance between J134-1 and J134-2. **Is the thermal open (high resistance)?**	Do the following, one at a time, until the problem is corrected: • Install a new Cleaner Brush Motor (M108). • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problems in the Cleaner Brush Motor (M108) drive circuit. @	Do the following, one at a time, until the problem is corrected: • Correct any wiring problems from PJ134 to PJ135. • Install a new Toner Control Card (PCxxx). @

MAP 0253: Cleaner Housing Never Homes

Symptom Explanation	Conditions That Could Cause This Symptom
The Home position of the Cleaner Housing is not detected.	• The Cleaner Housing Position Switch (S103) is defective. • The Cleaner Housing Position mechanism is defective. • The Cleaner Housing Motor (M106) is defective. • The Toner Control Card (PCxxx) is defective. • The B1J1 Card is defective. • The B1J9 Card is defective. • The Cleaner Housing Position Switch (S103) adjustment is not correct.

REFERENCES

- Removals & Adjustments - Cleaner
- Circuit Diagrams - CD67 - Cleaner Housing Motor (M106) and Position Switch (S103)
- Wiring Diagrams -
  WD44 - Motor M106
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 03 from the Maintenance Panel. An error is indicated by **E109**, **E143**, **E144**, or **E1db**. Ensure that the cleaner housing is centered in the front cap hole when at home position.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 03 from the Maintenance Panel. An error is indicated by **E109**, **E143**, **E144**, or **E1db**.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Cleaner Housing Motor (M106)	50%	2053	3219	2233
Cleaner Housing mechanism	35%	2082	3219	
Cleaner Housing Position Switch (S103)	12%	2053	3219	2233
B1J1 Card	01%	B1 Logic Card Links		
B1J9 Card	01%	B1 Logic Card Links		
Toner Control Card PCxxx	01%	2053	3199	2402
Cleaner Housing Position Switch (S103) adjustment	---	2053	3219	2233

MAP 0253 BEGINS

Table 126. MAP 0253

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Driver Routine 03 from the Maintenance Panel. An error is indicated by **E109**, **E143**, **E144**, or **E1db**. **Did an E109, E143, E144, or E1db error occur?**	Go to Step 2.	The problem is intermittent. Go to Intermittent Failures.
Step 2.	• Open the front cap to the cleaner station. Driver Routine 03 moves the cleaner housing approximately 12 mm (0.5 inch) to one side and then the other, and stops with the cleaner housing centered in the middle of the front cap opening. The cleaner housing may move back and forth for two to four times and still be considered to have normal motion. • Watch the cleaner housing while Driver Routine 03 is running. **Was the cleaner housing motion normal?**	Do the following, one at a time, until the problem is corrected: • Correct any wiring problems in the Cleaner Housing Position Switch (S103) circuit. • Check the Cleaner Housing Position Switch (S103) adjustment and correct any problem you find. • Install a new Cleaner Housing Position Switch (S103). • Install a new Toner Control Card (PCxxx). @	Do the following, one at a time, until the problem is corrected: • Remove the Cleaner Housing Motor (M106) and ensure that the cleaner housing mechanism moves back and forth without binding. Correct any problems find. • Install a new Cleaner Housing Motor (M106). • Install a new B1J1 Card. • Install a new B1J9 Card. • Correct any wiring problems in the Cleaner Housing Motor (M106) drive circuit. @

MAP 0254: Cleaner Housing Motor Driver

Symptom Explanation	Conditions That Could Cause This Symptom
A hardware checker has detected that the driver for the cleaner housing motor is not solid.	• The B1J1 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments - Cleaner
- Circuit Diagrams - CD67 - Cleaner Housing Motor (M106) and Position Switch (S103)
- Wiring Diagrams - WD44 - Motor M106

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- Install the new parts as listed below, one at a time, until the problem is corrected.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J1 Card	85%	B1 Logic Card Links		
B1J9 Card	15%	B1 Logic Card Links		

MAP 0256: Cleaner Housing Always At Home

Symptom Explanation	Conditions That Could Cause This Symptom
The Home position of the Cleaner Housing is detected when the housing should be moving.	• The Cleaner Housing Position Switch (S103) is defective. • The Cleaner Housing Position mechanism is defective. • The Cleaner Housing Motor (M106) is defective. • The Toner Control Card (PCxxx) is defective. • The B1J1 Card is defective. • The B1J9 Card is defective. • The Cleaner Housing Position Switch (S103) adjustment is not correct.

REFERENCES

- Removals & Adjustments - Cleaner
- Circuit Diagrams - CD67 - Cleaner Housing Motor (M106) and Position Switch (S103)
- Wiring Diagrams -
  WD44 - Motor M106
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 03 from the Maintenance Panel. An error is indicated by **E109**, **E143**, **E144**, or **E1db**. Ensure that the cleaner housing is centered in the front cap hole when at home position.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 03 from the Maintenance Panel. An error is indicated by **E109**, **E143**, **E144**, or **E1db**.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Cleaner Housing Motor (M106)	50%	2053	3219	2233
Cleaner Housing mechanism	35%	2082	3219	
Cleaner Housing Position Switch (S103)	12%	2053	3219	2233
B1J1 Card	01%	B1 Logic Card Links		
B1J9 Card	01%	B1 Logic Card Links		
Toner Control Card PCxxx	01%	2053	3199	2402
Cleaner Housing Position Switch (S103) adjustment	---	2053	3219	2233

MAP 0256 BEGINS

Table 127. MAP 0256

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Run Driver Routine 03 from the Maintenance Panel. An error is indicated by E109, E143, E144, or E1db. **Did an E109, E143, E144, or E1db error occur?**	Go to Step 2.	The problem is intermittent. Go to Intermittent Failures.

Table 127. MAP 0256 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Open the front cap to the cleaner station. Driver Routine 03 moves the cleaner housing approximately 12 mm (0.5 in.) to one side and then the other, and stops with the cleaner housing centered in the middle of the front cap opening. The cleaner housing may move back and forth for two to four times and still be considered to have normal motion. • Watch the cleaner housing while Driver Routine 03 is running. **Was the cleaner housing motion normal?**	Do the following, one at a time, until the problem is corrected: • Correct any wiring problems in the Cleaner Housing Position Switch (S103) circuit. • Check the Cleaner Housing Position Switch (S103) adjustment and correct any problem find. • Install a new Cleaner Housing Position Switch (S103). • Install a new Toner Control Card (PCxxx). @	Do the following, one at a time, until the problem is corrected: • Remove the Cleaner Housing Motor (M106) and ensure that the cleaner housing mechanism moves back and forth without binding. Correct any problems find. • Install a new Cleaner Housing Motor (M106). • Install a new B1J1 Card. • Install a new B1J9 Card. • Correct any wiring problems in the Cleaner Housing Motor (M106) drive circuit. @

MAP 0261: Vacuum Blower Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Vacuum Blower Motor (M105), causing an overtemperature condition.	• The Vacuum Blower Motor (M105) is defective. • A restriction in the air flow to the Vacuum Blower is causing an overload of the Vacuum Blower Motor (M105). • The Relay Board (RB101) is defective. • The B1J9 Card is defective.
A Vacuum Blower Motor (M105) overtemperature condition is detected, but the Vacuum Blower Motor (M105) is not overheated.	• The thermal sensor in the Vacuum Blower Motor (M105), or the sensor wiring, is defective. • The Toner Control Card (PCxxx) is defective.

REFERENCES

- Removals & Adjustments - Air System
- Circuit Diagrams - CD68 - Vacuum Blower Thermal (M105)
- Wiring Diagrams - WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 24. This routine operates the Vacuum Blower Motor (M105) and checks the operation of the motor and drive system. An error is indicated by **E1d0** on the Maintenance Panel.
- Print the **alternate** print sample (1604). An error is indicated by an SRC 261 on the Display/Touch Screen or by **E0d0** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 261 on the Display/Touch Screen.

QUICK CHECKS

- Determine if the Vacuum Blower Motor (M105) is actually hot, or if the overtemperature error is false.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Vacuum Blower Motor (M105)	70%	2063	3309	2191
Air flow restriction	25%			
Relay Board (RB101)	03%	2084	3507 (200V) 3509 (400V)	
Toner Control Card PCxxx	01%	2053	3199	2402
B1J9 Card	01%	B1 Logic Card Links		

MAP 0261 BEGINS

Table 128. MAP 0261

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This step determines if the Vacuum Blower Motor (M105) is actually overheating, or if the errors are false. • Run the machine long enough to recreate the failure. **Is the Vacuum Blower Motor (M105) overheating?**	There is a problem with the Vacuum Blower Motor (M105), causing it to overheat. Do the following, one step at a time, until the problem is corrected: • Check for a restriction in the air flow to the Vacuum Blower. • Install a new Vacuum Blower Motor (M105). • Install a new Relay Board (RB101). @	Go to Step 2.

Table 128. MAP 0261 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The thermal errors are false, caused by a failure in the thermal-sensing circuit. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ672. • Measure the resistance between PJ672-1 and PJ672-2 (the motor side of the connector). **Is there continuity between P672-1 and P672-2?**	Do the following, one step at a time, until the problem is corrected: • Check for a loose connector PJ135 on the Toner Control Card (PCxxx). • Install a new Toner Control Card (PCxxx). • Install a new B1J9 Card. • Repair an open circuit between PJ672-1 and PJ135-28 or between PJ672-2 and PJ135-27. @	• Install a new Vacuum Blower Motor (M105). @

MAP 0262: Shutter Control Motor Driver

Symptom Explanation	Conditions That Could Cause This Symptom
A hardware checker has detected that the driver for the Shutter Control Motor (M602) is on solid.	• The B1J3 Card is defective. • The B1J9 Card is defective.

REFERENCES

- Circuit Diagrams - CD69 - Shutter Control Motor (M602)
- Wiring Diagrams - WD50 - Motor M602
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- Install the new parts as listed below, one at a time until the problem is corrected.

SERVICE CHECKS

- Run Driver Routine 22 from the Maintenance Panel. An error is indicated by **E192** or **E19d**.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J3 Card	85%	B1 Logic Card Links		
B1J9 Card	15%	B1 Logic Card Links		

MAP 0263: Vacuum Shutter Cannot Home

Symptom Explanation	Conditions That Could Cause This Symptom
Initial position of the Vacuum Shutter cannot be determined. It is not Home and does not move.	• The Shutter drive cable is broken or loose. • The Shutter drive mechanism is binding. • The Shutter Control Motor (M602) is defective. • The B1J3 Card is defective. • The B1J9 Card is defective.
Initial position of the Vacuum Shutter cannot be determined. It drives, but never detects the Home position.	• The Vacuum Shutter Home Sensor (S604) is out of adjustment. • The Vacuum Shutter Home Sensor (S604) is defective. • The Hot Roll Control Card HR091 is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD70 - Shutter Control Motor (M602) and Vacuum Shutter Home Sensor (S604)
- Wiring Diagrams - WD50 - Motor M602WD58 - Fuser and Stacker Sensors (FSxxx & HR091)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 22. This routine tests the Shutter Control Motor (M602) and the Vacuum Shutter Home Sensor (S604).
- Press the Vacuum Switch (S606) several times to drive the Vacuum Shutter mechanism throughout its operating range.

QUICK CHECKS

- Ensure that the Vacuum Shutter drive cable is not loose or broken.

SERVICE CHECKS

- Run Driver Routine 22. This routine tests the Shutter Control Motor (M602) and the Vacuum Shutter Home Sensor (S604).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Broken or loose Vacuum Shutter drive cable	40%		3435	2596
Bind in the Vacuum Shutter mechanism	25%		3431	2596
Vacuum Shutter Home Sensor (S604) adjustment	15%	2064	3433	2599
Vacuum Shutter Home Sensor (S604)	10%	2064	3433	2599
Shutter Control Motor (M602)	05%	2064	3431	2603
B1J3 Card	03%	B1 Logic Card Links		
B1J9 Card	01%	B1 Logic Card Links		
Hot Roll Control Card HR091	01%	2064	3397	2534

MAP 0263 BEGINS

Table 129. MAP 0263

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Clear the forms from the paper path. • Run Driver Routine 22. This routine tests the Shutter Control Motor (M602) and the Vacuum Shutter Home Sensor (S604). • Observe the Vacuum Shutter through the holes in the Vacuum Plate, which is located at the upper right end of the Preheat Platen. The Vacuum Shutter is a white, nylon block that slides in the Vacuum Chamber under the Vacuum Plate. When you press Enter the first time, the Maintenance Panel displays the current setting of the forms width sensors. When you press Enter as displayed on the keytop, the second time: • The Vacuum Shutter should move to the Home position at the front of the vacuum chamber. • It should then drive to the rear until its position matches the current setting of the forms width sensors, where the buzzer sounds for 1 second. • It should then drive to the front until it is at the Home position again, where the buzzer sounds for 1 second. If there is a failure of the drive mechanism, the Vacuum Shutter does not move at all during the test, and the routine times out with an **E192** error. If there is a failure in the Vacuum Shutter Home Sensor (S604) or its circuit, the Vacuum Shutter drives into the stop at the front of the vacuum chamber, makes a chattering noise, and times out with an **E192** error. Go to Step 2.		

Table 129. MAP 0263 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Does the Vacuum Shutter drive into the front stop and make a chattering sound when Driver Routine 22 is running?**	Do the following, one step at a time, until the problem is corrected: • Check the adjustment of the Vacuum Shutter Home Sensor (S604). • Install a new Vacuum Shutter Home Sensor (S604). • Install a new Hot Roll Control Card HR091. • Check for an open circuit in one of the following connectors: – PJ6009 and PJ636. @	Go to Step 3.

Table 129. MAP 0263 (continued)

Step	Questions/Actions	Yes	No
Step 3.	If the problem is not intermittent, the Vacuum Shutter must be failing to move at all during the test. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Shutter Vacuum Plate. • Manually move the Vacuum Shutter back and forth in the vacuum chamber. – There should be some resistance from the stepper drive motor, but the Vacuum Shutter should move without binding. • Check for a broken or loose Vacuum Shutter drive cable, or a bind in the Vacuum Shutter mechanism. **Does the Vacuum Shutter mechanism operate correctly?**	Do the following, one step at a time, until the problem is corrected: • Install a new Shutter Control Motor (M602). • Install a new B1J3 Card. • Install a new B1J9 Card. • Check for an open circuit in one of the following connectors: – PJ480, PJ616, and PJ674. @	• Adjust, repair, or replace the item as necessary. @

MAP 0264: Cyclone Blower Motor Thermal

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Cyclone Blower Motor (M104), causing an overtemperature condition.	• A restriction in the air flow to the Cyclone Blower is causing an overload of the Cyclone Blower Motor (M104). • A mechanical bind in the Cyclone Blower is causing an overload of the Cyclone Blower Motor (M104). • The Cyclone Blower Motor (M104) is defective.
An Cyclone Blower Motor (M104) overtemperature condition is detected, but the Cyclone Blower Motor (M104) is not overheated.	• The thermal sensor in the Cyclone Blower Motor (M104), or the sensor wiring, is defective. • The Toner Control Card (PCxxx) is defective.

REFERENCES

- Removals & Adjustments - Air System
- Circuit Diagrams - CD71 - Cyclone Blower Motor (M104)
- Wiring Diagrams - WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 02. An error is indicated by **E145** on the Maintenance Panel.
- Print the Alternate Print Sample. An error is indicated by an SRC 264 on the Display/Touch Screen or by **E045** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by an SRC 264 on the Display/Touch Screen.

QUICK CHECKS

- Determine if the Cyclone Blower Motor (M104) is actually hot, or if the overtemperature error is false.
- Check for restrictions in the air flow to the Cyclone Blower.

SERVICE CHECKS

- Run Driver Routine 02. This routine operates the Cyclone Blower Motor (M104) and checks the operation of the motor and drive system.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Air flow restriction	50%			
Cyclone Blower mechanism bind	25%		3309	2173
Cyclone Blower Motor (M104)	24%	2063	3309	2177
Toner Control Card PCxxx	01%	2053	3199	2402

MAP 0264 BEGINS

Table 130. MAP 0264

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This step determines if the Cyclone Blower Motor (M104) is actually overheating, or if the errors are false. • Run the machine long enough to recreate the failure. **Is the Cyclone Blower Motor (M104) overheating?**	There is a problem with the Cyclone Blower Motor (M104), causing it to overheat. Do the following, one step at a time, until the problem is corrected: • Check for a restriction in the air flow to the Cyclone Blower. • Check for a mechanical bind in the Cyclone Blower. • Install a new Cyclone Blower Motor (M104). • Install a new Toner Control Card (PCxxx). @	Go to Step 2.

Table 130. MAP 0264 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The thermal errors are false, caused by a failure in the thermal-sensing circuit. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ 124. • Measure the resistance between PJ124-1 and PJ124-2 (the motor side of the connector). **Is there continuity between P124-1 and P124-2?**	Do the following, one step at a time, until the problem is corrected: • Check for a loose connector PJ135 on the Toner Control Card (PCxxx). • Install a new Toner Control Card (PCxxx). • Repair an open circuit between PJ124-1 and PJ135-30 or between PJ124-2 and PJ135-29. @	• Install a new Cyclone Blower Motor (M104). @

MAP 0265: Vacuum Shutter Always Home

Symptom Explanation	Conditions That Could Cause This Symptom
Initial position of the Vacuum Shutter is Home, and it does not move away from Home.	• The Shutter drive cable is broken or loose. • The Shutter drive mechanism is binding. • The Shutter Control Motor (M602) is defective. • The B1J3 Card is defective. • The B1J9 Card is defective.
The Vacuum Shutter Home Sensor (S604) signal is detected when the Vacuum Shutter is not at the Home position.	• The Vacuum Shutter Home Sensor (S604) is defective. • The Hot Roll Control Card HR091 is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD70 - Shutter Control Motor (M602) and Vacuum Shutter Home Sensor (S604)
- Wiring Diagrams -
  WD50 - Motor M602
  WD58 - Fuser and Stacker Sensors (FSxxx & HR091)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 22. This routine tests the Shutter Control Motor (M602) and the Vacuum Shutter Home Sensor (S604).
- Press the Vacuum Switch (S606) several times to drive the Vacuum Shutter mechanism throughout its operating range.

QUICK CHECKS

- Ensure that the Vacuum Shutter drive cable is not loose or broken.

SERVICE CHECKS

- Run Driver Routine 22. This routine tests the Shutter Control Motor (M602) and the Vacuum Shutter Home Sensor (S604).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Vacuum Shutter drive cable	%50		3435	2596
Vacuum Shutter mechanism	25%		3431	2596
Vacuum Shutter Home Sensor (S604)	15%	2064	3433	2599
Shutter Control Motor (M602)	05%	2064	3431	2603
B1J3 Card	03%	B1 Logic Card Links		
B1J9 card	01%	B1 Logic Card Links		
Hot Roll Control Card HR091	01%	2064	3397	2534

MAP 0265 BEGINS

Table 131. MAP 0265

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Clear the forms from the paper path. • Set the Forms Width Tractors to 16 inches. • Run Driver Routine 22. This routine tests the Shutter Control Motor (M602) and the Vacuum Shutter Home Sensor (S604). • Observe the Vacuum Shutter through the holes in the Vacuum Plate, which is located at the upper right end of the Preheat Platen. The Vacuum Shutter is a white nylon, block that slides in the Vacuum Chamber under the Vacuum Plate. When you press **Enter** the first time, the Maintenance Panel displays the current setting of the forms width sensors. When you press **Enter** the second time: • The Vacuum Shutter should move to the Home position at the front of the vacuum chamber. • It should then drive to the rear until its position matches the current setting of the forms width sensors, where the buzzer sounds for 1 second. • It should then drive to the front until it is at the Home position again, where the buzzer sounds for 1 second. If there is a failure of the drive mechanism, the Vacuum Shutter will not move at all during the test, and the routine will time out with an **E192** error. If the Vacuum Shutter Home Sensor (S604) has failed in the shorted (always Home) condition, the Vacuum Shutter drives into the stop at the rear of the vacuum chamber and makes a chattering noise until the routine times out. Go to Step 2.		

Table 131. MAP 0265 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Does the Vacuum Shutter drive into the rear stop and make a chattering sound when Driver Routine 22 is running?**	Do the following, one step at a time, until the problem is corrected: • Install a new Vacuum Shutter Home Sensor (S604). • Install a new Hot Roll Control Card HR091. • Check for an open circuit in one of the following connectors: – PJ6009 and PJ636. Go to Step 2.	Go to Step 3.
Step 3.	If the problem is not intermittent, the Vacuum Shutter must be failing to move at all during the test. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Shutter Vacuum Plate. • Manually move the Vacuum Shutter back and forth in the vacuum chamber. – There should be some resistance from the stepper drive motor, but the Vacuum Shutter should move without binding. • Check for a broken or loose Vacuum Shutter drive cable, or a bind in the Vacuum Shutter mechanism. **Does the Vacuum Shutter mechanism operate correctly?**	Do the following, one step at a time, until the problem is corrected: • Install a new Shutter Control Motor (M602). • Install a new B1J3 Card. • Install a new B1J9 Card. • Check for an open circuit in one of the following connectors: – PJ480, PJ616, and PJ674. Go to Step 2.	• Adjust, repair, or replace the item as necessary. Go to Step 2.

MAP 0266: Cyclone Blower Rotation Error

Symptom Explanation	Conditions That Could Cause This Symptom
The Cyclone Blower does not rotate.	• The Cyclone Blower Drive Belt is defective or loose. • A mechanical bind is preventing the Cyclone Blower from turning. • The Cyclone Blower Motor (M104) is defective. • The drive pulley on the Cyclone Blower Motor (M104) is loose or slipping. • Power Supply contactor K505 is defective. • The SR081 Card in the A/C power supply is defective. • The SQ081/SQ082 Card in the A/C power supply is defective. • The B1J9 Card is defective.
The Cyclone Blower rotates, but the Cyclone Blower Rotation Sensor (S116) does not detect the rotation.	• The Cyclone Blower Rotation Sensor (S116) is defective. • The Toner Control Card (PCxxx) is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Air System
- Wiring Diagrams -
  WD16 - Printer AC Power Supply - (200/208/220/230/240V)
  WD17 - Printer AC Power Supply - (200/208/220/230/240V) (except 324 PPM)
  WD18 - Printer AC Power Supply - (380/400/415V)
  WD19 - Printer AC Power Supply - (380/400/415V) (except 324 PPM)
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)
  WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
  WD57- Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- Check to see if the Cyclone Blower belt is loose or broken.

SERVICE CHECKS

- Run Driver Routine 02. This routine runs the Cyclone Blower Motor (M104) for 5 seconds.
- Run Sensor Routine 50. This routine tests the operation of the Cyclone Blower Rotation Sensor (S116).
- Run Encoder Routine A7. This is the margin test for the Cyclone Blower Rotation Sensor (S116).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Cyclone Blower Drive Belt	35%	2063	3309	2175
Cyclone Blower Drive Pulleys	20%	2063		2175
Cyclone Blower Motor (M104)	20%	2063	3309	2177
Cyclone Blower Rotation Sensor (S116)	10%	2063	3309	2178
Relay (K505)	07%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
SR081 Card	04%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643
SQ081/SQ082 Card	01%	2142	3507 (200 V) 3509 (400 V)	2642
B1J9 Card	01%	B1 Logic Card Links		
Toner Control Card PCxxx	01%	2053	3199	2402
B1J8 Card	01%	B1 Logic Card Links		

MAP 0266 BEGINS

Table 132. MAP 0266

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check the condition and operation of the Cyclone Blower drive belt. **Is the belt installed and operating correctly?**	Go to Step 2.	• Repair or replace the Cyclone Blower drive belt. @
Step 2.	• Run Driver Routine 02. • Observe the Cyclone Blower during the test. **Does the Cyclone Blower rotate during the test?**	Go to Step 3.	Go to Step 5.

Table 132. MAP 0266 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Driver Routine 02. The normal display at the end of the test should be 1050 ±100 rpm. An error is indicated by **E1E2**. **Does the Maintenance Panel display read E1E2 at the completion of the test routine?**	The Cyclone Blower is rotating correctly, but there is a problem with the sensing circuit. Do the following, one step at a time, until the problem is corrected: • Install a new Cyclone Blower Rotation Sensor (S116). • Install a new Toner Control Card (PCxxx). • Install a new B1J8 Card. @	Go to Step 4.
Step 4.	If one phase of the Cyclone Blower Motor (M104) is open, the motor may run slow and will be noisy. • Run Driver Routine 02. The normal display at the end of the test should be 1050 ±100 RPM. **Does the Maintenance Panel display read 1050 ±100 RPM at the completion of the test routine?**	The problem is intermittent. • Review the QUICK CKECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Do the following, one step at a time, until the problem is corrected: • Check for an open circuit in PJ123 and PJ532. • Install a new Cyclone Blower Motor (M104). @
Step 5.	• Check connector PJ123 and PJ532 for proper connection. **Are the connectors properly connected?**	Go to Step 6.	• Ensure that all connectors are properly connected.

Table 132. MAP 0266 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Run Driver Routine 02 while checking for line voltage across each phase. **Is the voltage correct?**	Do the following, one step at a time, until the problem is corrected: • Check for loose or broken pulleys on the Cyclone Blower Motor (M104) and the Cyclone Blower. • Check for binds in the Cyclone Blower that would prevent it from rotating. • Install a new Cyclone Blower Motor (M104). • Install a new Relay (K505). • Install a new SR081 Card. • Install a new SQ081/SQ082 Card. • Install a new B1J9 Card. @	Refer to the Wiring Diagrams.

MAP 0281: Preheat A/B Over Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Preheat Platen (PH601) overheated.	• The Preheat Platen (PH601) sense switch or thermistor is defective. • The Solid State Relay (SR601) or Solid State Relay (SR602) is defective. • There is an open circuit in the wiring. • The FSxxx Card is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams -
  CD73 - Preheat Platen
  CD74 - Preheat Control
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm up to operating temperature.
- Power off, then power on the printer and wait 10 minutes. An error is indicated by an SRC 281 on the Display/Touch Screen or by **E0Ab** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm up to operating temperature.

  Note: Before doing the following steps, note the position of the Preheat Control so that it can be returned to that position after the checks are completed.

- Verify the correct operation of the Preheat Control by checking the following resistance values:
  1. 0 to 3.32 K ohms (±10%) between J612TC-33 and P612TC-33 as the temperature control is rotated from low to high.
  2. 0 to 3.32 K ohms (±10%) between J612TC-35 and P612TC-35 as the temperature control is rotated from low to high.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Preheat Control	35%	2081	3513	2583
Upper Preheat Platen (PH601)	15%	2073	3429	2576
Solid State Relay (SR601)	15%	2080	3499	
Solid State Relay (SR602)	15%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Connector PJ667	03%	2076		
Connector PJ612	02%	2131		

MAP 0281 BEGINS

Table 133. MAP 0281

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Check for a loose connector at PJ667 and PJ612. **Are both connectors firmly connected?**	Go to Step 2.	• Connect the open connector.

Table 133. MAP 0281 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect connectors PJ667 and the connector at J612 on the FSxxx Card. **Notes:** a. When checking for continuity below, you may read 0 to 3.3 K ohms, depending on the circuit and the setting of the Preheat Control. The question is only checking for an open circuit, therefore the resistance reading is not important. b. Be sure to measure on the connector that was disconnected from J612 on the FSxxx Card. **Is there continuity between the following pairs of points?** • **PJ667-1 and P612TC-33** • **PJ667-2 and P612TC-34** • **PJ667-3 and P612TC-35** • **PJ667-4 and P612TC-36**	Go to Step 3.	Do the following, one step at a time, until the problem is corrected: • Disconnect connectors TC OUT and TC IN on the Preheat Control. Use the wiring diagrams to check for an open circuit through the Preheat Control. • Repair an open circuit in the wiring as determined above.

Table 133. MAP 0281 (continued)

Step	Questions/Actions	Yes	No
Step 3.	Perform the following steps: • Reconnect the cable at PJ667. • Let the Preheat Platens cool to room temperature. • With PJ612 disconnected, check for continuity between P612-4 and P612-5 on the cable. **Is there continuity?**	Install the new parts listed below, one at a time, until the problem is corrected: • Solid State Relay (SR601) • Solid State Relay (SR602) • FSxxx Card • B1J8 Card • Preheat Platen (PH601) @	The Preheat Platen (PH601) overtemperature sensor S1 may have failed in the open condition. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ612-4 and PJ667-5 – PJ612-5 and PJ667-6 • Install a new Preheat Platen (PH601). @

MAP 0282: Preheat A/B Under Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Preheat Platen (PH601) failed to reach operating temperature in 15 minutes (5 minutes if Forms Control switch is set to C (Plastic).)	• The Preheat Platen (PH601) heating element or thermistor is defective. • The Solid State Relay (SR601) or Solid State Relay (SR602) is defective. • The FSxxx Card is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams - CD73 - Preheat Platen
- Wiring Diagrams -
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.
- Print the Alternate Print Sample. An error is indicated by an SRC 282 on the Display/Touch Screen or by **E0AE** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Upper Preheat Platen (PH601)	55%	2073	3429	2576
Solid State Relay (SR601)	15%	2080	3499	
Solid State Relay (SR602)	15%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		

MAP 0282 BEGINS

Table 134. MAP 0282

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Measure the resistance between PJ619-1 and PJ619-3. **Is there continuity between PJ619-1 and PJ619-3?**	Go to Step 2.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ619-1 and PJ661-1 – PJ619-3 and PJ661-3 • Install a new Preheat Platen (PH601). @

Table 134. MAP 0282 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Measure the resistance between PJ619-2 and PJ619-4. **Is there continuity between PJ619-2 and PJ619-4?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ609-2 and SR601-4 – PJ609-5 and SR602-4 – PJ6005-83 and PJ466-83 – PJ6005-85 and PJ466-85 – PJ619-3 and SR601-2 – PJ619-4 and SR602-2 • Install the new parts listed below, one at a time, until the problem is corrected: – Solid State Relay (SR601) – Solid State Relay (SR602) – FSxxx Card – B1J8 Card @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ619-2 and PJ661-2 – PJ619-4 and PJ661-4 • Install a new Preheat Platen (PH601). @

MAP 0283: Preheat C/D Over Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Lower Preheat Platen (PH602) overheated.	• The Lower Preheat Platen (PH602) sense switch or thermistor is defective. • The Solid State Relay (SR603) or Solid State Relay (SR604) is defective. • There is an open circuit in the wiring. • The FSxxx Card is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams -
  CD73 - Preheat Platen
  CD74 - Preheat Control
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.
- Power off, then power on the printer and wait 10 minutes. An error is indicated by an SRC 283 on the Display/Touch Screen or by **E0AC** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.

  Note: Before you do the following steps, note the position of the Preheat Control so that you can return it to that position after the checks are completed.

- Verify the correct operation of the Preheat Control by checking the following resistance values:
  1. 0 to 3.32 K ohms (±10%) between J612TC-37 and P612TC-37 as the temperature control is rotated from low to high.
  2. 0 to 3.32 K ohms (±10%) between J612TC-39 and P612TC-39 as the temperature control is rotated from low to high.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Preheat Control	35%	2081	3513	2583
Lower Preheat Platen (PH602)	15%	2073	3429	2576
Solid State Relay (SR603)	15%	2080	3499	
Solid State Relay (SR604)	15%	2080	3499	
Fuser Control Card FSxxx	%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Connector PJ668	03%	2076		
Connector PJ612	02%	2131		

MAP 0283 BEGINS

Table 135. MAP 0283

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Check for a loose connector at PJ668 and PJ612. **Are both connectors firmly connected?**	Go to Step 2.	• Connect the open connector.

Table 135. MAP 0283 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect connectors PJ668 and the connector at J612 on the FSxxx Card. • Check for continuity between the following pairs of wires: – PJ668-1 and P612TC-37 – PJ668-2 and P612TC-38 – PJ668-3 and P612TC-39 – PJ668-4 and P612TC-40 **Notes:** a. You may read 0 to 3.3K ohms, depending on the circuit and the setting of the Preheat Control. The question is only checking for an open circuit, therefore the resistance reading is not important. b. Be sure to measure on the connector that was disconnected from J612 on the FSxxx Card. **Is there continuity between all the pairs you measured?**	Go to Step 3.	Do the following, one step at a time, until the problem is corrected: • Disconnect connectors TC OUT and TC IN on the Preheat Control. • Use the wiring diagrams to check for an open circuit through the Preheat Control. • Repair an open circuit in the wiring as determined above.

Table 135. MAP 0283 (continued)

Step	Questions/Actions	Yes	No
Step 3.	Perform the following steps: • Reconnect the cable at PJ668. • Let the Preheat Platens cool to room temperature. • With PJ612 discontinued, check for continuity between P612-6 and P612-7 on the cable. **Is there continuity?**	Install the new parts listed below, one at a time, until the problem is corrected: • Solid State Relay (SR603) • Solid State Relay (SR604) • FSxxx Card • B1J8 Card • Lower Preheat Platen (PH602) @	The Lower Preheat Platen (PH602) over temperature sensor S2 may have failed in the open condition. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ612-6 and PJ668-5 – PJ612-7 and PJ668-6 • Install a new Lower Preheat Platen (PH602). @

MAP 0284: Preheat C/D Under Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Lower Preheat Platen (PH602) failed to reach operating temperature in 15 minutes (5 minutes if Forms Control switch is set to C (Plastic).)	• The Lower Preheat Platen (PH602) heating element or thermistor is defective. • The Solid State Relay (SR603) or Solid State Relay (SR604) is defective. • The FSxxx Card is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams - CD73 - Preheat Platen
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.
- Print the Alternate Print Sample. An error is indicated by an SRC 284 on the Display/Touch Screen or by **E0AF** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Lower Preheat Platen (PH602)	55%	2073	3429	2576
Solid State Relay (SR603)	15%	2080	3499	
Solid State Relay (SR604)	15%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		

MAP 0284 BEGINS

Table 136. MAP 0284

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Measure the resistance between PJ619-5 and PJ619-7. **Is there continuity between PJ619-5 and PJ619-7?**	Go to Step 2.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ619-5 and PJ662-1 – PJ619-7 and PJ662-3 • Install a new Lower Preheat Platen (PH602). @

Table 136. MAP 0284 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Measure the resistance between PJ619-6 and PJ619-8. **Is there continuity between PJ619-6 and PJ619-8?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ609-6 and SR603-4 – PJ609-9 and SR604-4 – PJ6005-87 and PJ466-87 – PJ6005-89 and PJ466-89 – PJ619-7 and SR603-2 – PJ619-8 and SR604-2 • Install the new parts listed below, one at a time, until the problem is corrected: – Solid State Relay (SR603) – Solid State Relay (SR604) – FSxxx Card – B1J8 Card @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ619-6 and PJ662-2 – PJ619-8 and PJ662-4 • Install a new Lower Preheat Platen (PH602). @

MAP 0285: Preheat Control Signal Disconnected

Symptom Explanation	Conditions That Could Cause This Symptom
The Preheat temperature-sensing circuit is disconnected.	• A connector is disconnected. • The B1J8 Card is defective. • The FSxxx Card is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD75 - Preheat Platen Thermal
  CD74 - Preheat Control
- Wiring Diagrams -
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- Print the Alternate Print Sample. An error is indicated by an SRC 285 on the Display/Touch Screen or by **E0B0** on the Maintenance Panel.

QUICK CHECKS

- Ensure that the connectors shown in the diagram above are connected correctly.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Disconnected connector	90%	2131		
B1J8 Card	09%	B1 Logic Card Links		
Fuser Control Card FSxxx	01%	2131	3499	2528

MAP 0285 BEGINS

Table 137. MAP 0285

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP checks for a loose connector or open circuit in the Preheat Platen temperature-sensing and control circuits. Perform the following steps: • Ensure that the connector at J612 was properly connected. • Disconnect the cable from the FSxxx Card at J612. • Check for continuity between P612-41 and P612-42. **Is there continuity?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ6005-99 and PJ466-99. • Install the new parts listed below, one at a time, until the problem is corrected: – B1J8 Card – FSxxx Card @	• SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between P612-41 and P612-42.

MAP 0286: Preheat Element ’A’ Lost Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Preheat Platen (PH601) element ‘A’ lost temperature after having been warm.	• The Preheat Platen (PH601) heating element or thermistor is defective. • The Solid State Relay (SR601) is defective. • PJ619-3 has an open circuit. • PJ661-3 has an open circuit. • PJ609-2 has an open circuit. • The Fuser Control Card (FSxxx) is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams - CD73 - Preheat Platen
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.
- Print the Alternate Print Sample. An error is indicated by an SRC 286 on the Display/Touch Screen or by **E0b8** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Upper Preheat Platen (PH601)	65%	2073	3429	2576
Solid State Relay (SR601)	15%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Connector PJ619	02%	2080		
Connector PJ661	02%	2076		
Connector PJ609	01%	2131		

MAP 0286 BEGINS

Table 138. MAP 0286

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check for a loose connector at PJ619, PJ661, and PJ609. **Are all of the connectors correctly connected?**	Install the new parts listed below, one at a time, until the problem is corrected: • Preheat Platen (PH601) • Solid State Relay (SR601) • Fuser Control Card (FSxxx) • B1J8 Card @	• Connect the open connector.

MAP 0287: Preheat Element ’B’ Lost Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Preheat Platen (PH601) element ‘B’ lost temperature after having been warm.	• The Preheat Platen (PH601) heating element or thermistor is defective. • The Solid State Relay (SR602) is defective. • PJ619-4 has an open circuit. • PJ661-4 has an open circuit. • PJ609-5 has an open circuit. • The Fuser Control Card (FSxxx) is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams - CD73 - Preheat Platen
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.
- Print the Alternate Print Sample. An error is indicated by an SRC 287 on the Display/Touch Screen or by **E0b4** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Upper Preheat Platen (PH601)	65%	2073	3429	2576
Solid State Relay (SR602)	15%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Connector PJ619	02%	2080		
Connector PJ661	02%	2076		
Connector PJ609	01%	2131		

MAP 0287 BEGINS

Table 139. MAP 0287

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check for a loose connector at PJ619, PJ661, and PJ609. **Are all of the connectors correctly connected?**	Install the new parts listed below, one at a time, until the problem is corrected: • Preheat Platen (PH601) • Solid State Relay (SR602) • Fuser Control Card (FSxxx) • B1J8 Card @	• Connect the open connector.

MAP 0288: Preheat Element 'C' Lost Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Lower Preheat Platen (PH602) element 'C' lost temperature after having been warm.	• The Lower Preheat Platen (PH602) heating element or thermistor is defective. • The Solid State Relay (SR603) is defective. • PJ619-7 has an open circuit. • PJ661-3 has an open circuit. • PJ609-6 has an open circuit. • The Fuser Control Card (FSxxx) is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams - CD73 - Preheat Platen
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.
- Print the Alternate Print Sample. An error is indicated by an SRC 288 on the Display/Touch Screen or by **E0b2** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Lower Preheat Platen (PH602)	65%	2073	3429	2576
Solid State Relay (SR603)	15%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Connector PJ619	02%	2080		
Connector PJ662	02%	2076		
Connector 609	01%	2131		

MAP 0288 BEGINS

Table 140. MAP 0288

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check for a loose connector or pins at PJ619, PJ662, and PJ609. **Are all of the connectors correctly connected?**	Install the new parts listed below, one at a time, until the problem is corrected: • Lower Preheat Platen (PH602) • Solid State Relay (SR603) • Fuser Control Card (FSxxx) • B1J8 Card @	• Connect the open connector or fix damaged pins.

MAP 0289: Preheat Element ’D’ Lost Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Lower Preheat Platen (PH602) element ‘D’ lost temperature after having been warm.	• The Lower Preheat Platen (PH602) heating element or thermistor is defective. • The Solid State Relay (SR604) is defective. • PJ619-8 has an open circuit. • PJ662-4 has an open circuit. • PJ609-9 has an open circuit. • The FSxxx Card is defective. • The B1J8 Card is defective.

REFERENCES

- Removals & Adjustments - Preheat Control
- Circuit Diagrams - CD73 - Preheat Platen
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.
- Print the Alternate Print Sample. An error is indicated by a SRC 289 on the Display/Touch Screen or by **E0b1** on the Maintenance Panel.

QUICK CHECKS

- None

SERVICE CHECKS

- Run Driver Routine 30. This routine measures the time required for the Preheaters to warm to operating temperature.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Lower Preheat Platen (PH602)	65%	2073	3429	2576
Solid State Relay (SR604)	15%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Connector PJ619	02%	2080		
Connector PJ662	02%	2076		
Connector PJ609	01%	2131		

MAP 0289 BEGINS

Table 141. MAP 0289

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check for a loose connector or damaged pins at PJ619, PJ662, and PJ609. **Are all of the connectors correctly connected and are pins undamaged?**	Install the new parts listed below, one at a time, until the problem is corrected: • Lower Preheat Platen (PH602) • Solid State Relay (SR604) • FSxxx Card • B1J8 Card @	• Connect the open connector or repair the damaged pins.

MAP 028A: Thermistor 1 Over Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Thermistor 1 temperature is too high (greater than 220°C).	• Thermistor (S621) • SCxxx Card • FSxxx Card • B1J8 Card

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623)
- Wiring Diagrams -
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- Check the B1J11 card to ensure that the S8–8 DIP switch is in the Off position to activate the thermistor control.
- POR the printer to see if the error occurs again during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Temperture Control Sensor (L601) and associated cabling.
- Visually inspect thermistors (S621, S622, S623) and associated cabling if installed.
- Visually inspect the Hot Roll.
- Visually inspect the Fuser Filter and Upper Rear Fuser Fan (B605).

SERVICE CHECKS

- POR the printer. An error is indicated by **E0bA** on the Maintenance Panel.

CAUTION:
<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.

- Check the gap between the thermistor and the hot roll.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Thermistor (S621)	40%	2073	3417	2613
Stacker Control Card SCxxx	20%	2120	3457	3019
Fuser Control Card FSxxx	20%	2131	3499	2528
B1J8 Card	10%	B1 Logic Card Links		

MAP 028A BEGINS

Table 142. MAP 028A

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Perform the QUICK CHECKS and the SERVICE CHECKS. **Did you find a problem?**	• Repair the problem and perform the FIX VERIFICATION.	Go to Step 2.

Table 142. MAP 028A (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect PJ157 and check for continuity across P157–29 and P157–30. **Is there continuity across P157–29 and P157–30?**	**Note:** The thermistor control can be disabled and the printer made operational while waiting for replacement parts by setting the S8–8 DIP switch to On. With the thermistor control disabled, the hot roll temperature fluctuates with wider tolerances, so check the fusing before giving the printer back to the customer with the thermistors disabled. In most cases disabling the thermistor control will not be a problem. • Replace the following one at a time and then perform the FIX VERIFICATION: – Thermistor (S621) – SCxxx Card – B1J8 Card – FSxxx Card @	There is an open circuit across the thermistor or its wiring to the SC Card. • Find the open circuit or install a new Thermistor. @

MAP 028B: Thermistor 2 Over Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Thermistor 2 temperature is too high (greater than 220°C).	• Thermistor (S622) • SCxxx Card • FSxxx Card • B1J8 Card

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623)
- Wiring Diagrams -
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- Check the B1J11 card to ensure that the S8–8 DIP switch is in the Off position to activate the thermistor control.
- POR the printer to see if the error occurs again during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Temperture Control Sensor (L601) and associated cabling.
- Visually inspect thermistors (S621, S622, S623) and associated cabling if installed.
- Visually inspect the Hot Roll.
- Visually inspect the Fuser Filter and Upper Rear Fuser Fan (B605).

SERVICE CHECKS

- POR the printer (see Power-On Reset). An error is indicated by **E0bb** on the Maintenance Panel.

CAUTION:
<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.

- Check the gap between the thermistor and the hot roll.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Thermistor (S622)	40%	2073	3417	2613
Stacker Control Card SCxxx	20%	2120	3457	3019
Fuser Control Card FSxxx	20%	2131	3499	2528
B1J8 Card	10%	B1 Logic Card Links		

MAP 028B BEGINS

Table 143. MAP 028B

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Perform the QUICK CHECKS and the SERVICE CHECKS. **Did you find a problem?**	• Repair the problem and perform the FIX VERIFICATION.	Go to Step 2.

Table 143. MAP 028B (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect PJ157 and check for continuity across P157–31 and P157–32. **Is there continuity across P157–31 and P157–32?**	**Note:** The thermistor control can be disabled and the printer made operational while waiting for replacement parts by setting the S8–8 DIP switch to On. With the thermistor control disabled, the hot roll temperature will fluctuate with wider tolerances, so check the fusing before giving the printer back to the customer with the thermistors disabled. In most cases disabling the thermistor control will not be a problem. • Replace the following, one at a time, and then perform the FIX VERIFICATION: – Thermistor (S622) – SCxxx Card – B1J8 Card – FSxxx Card @	There is an open circuit across the thermistor or its wiring to the SC Card. • Find the open circuit or install a new Thermistor. @

MAP 028C: Thermistor 3 Over Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Thermistor 3 temperature is too high (greater than 220°C).	• Thermistor (S623) • SCxxx Card • FSxxx Card • B1J8 Card

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623)
- Wiring Diagrams -
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- Check the B1J11 card to ensure that the S8–8 DIP switch is in the Off position to activate the thermistor control.
- POR the printer to see if the error occurs again during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Temperture Control Sensor (L601) and associated cabling.
- Visually inspect thermistors (S621, S622, S623) and associated cabling if installed.
- Visually inspect the Hot Roll.
- Visually inspect the Fuser Filter and Upper Rear Fuser Fan (B605).

SERVICE CHECKS

- POR the printer to see if the error occurs again during the power-on sequence. An error is indicated by **E0bC** on the Maintenance Panel.

CAUTION:
<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.

- Check the gap between the thermistor and the hot roll.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Thermistor (S623)	40%	2073	3417	2613
Stacker Control Card SCxxx	20%	2120	3457	3019
Fuser Control Card FSxxx	20%	2131	3499	2528
B1J8 Card	10%	B1 Logic Card Links		

MAP 028C BEGINS

Table 144. MAP 028C

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Perform the QUICK CHECKS and the SERVICE CHECKS. **Did you find a problem?**	• Repair the problem and perform the FIX VERIFICATION.	Go to Step 2.

Table 144. MAP 028C (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect PJ157 and check for continuity across P157–33 and P157–34. **Is there continuity across P157–33 and P157–34?**	**Note:** The thermistor control can be disabled and the printer made operational while waiting for replacement parts by setting the S8–8 DIP switch to On. With the thermistor control disabled, the hot roll temperature will fluctuate with wider tolerances, so check the fusing before giving the printer back to the customer with the thermistors disabled. In most cases disabling the thermistor control will not be a problem. • Replace the following one at a time and then perform the FIX VERIFICATION: – Thermistor (S623) – SCxxx Card – B1J8 Card – FSxxx Card @	There is an open circuit across the thermistor or its wiring to the SC Card. • Find the open circuit or install a new Thermistor. @

MAP 028D: Thermistor 1 Under Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Thermistor 1 temperature is too low (less than 150°C).	• Thermistor (S621) has failed. • SCxxx Card has failed. • B1J8 Card is defective. • A Solid State Relay has failed. • FSxxx Card has failed. • Hot Roll Lamp power control circuitry has failed.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623)
- Wiring Diagrams -
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- Check the B1J11 card to ensure that the S8–8 DIP switch is in the Off position to activate the thermistor control.
- POR the printer to see if the error occurs again during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Temperture Control Sensor (L601) and associated cabling.
- Visually inspect thermistors (S621, S622, S623) and associated cabling if installed.
- Visually inspect the Hot Roll.
- Visually inspect the Fuser Filter and Upper Rear Fuser Fan (B605).

SERVICE CHECKS

- POR the printer. An error is indicated by **E0A8** on the Maintenance Panel.

CAUTION:
<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.

- Check the gap between the thermistor and the hot roll..

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Thermistor (S621)	40%	2073	3417	2613
Stacker Control Card SCxxx	20%	2120	3457	3019
B1J8 Card	20%	B1 Logic Card Links		
Solid State Relay	10%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528

MAP 028D BEGINS

Table 145. MAP 028D

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Perform the QUICK CHECKS and the SERVICE CHECKS. **Did you find a problem?**	• Repair the problem and perform the FIX VERIFICATION.	Go to Step 2.

Table 145. MAP 028D (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect PJ157 and check for continuity across P157–29 and P157–30. **Is there continuity across P157–29 and P157–30?**	**Note:** The thermistor control can be disabled and the printer made operational while waiting for replacement parts by setting the S8–8 DIP switch to On. With the thermistor control disabled, the hot roll temperature will fluctuate with wider tolerances, so check the fusing before giving the printer back to the customer with the thermistors disabled. In most cases disabling the thermistor control will not be a problem. Replace the following, one at a time, and then perform the FIX VERIFICATION: • Thermistor (S621) • SCxxx Card • B1J8 Card • Solid State Relay • FSxxx Card	There is an open circuit across the thermistor or its wiring to the SC Card. • Find the open circuit or install a new Thermistor. @

MAP 028E: Thermistor 2 Under Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Thermistor 2 temperature is too low (less than 150°C).	• Thermistor (S622) has failed. • SCxxx Card has failed. • B1J8 Card is defective. • A Solid State Relay has failed. • FSxxx Card has failed. • Hot Roll Lamp power control circuitry has failed.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623)
- Wiring Diagrams -
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- Check the B1J11 card to ensure that the S8–8 DIP switch is in the Off position to activate the thermistor control.
- POR the printer to see if the error occurs again during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Temperture Control Sensor (L601) and associated cabling.
- Visually inspect thermistors (S621, S622, S623) and associated cabling if installed.
- Visually inspect the Hot Roll.
- Visually inspect the Fuser Filter and Upper Rear Fuser Fan (B605).

SERVICE CHECKS

- POR the printer. An error is indicated by **E0A9** on the Maintenance Panel.

CAUTION:
<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.

- Check the gap between the thermistor and the hot roll.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Thermistor (S622)	40%	2073	3417	2613
Stacker Control Card SCxxx	20%	2120	3457	3019
B1J8 Card	20%	B1 Logic Card Links		
Solid State Relay	10%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528

MAP 028E BEGINS

Table 146. MAP 028E

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Perform the QUICK CHECKS and the SERVICE CHECKS. **Did you find a problem?**	• Repair the problem and perform the FIX VERIFICATION.	Go to Step 2.

Table 146. MAP 028E (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect PJ157 and check for continuity across P157–31 and P157–32. **Is there continuity across P157–31 and P157–32?**	**Note:** The thermistor control can be disabled and the printer made operational while waiting for replacement parts by setting the S8–8 DIP switch to On. With the thermistor control disabled, the hot roll temperature will fluctuate with wider tolerances, so check the fusing before giving the printer back to the customer with the thermistors disabled. In most cases disabling the thermistor control will not be a problem. Replace the following one at a time and then perform the FIX VERIFICATION: • Thermistor (S622) • SCxxx Card • B1J8 Card • Solid State Relay • FSxxx Card @	There is an open circuit across the thermistor or its wiring to the SC Card. • Find the open circuit or install a new Thermistor. @

MAP 028F: Thermistor 3 Under Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Thermistor 3 temperature is too low (less than 150°C).	• Thermistor (S623) has failed. • SCxxx Card has failed. • B1J8 Card is defective. • A Solid State Relay has failed. • FSxxx Card has failed. • Hot Roll Lamp power control circuitry has failed.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623)
- Wiring Diagrams -
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- Check the B1J11 card to ensure that the S8–8 DIP switch is in the Off position to activate the thermistor control.
- POR the printer to see if the error occurs again during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Temperture Control Sensor (L601) and associated cabling.
- Visually inspect thermistors (S621, S622, S623) and associated cabling if installed.
- Visually inspect the Hot Roll.
- Visually inspect the Fuser Filter and Upper Rear Fuser Fan (B605).

SERVICE CHECKS

- POR the printer . An error is indicated by **E0AA** on the Maintenance Panel.

CAUTION:
<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.

- Check the gap between the thermistor and the hot roll.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Thermistor (S623)	40%	2073	3417	2613
Stacker Control Card SCxxx	20%	2120	3457	3019
B1J8 Card	20%	B1 Logic Card Links		
Solid State Relay	10%	2080	3499	
Fuser Control Card FSxxx	10%	2131	3499	2528

MAP 028F BEGINS

Table 147. MAP 028F

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Perform the QUICK CHECKS and the SERVICE CHECKS. **Did you find a problem?**	• Repair the problem and perform the FIX VERIFICATION.	Go to Step 2.

Table 147. MAP 028F (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Disconnect PJ157 and check for continuity across P157–33 and P157–34. **Is there continuity across P157–33 and P157–34?**	**Note:** The thermistor control can be disabled and the printer made operational while waiting for replacement parts by setting the S8–8 DIP switch to On. With the thermistor control disabled, the hot roll temperature will fluctuate with wider tolerances, so check the fusing before giving the printer back to the customer with the thermistors disabled. In most cases disabling the thermistor control will not be a problem. Replace the following one at a time and then perform the FIX VERIFICATION: • Thermistor (S623) • SCxxx Card • B1J8 Card • Solid State Relay • FSxxx Card @	There is an open circuit across the thermistor or its wiring to the SC Card. • Use the wiring diagrams to find the open circuit, or install a new Thermistor. @

MAP 0291: Hot Roll Over Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll temperature goes too high.	• The Hot Roll Temperture Control Sensor (L601) is defective. • The Hot Roll control circuit is defective. • The Hot Roll temperature-sensing circuitry is defective. • The Hot Roll Over-temperature Sensor (S613) is defective. • The Error Detection circuitry is defective. • Hot Roll Temperature Sensor out of adjustment. • Hot Roll Over-temperature Sensor (S613) out of adjustment. • The Hot Roll Ferrite Chips. • The Fuser Filter is clogged. • The Upper Rear Fuser Fan (B605) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD77 - Hot Roll Over-temperature Sensor (S613)
  CD78 - Hot Roll Temperature Control Sensor (L601)
- Wiring Diagrams -
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Temperture Control Sensor (L601) and associated cabling.
- Visually inspect thermistors (S621, S622, S623) and associated cabling if installed.
- Visually inspect the Hot Roll.
- Visually inspect the Fuser Filter and Upper Rear Fuser Fan (B605).

SERVICE CHECKS

- POR the printer. An error is indicated by **E0A3** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Temperature Control Sensor (L601)	20%	2073	3415	2558
Hot Roll Thermistors S621, S622, S623 (not present on all printers)	20%	2073	3417	2613
Fuser Filter	20%	2073	3415	
Upper Rear Fuser Fan (B605)	20%	2073	3395	2529
Fuser Control Card FSxxx	10%	2131	3499	2528
B1J8 Card	05%	B1 Logic Card Links		
Hot Roll Over-temperature Sensor (S613)	05%	2073	3415	2560
Hot Roll Control Card HR091	04%	2064	3397	2534

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll	01%	2073	3387	2537

MAP 0291 BEGINS

Table 148. MAP 0291

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• If the printer uses thermistors to control the temperature of the Hot Roll, shutdown and power off the printer. • Remove the B1J11 Card and place the S8-8 switch to the On position to deactivate the thermistor control. Run several prints. **Does the SRC 291 still appear?**	Go to Step 2.	Go to Step 4.
Step 2.	**Does the Hot Roll really get excessively hot (smoking, bad smell, appear to be hotter than usual)? If unsure, you may want to take the No answer first.**	Go to Step 3.	Go to Step 5.

Table 148. MAP 0291 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check the Hot Roll Temperture Control Sensor (L601) for correct adjustment and ensure that it is clean. **Is the adjustment correct?**	Install new parts one at a time in the following order: • Hot Roll Temperture Control Sensor (L601) • Fuser Control Card (FSxxx) • Hot Roll Control Card HR091 • B1J8 Card • Hot Roll @	• Adjust and clean as necessary.
Step 4.	• Check the Hot Roll Thermistors S621, S622, and S623 for correct adjustment and ensure that they are clean. **Is the adjustment correct and the thermistors clean?**	Install new parts one at a time. • S621 • S622 • S623 • FSxxx Card • HR091 Card • B1J8 Card • SCxxx Card @	• Clean and adjust the thermistors.
Step 5.	**Is the Fuser Filter clogged?**	• Install a new Fuser Filter. @	Go to Step 6.
Step 6.	**Is the Upper Rear Fuser Fan (B605) working correctly?**	Go to Step 7.	• Install a new Upper Rear Fuser Fan (B605). @

Table 148. MAP 0291 (continued)

Step	Questions/Actions	Yes	No
Step 7.	 **DANGER** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Left Front Cover and remove the Fuser Front Cover. • Unplug PJ645. • Check continuity of the Hot Roll Over-temperature Sensor (S613) by checking between PJ645 pins 1 and 2 on the sensor side of the Connector. **Does the meter indicate an open circuit?**	• Install a new Hot Roll Over-temperature Sensor (S613). @	Go to Step 8.
Step 8.	• Check the clearance adjustment of the Hot Roll Over-temperature Sensor (S613). If this clearance is too close, false Hot Roll over-temperature errors will be detected. **Is the clearance correct?**	Go to Step 9.	• Correct the adjustment.
Step 9.	Check continuity between the following points: • PJ645-1 to PJ6009-3 • PJ645-2 to PJ6009-4 **Does the meter indicate an open circuit?**	• Repair the open circuit.	Go to Step 10.

Table 148. MAP 0291 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Check continuity between the following points: • PJ6007-37 to PJ6009-3 • PJ6007-38 to PJ6010-4 **Does the meter indicate an open circuit?**	Check continuity between the following points: • PJ6007-37 to PJ6010-37 • PJ6007-38 to PJ6010-38 • Check those connectors and repair as needed. If this checks out OK, install the Hot Roll Control Card HR091. @	• Install a new Fuser Control Card (FSxxx). @

MAP 0292: Hot Roll Lamp Drive On Too Long

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Drive signal remains on longer than 180 seconds.	• The B1J8 Card is defective. • The Fuser Control Card (FSxxx) is defective. • Rotating the hot roll lamps at the rear socket can cause this error code.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD79 - Hot Roll Lamp Control
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- POR the printer to see if the error occurs again durint the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Connectors on the Hot Roll Control Card HR091 and the Fuser Control Card (FSxxx) and associated wiring.
- Visually inspect the hot roll lamps and ensure that the lamps are not rotated at the rear socket.

SERVICE CHECKS

- POR the printer. An error is indicated by **E0A4** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Fuser Control Card FSxxx	60%	2131	3499	2528
B1J8 Card	40%	B1 Logic Card Links		

MAP 0292 BEGINS

This MAP fixes Hot Roll temperature problems where the Drive signal is on longer than 180 seconds.

Table 149. MAP 0292

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• If the hot roll lamps have been removed or replaced, visually inspect the lamps to ensure that the lamps are not rotated at the rear socket. • Open the Right Rear Printer Cover. • Open the Fuser Control Box Cover. • Power on the machine and observe the Fuser Control Card (FSxxx). **Does LED D7/HR1 stay on all the time?**	Install new parts, one at at time, in the following order: • B1J8 Card • Fuser Control Card (FSxxx) @	Install new parts, one at at time, in the following order: • Fuser Control Card (FSxxx) • B1J8 Card @

MAP 0293: Fuser Soft Start Thermal Open

Symptom Explanation	Conditions That Could Cause This Symptom
The Soft Start Resistors get hot because of excessive current before Relay (K601) is picked.	• Relay (K601) is defective. • The drive circuit for Relay (K601) is defective. • The Soft Start Thermal Sensor 1 (S601) or Soft Start Thermal Sensor 2 (S602) is defective. • One of the Fuser Lamp Solid State Relays is shorted. • The Error-Detection circuitry is defective. • Connector P612TC is plugged in upside down. The connector should be installed so that the top of the connector has fewer wires above the breakout cable for the Preheat Platen.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD80 - Hot Roll Soft Start Thermal Sensors (S601, S602)
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence.

QUICK CHECKS

- Power on the printer and allow the error to occur again.
- SHUTDOWN AND POWER OFF THE PRINTER.
- Carefully feel for excessive heat around the Fuser Soft Start Resistors in the rear of the printer.
- Watch the maintenance panel during Power Up for any errors that may occur before this error.

SERVICE CHECKS

- POR the printer to see if the error occurs again during the power-on sequence . An error is indicated by **E0A2** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Relay (K601)	80%	2080	3499	
Solid State Relay (SR605, SR607, or SR608)	10%	2080	3499	
B1J9 Card	05%	B1 Logic Card Links		
Soft Start Thermal Sensor 1 (S601) or 2 (S602)	05%	2080	3499	
Connector P612TC	---	2131		

MAP 0293 BEGINS

Note: This error may result in multiple parts failure.

Table 150. MAP 0293

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Note:** Connector P612TC can be plugged in upside down. If it is plugged upside down, error code 0189 (E02A) occurs. The connector should be installed so that the top of the connector has fewer wires above the breakout cable for the Preheat Platen. • Open the Right Rear Printer Cover. • Open the Fuser Control Box Cover. • Power on the printer and allow the error to occur again. • SHUTDOWN AND POWER OFF THE PRINTER. • Carefully feel around the Soft Start Resistors for excessive heat. **Is either the left or the right set of Resistors hot?**	Go to Step 2.	Go to Step 6.

Table 150. MAP 0293 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• **Let the Resistors cool before you proceed.** **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Prepare a meter to measure voltage between Relay (K601) pin 6 and ground. Locate the meter so that it can be observed when the machine is powered on. At 4 to 10 seconds after POR, the voltage should go from 0 V dc to approximately 24 V dc. 20 to 30 seconds after POR the voltage should return to approximately 0 V dc, relay K601 picks and remains picked. All times are approximations and will vary from printer to printer.! • POR the machine. **Does the voltage switch from nearly 0 V dc to approximately 24 V dc and back to 0 V?**	Go to Step 3.	• Install a new B1J9 Card. If replacing the B1J9 Card does not fix the problem, the printer may have a shorted SR605, SR606, SR607, SR608. Go to Step 4 to check the SRs. @

Table 150. MAP 0293 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Determine which set of contacts of Relay (K601) are across the hot set of Resistors. • SHUTDOWN AND POWER OFF THE PRINTER. • Set up the meter to measure the voltage across Relay (K601) pins 1 and 2 or pins 3 and 4, depending on which set of Resistors are hot. • POR the machine while observing the meter. **Does the voltage switch between approximately 0 V ac and 200 V ac then back to 0 V ac when relay K601 picks ?**	Go to Step 4.	• Install a new Relay (K601). @
Step 4.	**Note:** This error can occur as a result of a shorted Solid State Relay. Multiple relays can fail at the same time. The shorted relay causes current to flow through the Soft Start Resistors, creating enough heat to open the Thermal. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the wire from terminal 2 of SR605, SR606, SR607, and SR608. • Measure the resistance between terminals 1 and 2 of SR605, SR606, SR607, and SR608. Reverse the leads and repeat the measurements. The resistance must be greater then 150 K ohms in both directions. **Are all of the measurements greater than 150 K Ohms?**	Go to Step 5.	• Install a new Solid State Relay in the position where the resistance was less then 150 K Ohms. @

Table 150. MAP 0293 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Reconnect the wires removed from terminal 2 of SR605, SR606, SR607, and SR608. • Let the Soft Start Resistors cool before you continue. • POR the machine. • Measure the voltage across pins 1 and 2 of SR605, SR606, SR607, and SR608 before the error occurs again. **Note:** The voltage will not change if the error has already occurred. **Does the voltage switch between approximately 0 V ac and 200 V ac?**	• Install a new Fuser Control Card (FSxxx). @	• Install a new Solid State Relay in the position where the voltage did not switch between 0 V ac and 200 V ac. @
Step 6.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** • Unplug Connector PJ627. • Measure continuity of the Thermal between pins 1 and 2 on the Thermal side of the connector. **Does it show continuity?**	Go to Step 7.	• Install a new Soft Start Thermal Sensor 1 (S601). @

Table 150. MAP 0293 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Unplug Connector PJ628. • Measure continuity of the Thermal between pins 1 and 2 on the Thermal side of the connector. **Does it show continuity?**	• Check continuity between the following points: – PJ612-1 to PJ627-1 – PJ612-3 to PJ628-2 – PJ627-2 to PJ628-1 • Check those connectors and repair as needed. If this checks OK, install a new Fuser Control Card (FSxxx). @	• Install a new Soft Start Thermal Sensor 2 (S602). @

MAP 0294: Hot Roll Over Current

Symptom Explanation	Conditions That Could Cause This Symptom
The hot roll drive current, as detected by the driver card, is beyond error limits.	• The hot roll driver circuit is defective. • The overcurrent-detection circuit is defective. • The Hot Roll Motor (M607) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD81 - Hot Roll Motor Over-current Detection (M607)
- Wiring Diagrams - WD51 - Motor M607

FIX VERIFICATION

- Print the Primary Print Sample. See if the error occurs during printing.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J3 Card	40%	B1 Logic Card Links		
B1J7 Card	40%	B1 Logic Card Links		
Hot Roll Motor (M607)	15%	2076	3391	2541
B1J10 Card	05%	B1 Logic Card Links		

MAP 0294 BEGINS

Table 151. MAP 0294

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Print the Primary Print Sample. Run test for up to a full box of paper to see if the error occurs during printing. **Did an SRC 294 occur?**	Install the following, one at a time, until the problem is corrected: • B1J3 Card • B1J7 Card • Hot Roll Motor (M607) • B1J10 Card @	The problem is intermittent. Go to Intermittent Failures.

MAP 0295: Hot Roll Does Not Reach Operating Temperature

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll never reaches the required temperature.	• The Hot Roll temperature control circuit is defective. • The Hot Roll temperature sensing circuitry is defective. • A thermal ferrite chip in the Hot Roll is broken or has fallen out.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD79 - Hot Roll Lamp Control
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- POR the machine to see if the Fuser ever reaches operating temperature and the printer will become READY.

QUICK CHECKS

- Visually inspect the B1J8 Card to ensure that it is seated correctly.

SERVICE CHECKS

- POR the printer . An error is indicated by **E0A6** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J8 Card	50%	B1 Logic Card Links		
Fuser Control Card FSxxx	29%	2131	3499	2528
Hot Roll	10%	2073	3387	2537
Relay (K601)	10%	2080	3499	
Hot Roll Temperature Control Sensor (L601)	05%	2073	3415	2558
Hot Roll Control Card HR091	05%	2064	3397	2534

MAP 0295 BEGINS

Table 152. MAP 0295

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. **Is either of the thermal ferrite chips in the Hot Roll broken or missing?**	• Install a new Hot Roll. @	Install new parts one at a time in the following order: • B1J8 Card • Hot Roll Temperture Control Sensor (L601) • Fuser Control Card (FSxxx) • Hot Roll Control Card HR091 • Relay (K601) @

MAP 0296: Hot Roll Lamp 1 Relay Always Off

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Lamp 1 Solid State Relay does not turn on.	• The Relay is defective. • The Connectors and wiring may be defective. • The Relay Driver circuitry is defective. • The Error-Detection circuitry is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD82 - Hot Roll Lamp 1 Relay (SR605)
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence .

QUICK CHECKS

- Visually inspect the wiring and connectors associated with the circuit.

SERVICE CHECKS

- POR the printer . An error is indicated by **E09E** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Solid State Relay (SR605)	70%	2080	3499	
Fuser Control Card FSxxx	15%	2131	3499	2528
Relay Board RB091/RB092	08%	2135, 2136	3501	
B1J8 Card	05%	B1 Logic Card Links		
Connctors and wiring	02%			

MAP 0296 BEGINS

Table 153. MAP 0296

Step	Questions/Actions	Yes	No
	DANGER **<5> High-voltage is present. Use care while working in this area.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer right rear cover. • Open the Fuser Control Box Cover. • Place the Printer in diagnostic mode. • Power on the printer. • Measure the voltage on SR605-4 as you start Routine 31. **Does the voltage switch between approximately 5 V dc and 0 V dc?**	Go to Step 2.	Go to Step 3.

Table 153. MAP 0296 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Restart Driver Routine 31 and measure the voltage between SR605-1 and SR605-2. **Does the voltage switch between approximately 200 and 0 V ac?**	Go to Step 4.	Do the following: • Check connector PJ601 on Relay Board RB091/RB092 for correct contact. • Check continuity between PJ601-15 and Solid State Relay (SR605) contact **2**. Repair the wiring if necessary. • If continuity is good, install a new Solid State Relay (SR605). @

Table 153. MAP 0296 (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connectors PJ609 and PJ6005 on the Fuser Control Card (FSxxx) to ensure that they are connected correctly. • Check for continuity between PJ609-1 and Solid State Relay (SR605) contact **3**. • Check for continuity between PJ609-10 and Solid State Relay (SR605) contact **4**. • Check for continuity between PJ6005-77 and PJ466-77 on the pin side of the B1 Board. Repair if necessary. • Install the following one at a time if the cables were good: – Fuser Control Card (FSxxx) – B1J8 Card – Solid State Relay (SR605) @		

Table 153. MAP 0296 (continued)

Step	Questions/Actions	Yes	No
Step 4.	 <6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.Do the following before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ601 on Relay Board RB091/RB092 to ensure that it is connected correctly. • Check for continuity between PJ601-3 and Solid State Relay (SR605) contact **1**. Repair if necessary. • Install the following one at a time if the cables were good: – Relay Board RB091/RB092 – Fuser Control Card (FSxxx) @		

MAP 0297: Hot Roll Lamp 1 Filament Open

Symptom Explanation	Conditions That Could Cause This Symptom
Hot Roll Lamp 1 fails to turn on.	• The Lamp filaments are broken. • The Hot Roll Lamp Connectors are broken or unplugged. • The Lamp driver circuitry is defective. • The Error-Detection circuitry is defective.Solid State Relay (SR605) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD83 - Hot Roll Lamp 1
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence.

QUICK CHECKS

- Visually inspect the Hot Roll Lamp and Connectors.

SERVICE CHECKS

- POR the printer. An error is indicated by **E09F** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Lamp 1	80%	2073	3389	2550
Hot Roll Lamp Repectacle Contacts	10%		3385	2556
Fuser Control Card FSxxx	05%	2131	3499	2528
Relay Board RB091/RB092	04%	2135, 2136	3501	
Solid State Relay (SR605)	01%	2080	3499	

MAP 0297 BEGINS

Table 154. MAP 0297

Step	Questions/Actions	Yes	No
	DANGER **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		

Table 154. MAP 0297 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Left Front Cover. • Open Fuser Cover to gain access to the Hot Roll Lamps. • Unplug Connector PJ666. • Open the Printer Right Rear Cover and unplug PJ665 at the Hot Roll Lamp Socket. • Check the continuity of Hot Roll Lamp 1 by measuring for continuity between PJ666-1 and PJ665-1 on the Lamp side of the connectors. **Is there continuity through the Lamp?**	Go to Step 2.	• Install a new Hot Roll Lamp 1. • Check the Lamp and Receptacle contacts. @
Step 2.	• Open the Fuser Control Box Cover. • Check continuity of the Lamp circuit from the other side of PJ665-1 to contact 2 on Solid State Relay (SR605). **Does the circuit have good continuity?**	Go to Step 3.	There is an open circuit between Solid State Relay (SR605) contact **2** and PJ665-1. • Repair as necessary.

Table 154. MAP 0297 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check continuity of the Lamp circuit from the other side of PJ666-1 to TB601-3. **Does the circuit have good continuity?**	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following one at a time to fix the problem. • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connectors PJ603 and PJ609 to ensure that they are connected correctly. • Check for continuity between PJ603-15 and PJ609-31. Repair if necessary. • Install the following one at a time if the cables were good. – Fuser Control Card (FSxxx) – Relay Board RB091/RB092 – Solid State Relay (SR605) @	There is an open circuit between TB601-3 and PJ666-1. • Repair as necessary.

MAP 0298: HOT ROLL LAMP 2 RELAY ALWAYS OFF

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Lamp 2 Solid State Relay does not turn on.	• The Relay is defective. • The Connectors and wiring may be defective. • The Relay Driver circuitry is defective. • The Error- Detection circuitry is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Wiring Diagrams -

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence.

QUICK CHECKS

- Visually inspect the wiring and connectors associated with the circuit.

SERVICE CHECKS

- POR the printer. An error is indicated by **E0A0** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Solid State Relay (SR606)	70%	2080	3499	
Fuser Control Card FSxxx	15%	2131	3499	2528
Relay Board RB091/RB092	08%	2135, 2136	3501	
B1J8 Card	05%	B1 Logic Card Links		
Connectors and wiring	02%			

MAP 0298 BEGINS

Table 155. MAP 0298

Step	Questions/Actions	Yes	No
	DANGER **<5> High-voltage is present. Use care while working in this area.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 155. MAP 0298 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer right rear cover. • Open the Fuser Control Box Cover. • Place the Printer in diagnostic mode. • Power on the printer. • Measure the voltage on SR606-4 as you start Driver Routine 31. **Does the voltage switch between approximately 5 V dc and 0 V dc?**	Go to Step 2 on page 842.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connectors PJ609 and PJ6005 on the Fuser Control Card (FSxxx) to ensure they are connected correctly. • Check for continuity between PJ609-1 and Solid State Relay (SR606) contact **3**. • Check for continuity between PJ609-11 and Solid State Relay (SR606) contact **4**. @ (continued on next page)

Table 155. MAP 0298 (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)			• Check for continuity between PJ6005-79 and PJ466-79. Repair if necessary. • Install the following, one at a time, if the cables were good: – Fuser Control Card (FSxxx) – B1J8 Card – Solid State Relay (SR606) @

Table 155. MAP 0298 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Restart Driver Routine 31 and measure the voltage between SR606-1 and -2. **Does the voltage switch between approximately 200 and 0 V ac?**	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ601 on the Relay Board RB091/RB092 to ensure that it is connected correctly. Refer to Step 1. • Check for continuity between PJ601-5 and Solid State Relay (SR606) contact **1**. Repair if necessary. • Install the following one at a time if the cables were good. – Relay Board RB091/RB092 – Fuser Control Card (FSxxx) @	Do the following: • Check Connector PJ601 on Relay Board RB091/RB092 for correct contact. • Check continuity between PJ601-10 and Solid State Relay (SR606) contact **2**. Repair the wiring if necessary. • If continuity is good, install a new Solid State Relay (SR606). @

MAP 0299: Hot Roll Lamp 2 Filament Open

Symptom Explanation	Conditions That Could Cause This Symptom
Hot Roll Lamp 2 fails to turn on.	• The Lamp filaments are broken. • The Hot Roll Lamp Connectors are broken or unplugged. • The Lamp driver circuitry is defective. • The Eror Detection circuitry is defective. • Solid State Relay (SR606) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD85 - Hot Roll Lamp 2
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence.

QUICK CHECKS

- Visually inspect the Hot Roll Lamp and Connectors.

SERVICE CHECKS

- POR the printer . An error is indicated by **E0A1** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Lamp 2	80%	2073	3389	2550
Fuser Control Card FSxxx	10%	2131	3499	2528
Hot Roll Lamp Recptacle Contacts	05%		3385	2556
Relay Board RB091/RB092	04%	2135, 2136	3501	
Solid State Relay (SR606)	01%	2080	3499	

MAP 0299 BEGINS

Table 156. MAP 0299

Step	Questions/Actions	Yes	No
	DANGER **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		

Table 156. MAP 0299 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Left Front Cover. • Remove the Fuser Front Cover to gain access to the Hot Roll Lamps. • Unplug Connector PJ666. • Open the Printer Right Rear Cover and unplug PJ665 at the Hot Roll Lamp Socket. • Check the continuity of Hot Roll Lamp 2 by measuring for continuity between PJ666-2 and PJ665-2 on the Lamp side of the connectors. **Is there continuity through the Lamp?**	Go to Step 2.	• Install a new Hot Roll Lamp 2. • Check the Lamp and Receptacle contacts. @
Step 2.	• Open the Fuser Control Box Cover. • Check continuity of the Lamp circuit from the other side of PJ665-2 to contact **2** on Solid State Relay (SR606). **Does the circuit have good continuity?**	Go to Step 3.	• There is an open circuit between Solid State Relay (SR606) contact **2** and PJ665-2. • Repair as necessary.

Table 156. MAP 0299 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check continuity of the Lamp circuit from the other side of PJ666-2 to TB601-5. **Does the circuit have good continuity?**	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following one at a time to fix the problem. • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connectors PJ603 and PJ609 to ensure that they are connected correctly. • Check for continuity between PJ603-2 and PJ609-32. Repair if necessary. • Install the following, one at a time, if the cables were good: – Fuser Control Card (FSxxx) – Relay Board RB091/RB092 – Solid State Relay (SR606) @	There is an open circuit between TB601-5 and PJ666-2. • Repair as necessary.

MAP 029A: Hot Roll Lamp Drive Signal Off Too Long

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Drive signal remains OFF longer than 180 seconds.	• The Hot Roll temperature control circuit is defective. • The Hot Roll temperature-sensing circuit is defective. • The Hot Roll Temperture Control Sensor (L601) is not adjusted correctly.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD79 - Hot Roll Lamp Control
- Wiring Diagrams -
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
  WD65 - Fuser Sensors (FSxxx)

FIX VERIFICATION

- POR the printer to see if the error occurs again or if a new error is posted .

QUICK CHECKS

- Visually inspect the Connectors on the Fuser Control Card (FSxxx) and associated Wiring.
- Ensure that the B1J8 Card is seated correctly.
- POR the pirnter .

SERVICE CHECKS

- POR the pirnter . An error is indicated by **E0A5** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Temperature Control Sensor (L601)	30%	2073	3415	2558
Hot Roll Control Card HR091	30%	2064	3397	2534
B1J8 Card	20%	B1 Logic Card Links		
Fuser Control Card FSxxx	16%	2131	3499	2528
Relay (K601)	04	2080	3499	

MAP 029A BEGINS

This MAP fixes Hot Roll temperature problems when the Drive signal is off longer than 180 seconds.

Table 157. MAP 029A

Step	Questions/Actions	Yes	No
	DANGER **<5> High-voltage is present. Use care while working in this area.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Open the Front Center Cover. • Remove the Cover over the Hot Roll Control Card HR091. • POR the machine . • Observe the Hot Roll Control Card HR091. **Does LED D3 turn on and off?**	Go to Step 2.	Go to Step 3.

Table 157. MAP 029A (continued)

Step	Questions/Actions	Yes	No
Step 2.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Right Rear Printer Cover. • Open the Fuser Control Box Cover. • POR the machine. • Observe the Fuser Control Card (FSxxx) **Does LED D7/HR1 turn on and off?**	Install new parts in the following order: • Relay (K601) • B1J8 Card @	Do the following in order: • Check for continuity and repair any open circuits between the following pairs of points: – PJ6010-3 and PJ6007-3 – PJ6010-4 and PJ6007-4 – PJ6005-59 to PJ466-59 • Install new parts in the following order: – Fuser Control Card (FSxxx) – B1J8 Card – Hot Roll Control Card HR091 – Hot Roll Temperture Control Sensor (L601) @

Table 157. MAP 029A (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Right Rear Printer Cover. • Open the Fuser Control Box Cover. • POR the machine. • Observe the Fuser Control Card (FSxxx) **Does LED D7/HR1 turn on and off?**	• If the Hot Roll Temperture Control Sensor (L601) is adjusted correctly, install new parts in the following order: – Hot Roll Temperture Control Sensor (L601) – Hot Roll Control Card HR091 – Fuser Control Card (FSxxx) @	Go to Step 4.
Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ682 on the Hot Roll Temperture Control Sensor (L601) for pushed pins or a bad connection. Repair if necessary. • Check Connector PJ6009 on the Hot Roll Control Card HR091 for pushed pins or a bad connection. Repair if necessary. • Open the Printer Right Rear Cover. • Open the Fuser logic cover. • Check Connector PJ6005 on the Fuser Control Card (FSxxx) and PJ466 for pushed pins or a bad connection. Check continuity from PJ6005-59 through PJ466-59 to B1J8 (A82) on the pin side of the B1 Board. • Check the Hot Roll Temperture Control Sensor (L601) for correct adjustment. @		

MAP 029C: Hot Roll Lamp 3 Filament Open

Symptom Explanation	Conditions That Could Cause This Symptom
Hot Roll Lamp 3 fails to turn on.	• The Lamp filaments are broken. • The Hot Roll Lamp Connectors are broken, unplugged, or out of alignment. • The Fuser Soft Start Resistors are open. • The K501 Relay is defective. • The Lamp driver circuitry is defective. • The Error-Detection circuitry is defective. • The Solid State Relay (SR607) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD87 - Hot roll Lamp 3
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen

FIX VERIFICATION

- POR the printer to see if the error occurs againg during the power-on sequence (see Power-On Reset).

QUICK CHECKS

- Visually inspect the Hot Roll Lamp and Connectors.

SERVICE CHECKS

- POR the printer. An error is indicated by **E0C0** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Lamp 3	80%	2073	3389	2550
Fuser Control Card FSxxx	10%	2131	3499	2528
Hot Roll Lamp Receptacle Contacts	04%		3385	2556
Relay Board RB091/RB092	02%	2135, 2136	3501	
Resistor (R604, R605, R606, or R614)	02%			
Relay (K501)	01%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Solid State Relay (SR607)	01%	2080	3499	

MAP 029C BEGINS

Table 158. MAP 029C

Step	Questions/Actions	Yes	No
	DANGER **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		

Table 158. MAP 029C (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Left Front Cover. • Remove the Fuser Front Cover to gain access to the Hot Roll Lamps. • Unplug Connector PJ666. • Open the Printer Right Rear Cover and unplug PJ665 at the Hot Roll Lamp Receptacle. • Check the continuity of Hot Roll Lamp 3 by measuring for continuity between PJ666-2 and PJ665-3 on the Lamp side of the connectors. **Is there continuity through the Lamp?**	Go to Step 2.	• Check the Lamp and Receptacle contacts and ensure they are aligned correctly. • Install a new Hot Roll Lamp 3. @
Step 2.	• Open the Fuser Control Box Cover. • Check continuity of the Lamp circuit from the other side of PJ665-3 to contact **2** on Solid State Relay (SR607). **Does the circuit have good continuity?**	Go to Step 3.	There is an open circuit between Solid State Relay (SR607) contact **2** and PJ665-3. • Repair as necessary.
Step 3.	• Check continuity of the Lamp circuit from the other side of PJ666-2 to TB601-5. **Does the circuit have good continuity?**	Go to Step 4.	There is an open circuit between TB601-5 and PJ666-2. • Repair as necessary.

Table 158. MAP 029C (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Check the wiring on Soft Start Resistors R604, 605, 606, and 614. • Measure the resistance of each Resistor. R604, 605, and 606 are approximately 10 ohms each; R614 is approximately 1000 ohms. **Note:** Some machines may have only 3 Resistors. **Are the wiring and resistance OK?**	Go to Step 5.	Do the following as necessary: • Install a new Soft Start Resistor. • Repair the wiring. @
Step 5.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Power on the printer. • Measure the voltage between the AC phases at TB601 in the bottom of the Fuser Control Box. **Do you measure a voltage across any or all phases that is approximately the line voltage?**	Go to Step 6.	The problem could exist because the SR081 Card or SQ081/SQ082 Card are not picking Relay (K501) or the relay could be defective. Install the following one at a time: • SR081 Card • SQ081/SQ082 Card • Relay (K501) @

Table 158. MAP 029C (continued)

Step	Questions/Actions	Yes	No
Step 6.	**Note:** Remember that the 400 V ac machines reference neutral. You should be aware that when measuring between neutral and a phase, the reading will be less than the reading between phases, and probably will be approximately 200 V ac. Neutral is on TB601-3, -4, -5, and -6. **Does the voltage read the same across all three phases?**	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following, one at a time, to fix the problem. • SHUTDOWN AND POWER OFF THE PRINTER. • Check connectors PJ603 and PJ609 to ensure that they are connected correctly. • Check for continuity between PJ603-11 and PJ609-33. Repair if necessary. • Install the following, one at a time, if the cables were good: – Fuser Control Card (FSxxx) – Relay Board RB091/RB092 – Solid State Relay (SR607) @	Go to Step 7.

Table 158. MAP 029C (continued)

Step	Questions/Actions	Yes	No
Step 7.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Open the Printer Right Front Cover. • Remove the AC Power Supply Cover and open the hinged AC Power Supply Cover. **Important** To measure voltages in the Printer AC Power Supply, you must loosen the clamps that hold the cable that goes to PJ510 on the SQ081/SQ082 Card. This allows the cover to be opened with PJ510 connected. The cover should be supported so that there is no strain on the cable. • Measure the voltage on both sides of Relay (K501) between the power phases. **Does the voltage measure the same on both sides of the Relay?**	Do the following, one at a time, to fix the problem. • Check the wiring for continuity between Relay (K501) through TB502 to TB601. Repair if necessary. • Install a new Fuser Control Card (FSxxx). • Install a new Relay Board RB091/RB092 . • Install a new Solid State Relay (SR607). @	• Install a new Relay (K501). @

MAP 029D: Hot Roll Lamp 3 Relay Always Off

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Lamp 3 Solid State Relay does not turn on.	• The Relay is defective. • The Connectors and wiring may be defective. • The Relay Driver circuitry is defective. • The Error-Detection circuitry is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD86 - Hot Roll Lamp 3 Relay (SR607)
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence .

QUICK CHECKS

- Visually inspect the wiring and connectors associated with the circuit.

SERVICE CHECKS

- POR the printer to see if the error occurs again during the power-on sequence. An error is indicated by **E0C1** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Solid State Relay (SR607)	70%	2080	3499	
Fuser Control Card FSxxx	15%	2131	3499	2528
Relay Board RB091/RB092	08%	2135, 2136	3501	
B1J8 Card	05%	B1 Logic Card Links		
Connectors and wiring	02%			

MAP 029D BEGINS

Table 159. MAP 029D

Step	Questions/Actions	Yes	No
	DANGER **<5> High-voltage is present. Use care while working in this area.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 159. MAP 029D (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer right rear cover. • Open the Fuser Control Box Cover. • Place the Printer in diagnostic mode. • Power on the printer. • Measure the voltage on SR607-4 as you start Driver Routine 31. **Does the voltage switch between approximately 5 V dc and 0 V dc?**	Go to Step 2.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ609 on the Fuser Control Card (FSxxx) to ensure that it is connected correctly. • Check for continuity between PJ609-1 and Solid State Relay (SR607) contact **3**. • Check for continuity between PJ609-12 and Solid State Relay (SR607) contact **4**. Repair if necessary. @ (continued on next page)

Table 159. MAP 029D (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)			• Install the following, one at a time, if the cables were good: – Fuser Control Card (FSxxx) – B1J8 Card – Solid State Relay (SR607) @

Table 159. MAP 029D (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Restart Driver Routine 31 and measure the voltage between SR607-1 and -2. **Does the voltage switch between approximately 200 and 0 V ac?**	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ601 on Relay Board RB091/RB092 to ensure that it is connected correctly. • Check for continuity between PJ601-9 and Solid State Relay (SR607) contact **1**. Repair if necessary. • Install the following, one at a time, if the cables were good: – Relay Board RB091/RB092 – Fuser Control Card (FSxxx) @	Do the following: • Check Connector PJ601 on Relay Board RB091/RB092 for correct contact. • Check continuity between PJ601-18 and Solid State Relay (SR607) contact **2**. Repair the wiring if necessary. • If continuity is good, install a new Solid State Relay (SR607). @

MAP 029E: Hot Roll Lamp 4 Filament Open

Symptom Explanation	Conditions That Could Cause This Symptom
Hot Roll Lamp 4 fails to turn on.	• The Lamp filaments are broken. • The Hot Roll Lamp Connectors are broken, unplugged, or out of alignment • The Fuser Soft Start Resistors are open. • K501 Relay is defective. • The Lamp driver circuitry is defective. • The Error-Detection circuitry is defective. • The Solid State Relay (SR608) is defective. • The SR081 Card is defective. • The SQ081/SQ082 Card is defective. • The DC 2 Power Supply is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD89 - Hot Roll Lamp 4
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD16 - Printer AC Power Supply - (200/208/220/230/240V)
  WD17 - Printer AC Power Supply - (200/208/220/230/240V) (except 324 PPM)
  WD18 - Printer AC Power Supply - (380/400/415V)
  WD19 - Printer AC Power Supply - (380/400/415V) (except 324 PPM)
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)
  WD25.1 - Printer Sequence Card (Multi Beam Printhead)

FIX VERIFICATION

- POR the printer to see if the error occurs agiain during the power-on sequence .

QUICK CHECKS

- Visually inspect all Circuit Breakers to ensure that they are not tripped.
- Visually inspect Hot Roll Lamp 4 and the Connectors, especially PJ666.
- POR the printer.

SERVICE CHECKS

- POR the printer . An error is indicated by **E0bE** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Rol Lamp 4	80%	2073	3389	2550
Fuser Control Card FSxxx	08%	2131	3499	2528
Hot Roll Lamp Connectors	04%			
Relay Board RB091/RB092	02%	2135, 2136	3501	
Resistor (R601, R602, R603, or R613)	01%			
DC 2 Power Supply	01%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Relay (K501)	01%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Solid State Relay (SR608)	01%	2080	3499	
SR081 Card	01%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643
SQ081/SQ082 Card	01%	2142	3507 (200 V) 3509 (400 V)	2642

MAP 029E BEGINS

Table 160. MAP 029E

Step	Questions/Actions	Yes	No
	DANGER **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
	CAUTION: **<60> High-temperature. Let parts cool at least 30 minutes in this area before handling.**		

Table 160. MAP 029E (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Left Front Cover and remove the Fuser Front Cover to gain access to the Hot Roll Lamps. • Unplug Connector PJ666. • Open the Printer Right Rear Cover and unplug PJ665. • Check the continuity of Hot Roll Lamp 4 by measuring for continuity between PJ666-3 and PJ665-4 on the Lamp side of the connectors. **Is there continuity through the Lamp?**	Go to Step 2.	• Check the Lamp and Socket contacts to ensure that they are aligned correctly. • Install a new Hot Roll Lamp 4. @
Step 2.	• Open the Fuser Control Box Cover. • Check Connector PJ601 on the Relay Board RB091/RB092 for pushed pins and that it is plugged correctly. • Check continuity of the lamp circuit from the other side of PJ665-4 to contact **2** on Solid State Relay (SR608). **Does the circuit have good continuity?**	Go to Step 3.	There is an open circuit between Solid State Relay (SR608) contact **2** and PJ665-4. • Repair as necessary.
Step 3.	• Check continuity of the lamp circuit from the other side of PJ666-3 to TB601-4. **Does the circuit have good continuity?**	Go to Step 4.	There is an open circuit between TB601-4 and PJ666-3. • Repair as necessary.

Table 160. MAP 029E (continued)

Step	Questions/Actions	Yes	No
Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Rear Cover. • Check the wiring on Soft Start Resistors R601, R602, R603, and R613 to ensure that all connections are good. • Measure the resistance of each resistor. R601, R602, and R603 are approximately 10 ohms each; R613 is approximately 1000 ohms. **Note:** Some machines may only have three resistors. **Does the wiring and resistance check good?**	Go to Step 5.	Do the following as necessary: • Install a new Soft Start Resistor. • Repair the wiring. @
Step 5.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Power on the printer. • Measure the voltage between the AC phases at TB601 in the bottom of the Fuser Control Box. **Do you measure a voltage across any or all phases that is approximately the line voltage?**	Go to Step 6.	Go to Step 9.

Table 160. MAP 029E (continued)

Step	Questions/Actions	Yes	No
Step 6.	**Note:** Remember that the 400 V dc machines reference neutral. You should be aware that the when measuring between neutral and a phase, the reading will be less than the reading between phases, and probably will be approximately 200 V dc. Neutral is on TB601-3, -4, -5, and -6. **Did the voltage read the same between all three phases?**	Go to Step 7.	Go to Step 8.
Step 7.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following one at a time to fix the problem. • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connectors PJ603 and PJ609 to ensure that they are connected correctly. • Check for continuity between PJ603-19 and PJ609-30. • Check for continuity between PJ603-1 and PJ609-34. Repair if necessary. • Install the following, one at a time, if the cables were good: – Fuser Control Card (FSxxx) – Relay Board RB091/RB092 – Solid State Relay (SR608) @		

Table 160. MAP 029E (continued)

Step	Questions/Actions	Yes	No
Step 8.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Open the Printer Right Front Cover. • Remove the AC Power Supply Cover and open the hinged AC Power Supply Cover. **Note:** To measure voltages in the Printer AC Power Supply, you must loosen the clamps that hold the cable that goes to PJ510 on the SQ081/SQ082 Card. This allows the cover to be opened with PJ510 connected. The cover should be supported so that there is no strain on the cable. • Measure the voltage on both sides of Relay (K501) between the power phases. **Does the voltage measure the same on both sides of the Relay?**	Do the following one at a time to fix the problem: • Check the wiring for continuity between Relay (K501) through TB502 to TB601. Repair if necessary. • Install a new Fuser Control Card (FSxxx). • Install a new Relay Board RB091/RB092 . • Install a new Solid State Relay (SR608). @	• Install a new Relay (K501). @

Table 160. MAP 029E (continued)

Step	Questions/Actions	Yes	No
Step 9.	The problem could be caused by the SR081 Card, SQ081/SQ082 Card, DC 2 Power Supply, or Relay (K501) defective or not picking. Do the following: • Check continuity of the connectors and wiring as follows: – PJ514-6 on the SQ081/SQ082 Card to PJ594-6 on the DC 2 Power Supply. – PJ526-3 on the SR081 Card to PJ511-1 on the SQ081/SQ082 Card. – PJ526-4 to PJ511-8. – PJ530-1 on the SR081 Card to Relay (K501). Repair if necessary. • Install the following one at a time: – SR081 Card – SQ081/SQ082 Card – Relay (K501) – DC 2 Power Supply @		

MAP 029F: Hot Roll Lamp 4 Relay Always Off

Symptom Explanation	Conditions That Could Cause This Symptom
The Hot Roll Lamp 4 Solid State Relay does not turn on.	• The Relay is defective. • The Connectors and wiring may be defective. • The Relay Driver circuitry is defective. • The Error-Detection circuitry is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams -
  CD130 - Hot Roll Lamp 4 Relay (3900 DR1/2 & Infoprint 4000 IRx Models)
  CD88 - Hot Roll Lamp 4 Relay (SR608) (3900 0Wx & DWx Models, Infoprint 4000 ISx & IDx Models)
- Wiring Diagrams -
  WD34 - AC Distribution To Hot Roll Lamps
  WD35 - AC Distribution To Preheat Platen
  WD64 - Fuser Sensors (FSxxx and FUxxx Cards)

FIX VERIFICATION

- POR the printer to see if the error occurs again during the power-on sequence.

QUICK CHECKS

- Visually inspect the wiring and connectors associated with the circuit.

SERVICE CHECKS

- POR the printer to see if the error occurs again during the power-on sequence . An error is indicated by **E0bF** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Solid State Relay (SR608)	70%	2080	3499	
Fuser Control Card FSxxx	15%	2131	3499	2528
Relay Board RB091/RB092	08%	2135, 2136	3501	
B1J8 card	05%	B1 Logic Card Links		
Connectors and wriring	02%			

MAP 029F BEGINS

Table 161. MAP 029F

Step	Questions/Actions	Yes	No
	DANGER **<5> High-voltage is present. Use care while working in this area.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer right rear cover. • Open the Fuser Control Box Cover. • Unplug PJ603 from Relay Board RB091/RB092 . • Place the Printer in diagnostic mode. • Power on the printer. • Measure the voltage on SR608-4 as you start Driver Routine 31. **Does the voltage switch between 5 and 0 V dc?**	Go to Step 2.	Go to Step 3.

Table 161. MAP 029F (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Restart Driver Routine 31 and measure the voltage between SR608-1 and -2. **Does the voltage switch between approximately 200 and 0 V ac?**	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ601 to ensure that it is connected correctly. • Check for continuity between PJ601-6 and Solid State Relay (SR608) contact **1**. Repair if necessary. • Install the following, one at a time, if the cables were good. – Relay Board RB091/RB092 – Fuser Control Card (FSxxx) @	Do the following: • Check Connector PJ601 on Relay Board RB091/RB092 for correct contact. • Check continuity between PJ601-21 and Solid State Relay (SR608) contact **2**. Repair the wiring if necessary. • If continuity is good, install a new Solid State Relay (SR608). @

Table 161. MAP 029F (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** Do the following in order before you install new parts: • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ609 to ensure that it is connected correctly. • Check for continuity between PJ609-1 and Solid State Relay (SR608) contact **3**. • Check for continuity between PJ609-13 and Solid State Relay (SR608) contact **4**. • Check for continuity between PJ6008-6 and B30 on B1J8. Repair if necessary. • Install the following one at a time if the cables were good. – Fuser Control Card (FSxxx) – B1J8 Card – Solid State Relay (SR608) @		

MAP 0300: Operator Panel Start Map

REFERENCES

- Removals & Adjustments - Fuser
- Wiring Diagrams -
  WD20 - Low Voltage Power Supply (LVPS), and MIC Fan (3900 0Wx & DWx Models)
  WD20.2 - Low Voltage Power Supply (LVPS), MIC, PQE, and Fans (Infoprint 4000 ISx & IDx Models)
  WD78 - MIC to Operator's Panel

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Operator Panel		2081	3187	2351
Buffer Card		2081	3187	2351
Mechanism Interface Card (MIC)	%	Control Unit Links		

MAP 0300 BEGINS

Perform the action shown for the problem that you have.

Table 162. Operator Panel Problems

Problem	Action
The LEDs are all on, and the display has black boxes in all fields.	Enable the operator panel in the “Configure Printer” panel.
A system reference code (SRC) is displayed.	Locate the SRC in Table 163 and perform the action listed there.
The LEDs are all off, and no characters are displayed.	Perform the following steps: 1. Be sure that you have checked MAP 0010: Symptom Start MAP to determine if this is a power problem. 2. Check the seating of the following connectors: • PJJ3 • PJ232 • PJ600R • PJE03 • PJ302 • PJE01 • PJH02 3. Check the wiring diagrams to be sure that you have +5 V dc and −5 V dc to the Operator Panel. 4. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. Install a new Mechanism Interface Card (MIC) if the test fails. 5. If the test completes successfully, install a new Operator Panel. 6. If the problem continues, install a new Buffer Card. @

Table 162. Operator Panel Problems (continued)

Problem	Action
The LEDs are on but the display is blank.	Perform the following steps: 1. Check for missing -5 volts. 2. Install a new Operator Panel. @
When power is turned on, only the power on LED lights and the display is blank.	Perform the following steps: 1. Check for missing +5 volts.
When power is turned on, no LEDs light and the display has dark spots that slowly disappear.	Perform the following steps: 1. Check for missing +12 volts.
One or more LEDs are off, but characters are displayed.	Perform the following steps: 1. Power the printer off. 2. Power the printer on and check if all of the LEDs light. If the LEDs light, be sure that you understand the function of the LEDs. See the *Operator's Guide* for more information. If the LEDs do not light, install a new Operator Panel. @
Characters in the display are not correct. Characters or segments may be missing, or extra segments may be displayed.	Perform the Operator Panel diagnostic test to verify that all of the character positions are displayed correctly. If they are not, install a new Operator Panel. @
Key does not respond.	Perform the key pad test of the Operator Panel diagnostic test to verify that all of the keys function correctly. If they do not, install a new Operator Panel. @

Table 163. Operator Panel System Reference Codes (SRCs)

SRC	Description	Action
300	This is an Operator Panel failure during the 8052 power-up tests.	Install a new Operator Panel. @
310	This is an Operator Panel communications failure. The Mechanism Interface Card (MIC) did not set DTR within 8 seconds.	Perform the following steps: 1. Perform theMechanism Interface Card (MIC) Isolation Wrap Test. Install a new Mechanism Interface Card (MIC) if the test fails. 2. If the test completes successfully, install a new Operator Panel. 3. If the problem continues, install a new Buffer Card. @
312	This is an Operator Panel communications failure. There was no status request from the Mechanism Interface Card (MIC).	Perform the following steps: 1. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. Install a new Mechanism Interface Card (MIC) if the test fails. 2. If the test completes successfully, install a new Operator Panel. 3. If the problem continues, install a new Buffer Card. @
314	This is an Operator Panel communications failure. There was no response from the panel and an 80188 unit check.	Perform the following steps: 1. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. Install a new Mechanism Interface Card (MIC) if the test fails. 2. If the test completes successfully, install a new Operator Panel. 3. If the problem continues, install a new Buffer Card. @

Table 163. Operator Panel System Reference Codes (SRCs) (continued)

SRC	Description	Action
316	This is an Operator Panel communications failure. There was no acknowledgment from the Mechanism Interface Card (MIC).	Perform the following steps: 1. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. Install a new Mechanism Interface Card (MIC) if the test fails. 2. If the test completes successfully, install a new Operator Panel. 3. If the problem continues, install a new Buffer Card. @
320	This is an Operator Panel communications failure. There have been three consecutive serial link communication errors: parity, framing, or overflow. This is an 80188 or 8052 unit check.	Perform the following steps: 1. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. Install a new Mechanism Interface Card (MIC) if the test fails. 2. If the test completes successfully, install a new Operator Panel. 3. If the problem continues, install a new Buffer Card. @

MAP 0321: Operator Alert Light Problem

Symptom Explanation	Conditions That Could Cause This Symptom
The light on the Operator Alert is never on.	• The bulb is burned out. • The Operator Alert Circuit Board has failed. • There is an open circuit in the wiring. • The Mechanism Interface Card (MIC) has failed.
The light on the Operator Alert will not flash.	• The Operator Alert Circuit Board DIP switch 1 is set to the off position. • The potentiometer on the Operator Alert Circuit Board is turned down. • The Operator Alert Circuit Board has failed.
The light on the Operator Alert is always on.	• The Operator Alert Circuit Board has failed. • There is a short circuit in the wiring. • The Mechanism Interface Card (MIC) has failed.

REFERENCES

- Removals & Adjustments - Control Unit
- Circuit Diagrams - CD90 - Operator Alert
- Wiring Diagrams - WD79 - MIC to Operator Alert Assembly

FIX VERIFICATION

- Run the Operator Alert Diagnostic.(see page 1580)

QUICK CHECKS

- None

SERVICE CHECKS

- You may check the functions of the Operator Alert by running the Operator Alert Diagnostic (see page 1580)
- The light will not operate during any operation when the channels are disabled, except during the Operator Alert Diagnostic.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Operator Alert Light Bulb	80%	Control Unit Links		
Mechanism Interface Card (MIC)	15%	Control Unit Links		
Operator Alert Circuit Board	05%	Control Unit Links		

MAP 0321 BEGINS

Table 164. MAP 0321

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Is the problem that the light is never on?**	Go to Step 2.	Go to Step 7.
Step 2.	Perform the following steps: • Squeeze the lens on top of the Operator Alert to remove it. • Remove the light bulb. **Is there continuity through the light bulb?**	Go to Step 3.	• Install a new light bulb. @
Step 3.	Perform the following steps: • Install the light bulb. • Power on the printer. • Open the transfer gate to cause an intervention. • Leave power on for this question. **Is there continuity through the accessory contacts at the rear of the Operator Alert tower?**	Go to Step 4.	Go to Step 9.

Table 164. MAP 0321 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Perform the following steps: • Remove the Operator Alert sleeve. • Look into the sleeve to inspect the electrical connections to the lamp base. **Are the connectors firmly connected to the tabs on the lamp base?**	Go to Step 5.	• Connect the connectors to the lamp base.
Step 5.	• Ensure that the `Transfer Station Open` intervention is still displayed. **Is the voltage +12 V dc at the wire 7 contact on the lamp base?**	Do the following, one step at a time, until the problem is corrected: • Check for an open circuit between ALCD1-9 and the contact on wire 7 on the lamp base. • Install a new Operator Alert Circuit Board. @	Go to Step 6.
Step 6.	**Is the voltage +12 V dc at the wire 6 contact on the lamp base?**	• Repair an open circuit through the lamp base contacts.	• Repair an open in wire 6 between the lamp base and the Accessory Contacts Relay.

Table 164. MAP 0321 (continued)

Step	Questions/Actions	Yes	No
Step 7.	**Is the problem that the light will not flash correctly?**	• Remove the Operator Alert sleeve. Do the following, one step at a time, until the problem is corrected: • Ensure that DIP switch 1 on the Operator Alert Circuit Board is set to the On position. • Adjust the potentiometer on the Operator Alert Circuit Board. • Install a new Operator Alert Circuit Board. @	Go to Step 8.
Step 8.	The problem is that the light is always on. Perform the following steps: • Cause the problem to occur. • Disconnect connector ALP2/ALJ2. **Is the voltage + 0.2 V dc or less at ALP2-5?**	Do the following, one step at a time, until the problem is corrected: • Repair a short circuit to ground in the wiring network described by the following points: – PJJ1-20 to ALP2-5 • Install a new Mechanism Interface Card (MIC). @	Do the following, one step at a time, until the problem is corrected: • Repair a short circuit to ground in the wiring network described by the following points: – ALJ2-5 to ALCD1-4 • Install a new Operator Alert Circuit Board @

Table 164. MAP 0321 (continued)

Step	Questions/Actions	Yes	No
Step 9.	• Ensure that the `Transfer Station Open` intervention is still displayed. • Measure the voltage at ALP2-5. **Is the voltage less than +0.2 V dc at ALP2-5?**	Go to Step 10.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between ALJ2-5 and PJJ1-20. • Install a new Mechanism Interface Card (MIC). @

Table 164. MAP 0321 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Check for the following voltages on ALP2. • +5 V dc at ALP2-4. • +12 V dc at ALP2-6. **Are the voltages present?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Check for proper seating of the following connectors: – ALCD1 – ALP2 to ALJ2 • Repair an open circuit between one of the following pairs of connectors: – ALCD1-7 and relay coil (wire 4) – ALCD1-3 and ALP2-6 – ALCD1-4 and ALP2-5 – ALCD1-5 and ALP2-4 • Install a new Operator Alert Circuit Board. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – ALJ2-4 and PJJ1-17. – ALJ2-6 and PJJ1-19. • Install a new Mechanism Interface Card (MIC). @

MAP 0322: Operator Alert Alarm Problem

Symptom Explanation	Conditions That Could Cause This Symptom
The alarm tone on the Operator Alert is never on.	• The Operator Alert Circuit Board has failed. • The Operator Alert Volume Control potentiometer has failed. • The Operator Alert Speaker has failed. • The Operator Alert Volume Control potentiometer is turned down. • The Operator Alert Circuit Board DIP switch **2** is set to the off position. • The configuration data item for **Alarm suppression** is set to **Yes**. • The Mechanism Interface Card (MIC) has failed. • There is an open circuit in the wiring.
The alarm tone on the Operator Alert is on when it should not be.	• The Operator Alert Circuit Board has failed. • The Mechanism Interface Card (MIC) has failed. • There is a short circuit in the wiring.

REFERENCES

- Removals & Adjustments - Control Unit
- Circuit Diagrams - CD90 - Operator Alert
- Wiring Diagrams - WD79 - MIC to Operator Alert Assembly

FIX VERIFICATION

- Run Operator Alert Diagnostic (see page 1580).

QUICK CHECKS

- Ensure that the Operator Alert Volume Control potentiometer is not turned down.

SERVICE CHECKS

- You may check the functions of the Operator Alert by running the Operator Alert Diagnostic (see page 1580).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Operator Alert Alarm Volume Control potentiometer	40%	Control Unit Links		
Operator Alert Alarm Speaker	25%	Control Unit Links		
Operator Alert Circuit Board	25%	Control Unit Links		
Mechanism Interface Board (MIC)	10%	Control Unit Links		

MAP 0322 BEGINS

Table 165. MAP 0322

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Is the problem that the Operator Alert alarm tone is never on, or not on when it should be?**	Go to Step 3.	Go to Step 2.
Step 2.	**Is the problem that the alarm is always on, (or on when it should not be)?**	Do the following, one step at a time, until the problem is corrected: • Check for a short circuit to ground in wire 12 in the Operator Alert assembly. • Install a new Operator Alert Circuit Board. • Install a new Mechanism Interface Card (MIC). @	It is assumed that the problem is that the volume is constant, regardless of the position of the knob. Do the following, one step at a time, until the problem is corrected: • Ensure that the knob is not slipping on the Operator Alert Volume Control Potentiometer shaft. • Install a new Operator Alert Volume Control Potentiometer. @

Table 165. MAP 0322 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run the . **Is the Operator Alert alarm tone on now?**	The alarm tone works correctly in diagnostic mode. The alarm is being suppressed by the microcode. • Check the **Alarm suppression** item in the configuration data. It should be set to No if the operator wants the alarm to be active.	Go to Step 4.
Step 4.	**Is the Operator Alert light on?**	Go to Step 5.	Go to MAP 0321: Operator Alert Light Problem.
Step 5.	The should still be active for this question. • Turn the Operator Alert alarm volume control knob fully clockwise. **Is the Operator Alert alarm tone on now?**	The alarm tone can be heard. The problem was caused by the volume control knob setting.	Go to Step 6.
Step 6.	Perform the following steps: • Remove the Operator Alert sleeve. • Locate the DIP switches on the Operator Alert Circuit Board. • DIP switch **2** must be set to the On position for the alarm to work. **Is DIP switch 2 set to the On position?**	Go to Step 7.	The alarm was switched off. • Correctly set the position of DIP switch **2**.

Table 165. MAP 0322 (continued)

Step	Questions/Actions	Yes	No
Step 7.	Perform the following steps: • Run the Operator Alert Diagnostic (see page 1580). • Set the Operator Alert volume control knob at the center of its range. It is only important that it not be at either extreme end of its range. **Is the voltage 0 V dc at the Operator Alert speaker plus (+) terminal (wire 11)?**	Go to Step 8.	Go to Step 10.
Step 8.	**Is wire 11 connected to terminal (center terminal) on the Operator Alert Volume Control Potentiometer?**	Go to Step 9.	• Use the wiring diagrams to correctly install the wires on the potentiometer.
Step 9.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the volume control potentiometer from the Operator Alert assembly by removing the knob and the nut, and sliding the potentiometer back with the wires still connected. • Note the positions of the wires on the potentiometer terminals. • Remove the wires from the terminals. **Is there continuity between the following pairs of terminals on the potentiometer?** • Terminals **3** and **1** • Terminals **3** and **2**	• Fix an open circuit in wire 8 or wire 11 in the Operator Alert assembly.	• Install a new Operator Alert Volume Control Potentiometer. @

Table 165. MAP 0322 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Ensure that the is still active. **Is the voltage less than 1 V dc at the Operator Alert speaker minus (−) terminal (wire 10)?**	• Install a new Operator Alert Speaker. @	Go to Step 11.
Step 11.	• Measure the voltage at ALJ2-2. **Is the voltage +5 V dc?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check for an open circuit in wire 12 between ALCD1-10 and the minus (−) terminal of the Operator Alert speaker. • Install a new Operator Alert Circuit Board. @	• Install a new Mechanism Interface Card (MIC). @

MAP 0323: Operator Alert Accessory Contacts Problem

Symptom Explanation	Conditions That Could Cause This Symptom
The accessory contacts on the Operator Alert are never on.	• The Operator Alert accessory contacts fuse is open. • The Operator Alert accessory contacts relay has failed. • The Operator Alert Circuit Board has failed. • There is an open circuit in the wiring.
The accessory contacts on the Operator Alert are always on.	• The Operator Alert accessory contacts relay has failed. • The Operator Alert Circuit Board has failed. • There is a short circuit in the wiring.

REFERENCES

- Removals & Adjustments - Control Unit
- Circuit Diagrams - CD90 - Operator Alert
- Wiring Diagrams - WD79 - MIC to Operator Alert Assembly

FIX VERIFICATION

- Run Operator Alert Diagnostic (see page 1580).

QUICK CHECKS

- None

SERVICE CHECKS

- You may check the functions of the Operator Alert by running the Operator Alert Diagnostic (see page 1580).
- The light will not operate during any operation when the channels are disabled, except during the Operator Alert Diagnostic.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Operator Alert Accessory Contacts Fuse	60%	Control Unit Links		
Operator Alert Accessory Contacts Relay	30%	Control Unit Links		

MAP 0323 BEGINS

Table 166. MAP 0323

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP fixes two conditions: • The accessory contacts are never on. • The accessory contacts are always on. **Is the customer complaint that their device, which is attached to the Operator Alert accessory contacts, is never on?**	Go to Step 2.	Go to Step 6.
Step 2.	• Run the Operator Alert Diagnostic (see page 1580). **Is the Operator Alert light on?**	Go to Step 3.	Go to MAP 0321: Operator Alert Light Problem.
Step 3.	Do not power off for this step, as the accessory relay must be picked. • Disconnect the accessory device from the accessory contacts. **Is there an open circuit between the Operator Alert accessory contacts?**	Go to Step 4.	The accessory contacts are closing correctly. There is a problem with the device or wiring connected to the accessory contacts.

Table 166. MAP 0323 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Operator Alert sleeve from its base to access the components. • Check for loose wires on the Operator Alert Accessory Contacts Relay. • Remove the Accessory Contacts Fuse. **Is there continuity through the fuse?**	Go to Step 5.	The accessory device has blown the fuse. • Ensure that the accessory circuit requires less than 5 amps.
Step 5.	Perform the following steps: • Install the fuse. • Power on the printer. • Run the Operator Alert Diagnostic (see page 1580). • Locate the coil contacts on the Operator Alert Accessory Contacts Relay. The contacts are arranged vertically on the left side of the relay. **Is the voltage greater than +10 V dc across the relay coil?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check for an open circuit through the Operator Alert Accessory Contacts Fuse Holder. • Check for an open circuit in the following wires in the Operator Alert assembly. – Wire 9 – Wire 5 – Wire 13 • Install a new Operator Alert Accessory Contacts Relay. @	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Check for an open circuit in wire T4 on the relay. • Install a new Operator Alert Circuit Board. @

Table 166. MAP 0323 (continued)

Step	Questions/Actions	Yes	No
Step 6.	The accessory contacts are always on. • Perform whatever actions are required so that CHANNELS DISABLED is displayed. **Is the Operator Alert Light off?**	Go to Step 7.	The Operator Alert Light is also on. Go to MAP 0321: Operator Alert Light Problem.
Step 7.	Do not power off for this step, as the accessory relay must be picked. • Disconnect the accessory device from the accessory contacts. **Is there continuity between the Operator Alert accessory contacts?**	Go to Step 8.	The Operator Alert is operating correctly. There is a problem with the device or wiring connected to the accessory contacts.
Step 8.	• SHUTDOWN AND POWER OFF THE PRINTER. **Is there an open circuit between the Operator Alert accessory contacts?**	Do the following, one step at a time, until the problem is corrected: • Install a new Operator Alert Circuit Board. • Check for a short circuit in wire T4 in the Operator Alert assembly. @	• Install a new Operator Alert Accessory Contacts Relay. @

MAP 0330: Display/Touch Screen Start Map

MAP 0330 BEGINS

Perform the action indicated for the problem you are having.

Table 167. Display/Touch Screen Problems

Problem	Action
The Display/Touch Screen is blank.	Go to MAP 0331: Display/Touch Screen Is Blank.
The display illumination is dim.	Adjust the brightness control to midrange or higher.
Characters in the display are barely discernible.	Adjust the contrast control to midrange or higher.
The display does not fill, or overflows, the Display/Touch Screen frame.	Adjust the height controls and width controls until the image fills the frame.
The display is not centered in the Display/Touch Screen frame.	Adjust the horizontal centering controls and vertical centering controls until the image is centered in the frame.
The Display/Touch Screen display is distorted.	Adjust the pincushion-barrel controls and keystone controls until the distortion is eliminated.
The Display/Touch Screen colors are not satisfactory.	Adjust the red intensity controls and blue intensity controls until an acceptable color mix is achieved. (The intensity of the green was optimized at the factory.)
Characters in the Display/Touch Screen are out of focus.	Install a new Display/Touch Screen.
The Display/Touch Screen has only a full white raster.	Do the following in order: 1. Check the cabling between the Display Adapter Card and the Display/Touch Screen. 2. Install a new Display Adapter Card.
Install a new Display/Touch Screen.	

Table 167. Display/Touch Screen Problems (continued)

Problem	Action
The Display/Touch Screen does not respond to touch selection.	Do the following in order: 1. Check the cabling between the Display Adapter Card and the Display/Touch Screen. 2. Reseat the Display Adapter Card. 3. Install a new Display Adapter Card. 4. Install a new Display/Touch Screen.

Controls

Note: There are many different models of displays, so the controls on your display may vary.

Controls for image size, shape, position, color, contrast, and brightness are located behind the door on the front of the Display/Touch Screen. To open the door, press and release its upper left corner.

The reset control restores the color to the settings most recently established either by the user or by the factory. The reset control restores the image geometry to the settings most recently established either by the user or by the factory.

Settings are saved automatically 5 seconds after the adjustment is made. To prevent saving new settings, press the appropriate reset button before the 5 seconds elapse. To return to the factory settings, press and hold a reset button for 4 seconds.

MAP 0331: Display/Touch Screen Is Blank

MAP 0331 BEGINS

The Display/Touch Screen is normally blank for about 6 minutes during initial power on. The approximate timing of the start-up process is shown in Table 168. Timing may vary on different systems, but you can use this table as a guide.

Table 168. Start-up Timing

Event or Indicator	Time (sec)
Power on RS/6000 Controller and printers	0
Transfer station audible reset	20
Blowers on	25
Erase lamps on	40
Printers cycle down	60
Display/Touch Screen goes white with LED progress indicator in lower right corner	350
Printer operator panels active	395
Copyright notice appears on Display/Touch Screen	420
Main window appears on the Display/Touch Screen with open Rethreading and Printer Status windows	440

Table 169. MAP 0331

Step	Questions/Actions	Yes	No
	DANGER **<21> Use extreme caution when making adjustments with the Display/Touch Screen powered on.** **The Display/Touch Screen must never be left unattended with the covers removed and the power on in a customer environment.** **To prevent electrical shock, power off the Display/Touch Screen and disconnect the power cord before changing any part.** **High voltages may remain on the anode of the CRT after the Display/Touch Screen is powered off. Discharge the anode in accordance with CRT safety instructions.** **CRTs are under vacuum. All persons working near an exposed CRT must wear safety glasses and long-sleeved clothing (or comparable protection).**		
Step 1.	**Is the mode switch (key switch) on the controller (if present) in the Normal position? (If there is no mode switch on your controller, answer this question Yes.)**	Go to Step 2.	• Put the mode switch in the Normal position. The Display/Touch Screen panel will not come on if the switch is in any other position.

Table 169. MAP 0331 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Is the Display/Touch Screen power-on indicator on or flashing?**	Go to Step 3.	Go to Step 9.
Step 3.	**Are the contrast and brightness controls set high enough?**	Go to Step 4.	• Set the contrast and brightness controls at midrange or higher.
Step 4.	• Open the front cover of the control unit to access the RS/6000 Controller. • If the green LED turns off within 5 seconds after Power Up, answer this question No. **Is the RS/6000 Controller power indicator green LED on?**	Go to Step 5.	There is a power problem with the RISC controller. Go to MAP 2152: Controller Power Problems.
Step 5.	**Is a number displayed on the display of the RS/6000 Controller?**	Go to Step 7.	Go to Step 6.
Step 6.	• Press the **Reset** pushbutton on the front of the RS/6000 Controller. Or press the **Power** switch. **Do numbers appear (and change) on the RS/6000 Controller display?**	• Wait 6 minutes for the RS/6000 Controller to finish its power-on tests. At that time, c32 appears on the display, and then the display becomes blank. • If the problem continues, install a new Display Adapter card or a new Display/Touch Screen.	Go to MAP 2000: Controller Start Map.

Table 169. MAP 0331 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Watch the display for 6 full minutes to see if the number changes. **Is the same number being constantly displayed on the RS/6000 Controller, or is 888 flashing on the display?**	Go to MAP 2000: Controller Start Map.	Go to Step 8.
Step 8.	**Are there two or more numbers between 221 and 296 alternating on the display?**	Go to MAP 2000: Controller Start Map.	The RS/6000 Controller is still running its power-on routines. The display clears when the routines are finished, and characters appears on the Display/Touch Screen.
Step 9.	**Is the RS/6000 Controller power indicator LED on?**	Go to Step 10.	Go to MAP 0500: Power Control – Simplex Printing System.
Step 10.	• Disconnect the power cord at the Display/Touch Screen. **Is the voltage 220 V ac between the terminals at the Display/Touch Screen end of the power cord?**	• Install a new Display/Touch Screen.	Go to Step 11.
Step 11.	• Disconnect the power cord at the AC control box. **Is the voltage 220 V ac between the terminals at the AC control box?**	• Install a new Display/Touch Screen power cord.	Go to MAP 0500: Power Control – Simplex Printing System.

MAP 0500: Power Control – Simplex Printing System

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Printer or Control Unit power.	• A switch on the control unit is in the wrong position. • The control unit AC Control Box is defective. • The control unit AC Control Box CP1 is tripped. • The power control panel is defective. • The printer Circuit Breaker (CB501), Circuit Breaker (CB503), or Circuit Breaker (CB504) are defective or tripped. • The printer SR081 Card is defective. • The printer SQ081/SQ082 Card is defective. • The printer power supply unit is defective. • The printer power supply unit voltage jumpers are unplugged or jumpered incorrectly. • The control unit AC Control Box voltage jumper is unplugged. • The printer AC Power Supply filter is clogged.

Attention: If you are working on a power-up problem, put the power switch on the front of the RISC controller to the Off position. After the problem is fixed, put the power switch back to the On position and power the printer up normally.

The microcode on the controller hard drive could be damaged if you power off the controller while the microcode is loading.

REFERENCES

- Circuit Diagrams - CD91 - Printer Remote Power
- Wiring Diagrams -
  WD16 - Printer AC Power Supply - (200/208/220/230/240V)
  WD17 - Printer AC Power Supply - (200/208/220/230/240V) (except 324 PPM)
  WD18 - Printer AC Power Supply - (380/400/415V)
  WD19 - Printer AC Power Supply - (380/400/415V) (except 324 PPM)
  WD20 - Low Voltage Power Supply (LVPS), and MIC Fan (3900 0Wx & DWx Models)
  WD21 - Control Unit AC Power Control (Simplex)
  WD22 - Control Unit AC Control Box (Simplex)
  WD23 - AC Power Control (Simplex)
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)

FIX VERIFICATION

- POR the Printer (see Power-On Reset).

QUICK CHECKS

1. Ensure that the UEPO switch on the power control panel is in the On position.
2. Ensure that the Local/Remote switches on the power control panel are in the correct positions.
   - Control Unit - Local
   - Printer - Remote
3. Check the AC Control Box in the control unit to:
   - Ensure the service disconnect switch is in the Normal position.
   - Ensure CP1 is in the On position.
   - Ensure that the voltage jumper. is correctly installed as follows:
     – JA02 - input line voltage 240 V ac
     – JA03 - input line voltage 220/230 V ac
     – JA04 - input line voltage 200/208 V ac
4. Ensure that the printer AC Power Supply filter is clean.
5. Check that the printer voltage jumpers are correctly installed on the printer low voltage power supply.
6. Reset Circuit Breaker (CB501) if it is tripped.

SERVICE CHECKS

- Check the customer power for correct voltage. See Power Requirements.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
A switch in the wrong position	50%			
A loose connector	50%			
Control Unit AC Control Box	01%	Control Unit Links		
Circuit Breaker CB501	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Circuit Breaker CB503	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Circuit Breaker CB504	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
SR081 Card	01%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643
SQ081/SQ082 Card	01%	2142	3507 (200 V) 3509 (400 V)	2642
Printer AC Power Supply	01%	2084	3507 (200V) 3509 (400V)	2635
Power Control Panel	01%	Control Unit Links		

Power Requirements

60 Hz (±1.2 Hz) US, Canada (Requires a dedicated electrical outlet with 60-ampere service.)

Phase-to-Phase		Phase-to-Ground/Neutral	
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**
208	187 to 229	120	108 to 132
198 to 242	127	114 to 140	
230	207 to 252	133	120 to 147
240	216 to 264	140	126 to 154

50 Hz (±1.0 Hz) Europe, World Trade (Requires a dedicated electrical outlet.)

Phase-to-Phase		Phase-to-Ground/Neutral		
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**	**Service Rating**
380	342 to 418	220	198 to 242	25 Ampere
400	360 to 440	230	207 to 253	25 Ampere
415	374 to 456	240	216 to 264	25 Ampere
Note: The 380-, 400-, and 415-volt printers are not designed to be connected to an IT power distribution system.				

50/60 Hz (±1.0 Hz) Japan (Requires a dedicated electrical outlet with 60-ampere service.)

Phase-to-Phase		Phase-to-Ground/Neutral	
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**
200	180 to 220	115	100 to 130

MAP 0500 BEGINS

Table 170. MAP 0500

Step	Questions/Actions	Yes	No
	DANGER **<5> High-voltage is present. Use care while working in this area.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• Do the QUICK CHECKS. • Set the Control Unit power local/remote switch to Local. • Power off and then power on the machine. **Do you still have a power problem?**	Go to Step 2.	The QUICK CHECKS solved the problem. If your problem is powering-up from a local/remote switch configuration different than the normal setup in the QUICK CHECKS, do the following one at a time until the problem is corrected: • Repair an open in the remote power cable to the host. • Repair an open from PJC03 on the tailgate to PJB01 on the power control panel. • Repair an open from PJC02 on the tailgate to PJB01 on the power control panel. • Repair an open from PJB02 on the power control panel to PJA08 on the AC Control Box. • Install a new power control panel. • Install a new control unit AC Control Box. @

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 2.	Do the following: • Open the printer right front cover. • Remove the input bin right side cover. • Check the voltage jumpers PJ520, PJ521, PJ522, PJ523, and PJ524 located on the left side of the printer power supply. Ensure they are correctly plugged and note the voltage for reference in the following voltage measurement. • Open the printer left rear cover. • Remove the blower cover. • Measure the power cord voltage at TB101 (terminal block where the power cord attaches to the printer). See Power Requirements. **Are the phase to phase and phase to ground/neutral voltages correct?**	Go to Step 3.	Do the following: • Check the customer power. Have the customer correct his power problem if the voltage is not correct. • Check the power cord. Repair or replace. @
Step 3.	**Is the "AC IN" Indicator lit on the SQ081/SQ082 Card?**	Go to Step 5.	Go to Step 4.

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 4.	**Is Circuit Breaker (CB501) tripping?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Unplug the power cord. • Remove the wires from the output side of Circuit Breaker (CB501). • Check all wires removed for a short. • If you find a short, trace the circuit to isolate the short. • If you do not find a short, install the following, one at a time, until the problem is fixed: – Circuit Breaker (CB501) – Printer AC Power Supply @	Go to Step 22.
Step 5.	• Check the LED alarm indicators on the SQ081/SQ082 Card. **Are all the Red LED alarm indicators off?**	Go to Step 6.	One or more of the alarm indicators is on. Go to MAP 0511: Printer Power Error.
Step 6.	**Is the "POWER" indicator lit on the SQ081/SQ082 Card?**	Go to Step 7.	Go to Step 10.
Step 7.	**Are you in this MAP because the Display/Touch Screen is blank or you suspect a Controller problem?**	Go to Step 8.	• Recheck your problem symptoms and return to MAP 0010: Symptom Start MAP.

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Measure the ac voltage between PJA05-1 and PJA05-3. (It may be easier to unplug PJA05 and measure voltage at the socket). **Is the voltage 200 V ac?**	Go to Step 9.	• Install a new AC Control Box. @
Step 9.	• Measure the ac voltage between PJA06-1 and PJA06-3. **Is the voltage 200 V ac?**	Go to MAP 2000: Controller Start Map.	• Install a new AC Control Box. @
Step 10.	• Measure the dc voltage between PJA07-1 and PJA07-2 on the AC Control Box. **Is the voltage approximately 24 V dc?**	Go to Step 11.	Go to Step 13.
Step 11.	• Unplug PJ510 on the SQ081/SQ082 Card. (Do not power off.) • Measure the dc voltage between P510-13 and P510-14. **Is the voltage approximately 24 V dc?**	Go to Step 12.	Repair an open between: • PJ510-13 to PJA07-1 • PJ510-14 to frame ground

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 12.	• Power off. • Measure continuity between PJ510-18 and PJ510-19. **Is there continuity?**	• Install a new SQ081/SQ082 Card. @	Do the following, one at a time, until the problem is corrected: • Repair and open between PJ510 and the EPO switch. – PJ510-18 to PJ205-6 – PJ510-19 to PJ205-8 – PJ205-6 to PJA07-3 – PJ205-8 to PJA07-4 – PJA08-7 to UEPO C-3 – PJA08-6 to UEPO C-2 • Install a new switch if the EPO switch is defective. • Install a new AC Control Box if the following are open: – JA07-3 to JA08-7 – JA07-4 to JA08-6 @
Step 13.	• Measure the dc voltage in the control unit between PJA08-9 and PJA07-2. **Is the voltage approximately 24 V dc?**	Go to Step 15.	Go to Step 14.
Step 14.	• Measure the dc voltage between PJA08-8 and PJA07-2. **Is the voltage approximately 24 V dc?**	Check continuity and repair as necessary. • PJA08-8 to UEPO A-2 • PJA08-9 to UEPO A-3 • UEPO A-2 and A-3. • If the UEPO switch is not working correctly, install a new power control panel.	Go to Step 18.

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 15.	• Measure the dc voltage in the control unit between PJA08-10 and PJA07-2. **Is the voltage approximately 24 V dc?**	Go to Step 17.	Go to Step 16.
Step 16.	**Is the control unit service disconnect switch in the Normal position?**	• Install a new AC Control Box. @	• Put the service disconnect switch in the Normal position.
Step 17.	• As you press and hold the control unit **POWER ON** switch, measure the voltage between connector PJA08-14 and PJA07-2 on the AC Control Box. **Is the voltage approximately 24 V dc?**	Do the following, one at a time, until the problem is corrected: • Ensure PJA08 on the AC Control Box and PJB02 on the power control panel are making good connection. • Install a new power control panel. • Install a new AC Control Box. • Install a new cable from PJA08 to PJB02 and UEPO. @	Do the following, one at a time, until the problem is corrected: • Check connectors/wiring and repair an open in: – PJA08-14 on the AC Control Box to PJB02-4 on the power control panel – PJA08-10 to PJB02-5 • Install a new power control panel. @
Step 18.	• Check CP1 on the AC Control Box in the control unit. **Is CP1 ON?**	Go to Step 19.	Go to Step 20.

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 19.	• Measure the ac voltage between connector PJA01-1 and 2. **Is the voltage approximately 180 to 260 V ac?**	Do the following, one at a time, until the problem is corrected: • Ensure that the voltage jumper is installed correctly on the control unit AC Control Box. – PJA02 - 240 V ac – PJA03 - 220 V ac – PJA04 - 200 V ac • Install a new AC Control Box. @	There is an open between Circuit Breaker (CB503) in the printer power supply and Connector PJA01-1 and 2 in the control unit AC Control Box. • SHUTDOWN AND POWER OFF THE PRINTER. • **Unplug the power cord if you make the next check.** • Check continuity between the following points and repair as necessary: – PJ531-5 on the printer power supply and PJ227-5 between the printer and control unit – PJ531-6 to PJ227-6 – PJ227-5 to PJA01-1 – PJ227-6 to PJA01-2 – PJ531 to K502 in the printer power supply.
Step 20.	• Reset CP1 and Power on the printer. **Does the printer power-on?**	Resetting CP1 fixed the problem.	Go to Step 21.

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 21.	**Does CP1 trip again?**	Do the following, one at a time, until the problem is corrected: • Install a new AC Control Box. • Repair a short connected to PJA07, PJA08, or PJA09. @	Restart at the beginning of the MAPs with new symptom.
Step 22.	**Is Circuit Breaker (CB504) on?**	Go to Step 24.	Go to Step 23.
Step 23.	• Turn Circuit Breaker (CB504) on and power on the printer. **Did Circuit Breaker (CB504) trip when powering-on the printer?**	There appears to be a short circuit in the wiring, the circuit breaker is defective, or the load is defective. Do the following, one at a time, until the problem is corrected: • Check for a short. • Install a new Circuit Breaker (CB504). • Install a new SR081 Card. • Install a new SQ081/SQ082 Card. • Install a new Printer AC Power Supply. @	The problem was fixed by turning on the circuit breaker.
Step 24.	**Is Circuit Breaker (CB503) on?**	Go to Step 26.	Go to Step 25.

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 25.	• Turn Circuit Breaker (CB503) on and power-on the printer. **Did Circuit Breaker (CB503) trip when powering-on the printer?**	There appears to be a short circuit in the wiring, or the circuit breaker is defective. Do the following, one at a time, until the problem is corrected: • Repair the short. • Install a new Circuit Breaker (CB503) • Install a new SR081 Card. • Install a new SQ081/SQ082 Card. • Install a new Printer AC Power Supply. @	The problem was fixed by turning on the circuit breaker.
Step 26.	Do the following: • Check PJ524 for proper connection and the correct voltage jumper. • Check PJ525 and PJ526 for proper connection on the SR081 Card. • Check PJ511 for proper connection on the SQ081/SQ082 Card. • If the above checks did not correct the problem, measure the ac voltage between PJ525-1 and PJ525-3 on the SR081 Card. **Is the voltage approximately 18 V ac?**	Go to Step 27.	• Install a new Printer AC Power Supply. @

Table 170. MAP 0500 (continued)

Step	Questions/Actions	Yes	No
Step 27.	• Measure the dc voltage between PJ511-6 and PJ511-4 on the SQ081/SQ082 Card. **Is the voltage approximately 12 V dc?**	• Install a new SQ081/SQ082 Card. @	Do the following, one at a time, until the problem is corrected: • Install a new SR081 Card. • Repair and open between: – PJ526-7 to PJ511-6 – PJ526-5 to PJ511-4 @

MAP 0501: Power Control – Duplex Printing System

Symptom Explanation	Conditions That Could Cause This Symptom
There is a problem with the Printer or Control Unit power.	• A switch on the control unit is in the wrong position. • The control unit AC Control Box is defective. • The control unit AC Control Box CP1 is tripped. • The power control panel is defective. • The printer Circuit Breaker (CB501), Circuit Breaker (CB503), or Circuit Breaker (CB504) are defective or tripped. • The printer SR081 Card is defective. • The printer SQ081/SQ082 Card is defective. • The Printer AC Power Supply unit is defective. • The Printer AC Power Supply unit voltage jumpers are unplugged or jumpered incorrectly. • The control unit AC Control Box voltage jumper is unplugged. • The printer AC Power Supply filter is clogged. • The Speed Select Switch setting was changed while the printer had power on.

Attention: If you are working on a power-up problem, put the power switch on the front of the RISC controller to the Off position. After the problem is fixed, put the power switch back to the On position and power the printer up normally.

The microcode on the controller hard drive could be damaged if you power off the controller while the microcode is loading.

REFERENCES

- Circuit Diagrams - CD92 - Printer 1 Remote Power
- Wiring Diagrams -
  WD16 - Printer AC Power Supply - (200/208/220/230/240V)
  WD17 - Printer AC Power Supply - (200/208/220/230/240V) (except 324 PPM)
  WD18 - Printer AC Power Supply - (380/400/415V)
  WD19 - Printer AC Power Supply - (380/400/415V) (except 324 PPM)
  WD20 - Low Voltage Power Supply (LVPS), and MIC Fan (3900 0Wx & DWx Models)
  WD21 - Control Unit AC Power Control (Simplex)
  WD22 - Control Unit AC Control Box (Simplex)
  WD23 - AC Power Control (Simplex)
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)

FIX VERIFICATION

- POR the Printer (see Power-On Reset).

QUICK CHECKS

1. Ensure that the UEPO switch on the power control panel is in the On position.
2. Ensure that the Local/Remote switches on the power control panels are in the correct position.
   - Control Unit 2 - Local
   - Printer 2 - Remote
   - Control Unit 1 - Remote
   - Printer 1 - Remote
3. Check the AC Control Box in both control units to:
   - Ensure the service disconnect switch is in the Normal position.
   - Ensure CP1 is in the On position.
   - Ensure that the voltage jumper. is correctly installed as follows:
     – JA02 - input line voltage 240 V ac.
     – JA03 - input line voltage 220/230 V ac.
     – JA04 - input line voltage 200/208 V ac.
4. Ensure that the AC Power Supply filter in both printers is clean.
5. Check that the printer voltage jumpers are correctly installed on the low voltage power supply in both printers.
6. Reset Circuit Breaker (CB501) on both printers, if tripped.

SERVICE CHECKS

- Check the customer power for correct voltage (both printers). See Power Requirements.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
A switch in the wrong position	50%			
A loose connector	50%			
Control Unit AC Control Box	01%	Control Unit Links		
Circuit Breaker CB501	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Circuit Breaker CB503	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Circuit Breaker CB504	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
SR081 Card	01%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643
SQ081/SQ082 Card	01%	2142	3507 (200 V) 3509 (400 V)	2642
Printer AC Power Supply	01%	2084	3507 (200V) 3509 (400V)	2635
Power Control Panel	10%	Control Unit Links		

Power Requirements

60 Hz (±1.2 Hz) US, Canada (Requires a dedicated electrical outlet with 60-ampere service.)

Phase-to-Phase		**Phase-to-Ground/Neutral**	
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**
208	187 to 229	120	108 to 132
198 to 242	127	114 to 140	
230	207 to 252	133	120 to 147
240	216 to 264	140	126 to 154

50 Hz (±1.0 Hz) Europe, World Trade (Requires a dedicated electrical outlet.)

Phase-to-Phase		**Phase-to-Ground/Neutral**		
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**	**Service Rating**
380	342 to 418	220	198 to 242	25 Ampere
400	360 to 440	230	207 to 253	25 Ampere
415	374 to 456	240	216 to 264	25 Ampere
Note: The 380-, 400-, and 415-volt printers are not designed to be connected to an IT power distribution system.				

50/60 Hz (±1.0 Hz) Japan (Requires a dedicated electrical outlet with 60-ampere service.)

Phase-to-Phase		**Phase-to-Ground/Neutral**	
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**
200	180 to 220	115	100 to 130

MAP 0501 BEGINS

Table 171. MAP 0501

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• Do the QUICK CHECKS. • Set CU power local/remote switch to Local. • Power off and then power on. **Do you still have a power problem?**	Go to Step 2.	The QUICK CHECKS solved the problem. If your problem is powering-up from a local/remote switch configuration different than the normal setup in the QUICK CHECKS, do the following one at a time until the problem is corrected: • Repair an open in the remote power cable to the host. • Repair an open from PJC03 on the tailgate to PJB01 on the power control panel. • Repair an open from PJC02 on the tailgate to PJB01 on the power control panel. • Repair an open from PJB02 on the power control panel to PJA08 on the AC Control Box. • Install a new power control panel. • Install a new control unit AC Control Box. @

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 2.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** Do the following for each printer: • Open the printer right front cover. • Remove the input bin right side cover. • Check the voltage jumpers PJ520, PJ521, PJ522, PJ523, and PJ524 located on the left side of the printer power supply. Ensure they are correctly plugged and note the voltage for reference in the following voltage measurement. • Open the printer left rear cover. • Remove the blower cover. • Measure the power cord voltage at TB101 (terminal block where the power cord attaches to the printer). See Power Requirements. **Are the phase to phase and phase to ground/neutral voltages correct?**	Go to Step 3.	Do the following: • Check the customer power. Have the customer correct his power problem if the voltage is not correct. • Check the power cord. Repair or replace.
Step 3.	**Is the "AC IN" Indicator lit on the SQ081/SQ082 Card (check both printers)?**	Go to Step 5.	Go to Step 4.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 4.	**Is Circuit Breaker (CB501) tripping?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Unplug the power cord. • Remove the wires from the output side of Circuit Breaker (CB501). • Check all wires removed for a short. • If you find a short, trace the circuit to isolate the short. • If you do not find a short, install the following, one at a time, until the problem is corrected: – Circuit Breaker (CB501) – Printer AC Power Supply @	Go to Step 23.
Step 5.	• Check the LED alarm indicators on the SQ081/SQ082 Card. **Are all the Red LED alarm indicators off (check both printers)?**	Go to Step 6.	One or more of the alarm indicators is on. Go to MAP 0511: Printer Power Error.
Step 6.	**Is the "POWER" indicator lit on the SQ081/SQ082 Card (check both printers)?**	Go to Step 8.	Go to Step 7.
Step 7.	**Is the "POWER" indicator lit on printer 2 (the printer with the RISC Controller in it)?**	Go to Step 29.	Go to Step 11.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 8.	**Are you in this MAP because the Display/Touch Screen is blank or you suspect a Controller problem?**	Go to Step 9.	Recheck your problem symptoms and return to MAP 0010: Symptom Start MAP.
Step 9.	• Measure the ac voltage between PJA05-1 and PJA05-3. (It may be easier to unplug PJA05 and measure voltage at the socket). **Is the voltage 200 V ac?**	Go to Step 10.	• Install a new AC Control Box. @
Step 10.	• Measure the ac voltage between PJA06-1 and PJA06-3. **Is the voltage 200 V ac?**	Go to MAP 2000: Controller Start Map.	• Install a new AC Control Box. @
Step 11.	• Measure the dc voltage between PJA07-1 and PJA07-2 on the AC Control Box in Printer 2. **Is the voltage approximately 24 V dc?**	Go to Step 12.	Go to Step 14.
Step 12.	• Unplug PJ510 on the SQ081/SQ082 Card in Printer 2. (Do not power off.) • Measure the dc voltage between P510-13 and P510-14. **Is the voltage approximately 24 V dc?**	Go to Step 13.	Repair an open between: • PJ510-13 to PJA07-1 • PJ510-14 to frame ground

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 13.	• SHUTDOWN AND POWER OFF THE PRINTER. • Measure continuity between PJ510-18 and PJ510-19. **Is there continuity?**	• Install a new SQ081/SQ082 Card. @	Do the following, one at a time, until the problem is corrected: • Repair and open between PJ510 and the EPO switch. – PJ510-18 to PJ205-6 – PJ510-19 to PJ205-8 – PJ205-6 to PJA07-3 – PJ205-8 to PJA07-4 – PJA08-7 to UEPO C-3 – PJA08-6 to UEPO C-2 • Install a new switch if the EPO switch is defective. • Install a new AC Control Box if the following are open: – JA07-3 to JA08-7 – JA07-4 to JA08-6 @
Step 14.	• Measure the dc voltage in the control unit between PJA08-9 and PJA07-2. **Is the voltage approximately 24 V dc?**	Go to Step 16.	Go to Step 15.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 15.	• Measure the dc voltage between PJA08-8 and PJA07-2. **Is the voltage approximately 24 V dc?**	Check continuity and repair as necessary: • PJA08-8 to UEPO A-2 • PJA08-9 to UEPO A-3 • UEPO A-2 and A-3 • If the UEPO switch is not working correctly, install a new power control panel. @	Go to Step 19.
Step 16.	• Measure the dc voltage in the control unit between PJA08-10 and PJA07-2. **Is the voltage approximately 24 V dc?**	Go to Step 18.	Go to Step 17.
Step 17.	**Is the control unit service disconnect switch in the Normal position?**	• Install a new AC Control Box. @	• Put the service disconnect switch in the Normal position.
Step 18.	• As you press and hold the control unit **POWER ON** switch, measure the voltage between connector PJA08-14 and PJA07-2 on the AC Control Box. **Is the voltage approximately 24 V dc?**	Do the following, one at a time, until the problem is corrected: • Ensure PJA08 on the AC Control Box and PJB02 on the power control panel are making good connection. • Install a new power control panel • Install a new AC Control Box • Install a new cable from PJA08 to PJB02 and UEPO. @	Do the following, one at a time, until the problem is corrected: • Check connectors/wiring and repair an open in: – PJA08-14 on the AC Control Box to PJB02-4 on the power control panel – PJA08-10 to PJB02-5 • Install a new power control panel. @

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 19.	• Check CP1 on the AC Control Box in the control unit. **Is CP1 on?**	Go to Step 20.	Go to Step 21.
Step 20.	• Measure the ac voltage between connector PJA01-1 and 2. **Is the voltage approximately 180 to 260 V ac?**	Do the following, one at a time, until the problem is corrected: • Ensure that the voltage jumper is installed correctly on the control unit AC Control Box. – PJA02 - 240 V ac – PJA03 - 220 V ac – PJA04 - 200 V ac • Install a new AC Control Box. @	There is an open between Circuit Breaker (CB503) in the printer power supply and Connector PJA01-1 and 2 in the control unit AC Control Box. • SHUTDOWN AND POWER OFF THE PRINTER. • **Unplug the power cord if next check is made.** • Check continuity between the following points and repair as necessary: – PJ531-5 on the printer power supply and PJ227-5 between the printer and control unit – PJ531-6 to PJ227-6 – PJ227-5 to PJA01-1 – PJ227-6 to PJA01-2 – PJ531 to K502 in the printer power supply.
Step 21.	• Reset CP1 and power on the printer. **Does the printer power on?**	Resetting CP1 fixed the problem.	Go to Step 22.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 22.	**Does CP1 trip again?**	Do the following, one at a time, until the problem is corrected: • Install a new AC Control Box. • Repair a short connected to PJA07, PJA08, or PJA09. @	Restart at the beginning of the MAPs with new symptom.
Step 23.	**Is Circuit Breaker (CB504) on?**	Go to Step 25.	Go to Step 24.
Step 24.	• Turn Circuit Breaker (CB504) on and power on the printer. **Did Circuit Breaker (CB504) trip when you powered on the printer?**	There appears to be a short circuit in the wiring, the circuit breaker is defective, or the load is defective. Do the following, one at a time, until the problem is corrected: • Check for a short. • Install a new Circuit Breaker (CB504). • Install a new SR081 Card. • Install a new SQ081/SQ082 Card. • Install a new Printer AC Power Supply. @	The problem was fixed by turning on the circuit breaker.
Step 25.	**Is Circuit Breaker (CB503) on?**	Go to Step 27.	Go to Step 26.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 26.	• Turn Circuit Breaker (CB503) on and power on the printer. **Did Circuit Breaker (CB503) trip when powering on the printer?**	There appears to be a short circuit in the wiring, the circuit breaker is defective, or the load is defective. Do the following, one at a time, until the problem is corrected: • Repair the short. • Install a new Circuit Breaker (CB503) • Install a new SR081 Card. • Install a new SQ081/SQ082 Card. • Install a new Printer AC Power Supply. @	The problem was fixed by turning on the circuit breaker.
Step 27.	Do the following: • Check PJ524 for proper connection and the correct voltage jumper. • Check PJ525 and PJ526 for proper connection on the SR081 Card. • Check PJ511 for proper connection on the SQ081/SQ082 Card. • If the above checks did not correct the problem, measure the ac voltage between PJ525-1 and PJ525-3 on the SR081 Card. **Is the voltage approximately 18 V ac?**	Go to Step 28.	• Install a new Printer AC Power Supply. @

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 28.	• Measure the dc voltage between PJ511-6 and PJ511-4 on the SQ081/SQ082 Card. **Is the voltage approximately 12 V dc?**	• Install a new SQ081/SQ082 Card. @	Do the following, one at a time, until the problem is corrected: • Install a new SR081 Card. • Repair an open between: – PJ526-7 to PJ511-6 – PJ526-5 to PJ511-4 @
Step 29.	• Ensure PJC01 on the Printer 2 tailgate and PJC02 on the Printer 1 tailgate are making good connection. • Power off then power on. **Do you still have a power problem?**	Go to Step 30.	Correcting the connection between the printers solved the problem.
Step 30.	• Measure the dc voltage between PJA07-1 and PJA07-2 on the AC Control Box in Printer 1. **Is the voltage approximately 24 V dc?**	Go to Step 31.	Go to Step 33.
Step 31.	• Unplug PJ510 on the SQ081/SQ082 Card in Printer 1. (Do not power off.) • Measure the dc voltage between P510-13 and P510-14. **Is the voltage approximately 24 V dc?**	Go to Step 32.	Repair an open between: • PJ510-13 to PJA07-1 • PJ510-14 to PJA07-2

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 32.	• Power off. • Measure continuity between PJ510-18 and PJ510-19 in Printer 1. **Is there continuity?**	• Install a new SQ081/SQ082 Card. @	Do the following, one at a time, until the problem is corrected: • Repair an open between PJ510 and the UEPO switch. – PJ510-18 to PJ205-6 – PJ510-19 to PJ205-8 – PJ205-6 to PJA07-3 – PJ205-8 to PJA07-4 – PJA08-7 to UEPO C-3 – PJA08-6 to UEPO C-2 • Install a new switch if the UEPO switch is defective. • Install a new AC Control Box if the following are open: – JA07-3 to JA08-7 – JA07-4 to JA08-6 @
Step 33.	• Measure the dc voltage in the control unit between PJA08-9 and PJA07-2. **Is the voltage approximately 24 V dc?**	Go to Step 35.	Go to Step 34.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 34.	• Measure the dc voltage between PJA08-8 and PJA07-2. **Is the voltage approximately 24 V dc?**	Check continuity and repair as necessary: • PJA08-8 to UEPO A-2 • PJA08-9 to UEPO A-3 • UEPO A-2 and A-3 • If the UEPO switch is not working correctly, install a new UEPO switch. @	Go to Step 40.
Step 35.	• Measure the dc voltage in the control unit between PJA08-10 and PJA07-2. **Is the voltage approximately 24 V dc?**	Go to Step 36.	• Install a new AC Control Box. @
Step 36.	• To determine if relay K2 is picked in the AC Control Box, measure for ac line voltage across PJA05-1 and -3. **Is the ac voltage approximately line voltage?**	• Install a new AC Control Box in Printer 1 control unit. • Install a new power control panel in Printer 1 control unit. • Install a new cable between the power control panel and the AC Control Box in Printer 1 control unit. @	Go to Step 37.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 37.	• Measure the dc voltage pulse in the Printer 1 control unit between PJA08-14 and PJA07-2. **Note:** You need to power off and then power on again to see the voltage pulse, because a relay inside the CU power supply is picked for only 60 msec. **Is the voltage pulse available at PJA08-14?**	• Install a new AC Control Box in Printer 1 control unit. @	Go to Step 38.
Step 38.	• Measure the dc voltage at the printer 1 control unit tailgate connector PJC02-1 and PJA07-2. **Is the voltage approximately 24 V dc?**	Go to Step 39.	Check continuity and repair as necessary: • PJA08-10 to power control panel PJB02-5 • PJC02-1 to power control panel PJB01-3 • If cable continuity is good, install a new power control panel. @

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 39.	• Measure the dc voltage pulse at the control unit tailgate connector PJC02-6 and PJA07-2. **Is the voltage pulse available?**	Check continuity and repair as necessary: • PJC02-6 to power control panel PJB01-8 • PJA08-14 to power control panel PJB02-4 • If cable continuity is good, install a new power control panel. @	The problem seems to be one of the following: • Remote Power Cable • Cable from the control unit tailgate to the AC Control Box in printer 2 • AC Control Box in Printer 2 Do the following: • Disconnect the remote power cable at the Printer 1 tailgate. • Measure continuity between PJC02-1 and PJC02-6 (on the Printer 2 side of the cable). • If the continuity is good up to the AC Control Box in Printer 2, install a new AC Control Box in Printer 2. @
Step 40.	• Check CP1 on the AC Control Box in the control unit. **Is CP1 on?**	Go to Step 43.	Go to Step 41.
Step 41.	• Reset CP1 and power on the printer. **Does the printer power on?**	Resetting CP1 fixed the problem.	Go to Step 42.

Table 171. MAP 0501 (continued)

Step	Questions/Actions	Yes	No
Step 42.	**Does CP1 trip again?**	Do the following, one at a time, until the problem is corrected: • Install a new AC Control Box. • Repair a short connected to PJA07, PJA08, or PJA09. @	Restart at the beginning of the MAPs with new symptom.
Step 43.	• Measure the ac voltage between connector PJA01-1 and -2. **Is the voltage approximately 180 to 260 V ac?**	Do the following, one at a time, until the problem is corrected: • Ensure that the voltage jumper is installed correctly on the control unit AC Control Box. – PJA02 - 240 V ac – PJA03 - 220 V ac – PJA04 - 200 V ac • Install a new AC Control Box. @	There is an open between Circuit Breaker (CB503) in the printer power supply and Connector PJA01-1 and -2 in the control unit AC Control Box. • SHUTDOWN AND POWER OFF THE PRINTER. • **Unplug the power cord if next check is made.** • Check continuity between the following points and repair as necessary: – PJ531-5 on the printer power supply and PJ227-5 between the printer and control unit – PJ531-6 to PJ227-6 – PJ227-5 to PJA01-1 – PJ227-6 to PJA01-2 – PJ531 to K502 in the printer power supply.

MAP 0511: Printer Power Error

Symptom Explanation	Conditions That Could Cause This Symptom
The printer will not power on or one of the DC voltage alarm Indicators is on.	• Printer in test mode during power on (thumbwheel on B1J11 not at 0). • The DC 1 Power Supply or DC 2 Power Supply have loose connections. • Circuit Breakers are tripped or defective. • The power sequence logic cards are defective. • The DC 1 Power Supply or DC 2 Power Supply is defective. • The loads/devices using the Power Supply voltages are defective. • PJ202 is disconnected. • PJ201 is disconnected. • Cards plugged into the B1 Logic Board are defective.

Shutdown

If your controller is still powered on when you enter this MAP, do a complete shutdown (see Power-On and Power-Off Procedures).

Attention: If you are working on a power-up problem, put the power switch on the front of the RISC controller to the Off position. After the problem is fixed, put the power switch back to the On position and power the printer up normally.

The microcode on the controller hard drive could be damaged if you power off the controller while the microcode is loading.

REFERENCES

- Wiring Diagrams -
  WD16 - Printer AC Power Supply - (200/208/220/230/240V)
  WD17 - Printer AC Power Supply - (200/208/220/230/240V) (except 324 PPM)
  WD18 - Printer AC Power Supply - (380/400/415V)
  WD19 - Printer AC Power Supply - (380/400/415V) (except 324 PPM)
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)
  WD38 - Printer DC Power Distribution (Printers without M610)

FIX VERIFICATION

- POR the machine (see Power-On Reset).

QUICK CHECKS

- If the print engine has power on and the Maintenance Panel has **..11**, **..12**, or **..13** in the display, check the following cards for parity error LEDs being on:
  - B1J7 Card
  - B1J8 Card
  - B1J9 Card
  - B1J10 Card
  - B1J11 Card
  - Toner Control Card (PCxxx)
  - Fuser Control Card (FSxxx)
  - Stacker Control Card (SCxxx)
  - YS011 Card

  If any of the above have parity error LEDs on, replace that FRU.
- Trip CB501 on the front on the printer low voltage power supply before you continue. Visually inspect all circuit breakers, connectors and cabling in the printer ac power supply. Reseat all connectors on DC 1 Power Supply and DC 2 Power Supply.

SERVICE CHECKS

- POR the machine (see Power-On Reset).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 1 Power Supply or DC 2 Power Supply	50%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637 (DC 1) 2641 (DC2)
Cards or Board (see QUICK CHECKS)	10%			
B1Jx Card		B1 Logic Card Links		
Fuser Control Card FSxxx		2131	3499	2528
Stacker Control Card SCxxx		2120	3457	3019
Toner Control Card PCxxx		2053	3199	2402
YS011 Card		2116	3363	2627
SQ081/SQ082 Card	04%	2142	3507 (200 V) 3509 (400 V)	2642
SR081 Card	04%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643
Circuit Breaker (CB501), (CB503), or (CB504)	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Wiring	01%			

PRINTER POWER SUPPLY PROBLEM START TABLE

Note: The following table relates to the voltage error indicators on the SQ081/SQ082 Card on the front of the AC Power Supply. Be sure to look at all indicators and match the lighted Indicators to the following table to ensure that you go to the correct entry point.

Attention: There are times when you will be asked to "Open the Printer AC Power Supply" to measure voltages. It will be necessary to open the cable clamps that hold the cable that goes to PJ510 and PJ515 on the SQ081/SQ082 Card. This will allow the cover to be opened with PJ510 connected. You may also remove the covers from the Mirror Motor Driver Board (MDxxx) and disconnect connectors PJ226, and PJ231. The cover should be supported so that there is no strain on the cable.

Failure As Indicated On SQ081 Card	Location	MAP
+5V, +12V, -12V, +24V, +42V and (+5VM/+12VM/+140V/+260V) Alarm LEDs are all on (+24VB, + and +24VH Off)	0511-A	953
+5V, +12V and -12V Alarm LEDs are all on	0511-B	957
+5V, +12V, -12V and +42V Alarm LEDs are all on	0511-C	959
+42V and (+5M/+12M/+140V/+260V) Alarm LEDs are both on	0511-D	962
+5V Alarm LED on	0511-E	965
+12V Alarm LED on	0511-F	969
-12V Alarm LED on	0511-G	974
+24VD Alarm LED on	0511-H	978
+24VB Alarm LED on	0511-I	983
+24VE Alarm LED on	0511-J	986
+24VH Alarm LED on	0511-K	989
+42V Alarm LED	0511-L	992
+5VM/+12VM/+140V/+260V Alarm LED on alone	0511-M	996

Failure As Indicated On SQ081 Card	Location	MAP
TRNS TH Alarm LED on	0511-N	1003
SOFT TH Alarm LED on	0511-O	1006
MIRROR TH Alarm LED on (False Alarm because there is no thermal in mirror motor)	0511-P	1011
SPD SEL Alarm LED on (For 150 PPM printers only)	0511-Q	1013
SPD SEL Alarm LED on (All except 150 PPM printers) This is a False Alarm caused by electrical noise.	MAP 0600	1026.
No LEDs are lit. Check Maintenance Panel Display.	MAP 0010	85.

MAP 0511-A for +5V, +12V, -12V, +24V, +42V, and (+5VM/+12VM/+140V/+260V) Alarm Indicators ALL ON (+24VB, + and +24VH Off)

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply	50%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641 (DC2)
DC 2 Power Supply fuse (15-Amp)	30%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
SR081 Card	04%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643
Relay (K502)	%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Circuit Breaker CB503	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Wiring				

MAP 0511-A BEGINS

Table 172. MAP 0511- A for +5V, +12V, -12V, +24V, +42V, and (+5VM/+12VM/+140V/+260V) Alarm Indicators ALL ON (+24VB, + and +24VH Off)

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 172. MAP 0511- A for +5V, +12V, -12V, +24V, +42V, and (+5VM/+12VM/+140V/+260V) Alarm Indicators ALL ON (+24VB, + and +24VH Off) (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the printer ac power supply cover. • Check all connectors on DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. • Close the cover of the AC Power Supply and connect connectors PJ510, PJ515, and PJ517. • Turn On Circuit Breaker (CB501). • Power-On the printer, to see if the error is still present. If the error occurs again, continue with the next step. • Power-off the printer and turn off Circuit Breaker (CB501). • Remove the DC 2 Power Supply. • Look inside the Power Supply and check continuity of the 15 Amp fuse on the board. (continued on next page)		

Table 172. MAP 0511- A for +5V, +12V, -12V, +24V, +42V, and (+5VM/+12VM/+140V/+260V) Alarm Indicators ALL ON (+24VB, + and +24VH Off) (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Is the Fuse OK?**	Go to Step 2.	Do the following: • Install a new Fuse. • Put the DC 2 Power Supply back into the AC Power Supply and plug in all connectors. • Turn on Circuit Breaker (CB501). • Power on the printer. • If the fuse blows again, install a new DC 2 Power Supply. @
Step 2.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Put the DC 2 Power Supply back in the printer. • Turn on Circuit Breaker (CB501). • Measure the ac voltage between PJ551-1 and 3 on the DC 2 Power Supply as you power on the printer. **Does the voltage go towards 200 V ac at power on?**	• Install a new DC 2 Power Supply. @	Go to Step 3.

Table 172. MAP 0511- A for +5V, +12V, -12V, +24V, +42V, and (+5VM/+12VM/+140V/+260V) Alarm Indicators ALL ON (+24VB, + and +24VH Off) (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** • SHUTDOWN AND POWER OFF THE PRINTER. • Check for an open between PJ526-10 and PJ511-3 **Is it OK?**	Do the following, one at a time: • Check continuity of the wiring from PJ551 through K502 and back to CB503. Ensure that all terminals are tight on K502 and CB503. Repair as necessary. **Note:** Have the customer remove power at the Circuit Breaker before unplugging the Power Cord. • Install a new SR081 Card. • Install a new Relay (K502). @	• Repair the open circuit.

MAP 0511-B for +5V, +12V and -12V Alarm Indicators All On

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply	50%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637 (DC 1) 2641 (DC2)
DC 2 Power Supply fuse (15-Amp)	30%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Wiring				

MAP 0511-B BEGINS

Table 173. MAP 0511-B for +5V, +12V and -12V Alarm Indicators All On

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 173. MAP 0511-B for +5V, +12V and -12V Alarm Indicators All On (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. • Close the cover of the AC Power Supply and connect PJ510, PJ515, and PJ517. • Power on the printer, to see if the error is still present. If the error occurs again, continue with the next step. • Remove the DC 2 Power Supply. • Look inside the Power Supply and check continuity of the 15-amp fuse on the board. (continued on next page)		
Step 1 (cont.)	**Is the Fuse OK?**	• Install a new DC 2 Power Supply. @	Do the following: • Install a new Fuse. • Put the DC 2 Power Supply back into the AC Power Supply and plug in all connectors. • Power on the printer. • If the fuse blows again, install a new DC 2 Power Supply. @

MAP 0511 C for +5V, +12V, -12V and +42V Alarm Indicators All On

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply	50%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637 (DC 1) 2641 (DC2)
DC 2 Power Supply fuse (15-Amp)	30%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Wiring				

MAP 0511-C BEGINS

Table 174. MAP 0511-C for +5V, +12V, -12V and +42V Alarm Indicators All On

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 174. MAP 0511-C for +5V, +12V, -12V and +42V Alarm Indicators All On (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in the connectors, especially in **PJ593** on the DC 2 Power Supply and **PJ513** on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer, to see if the error is still present. If the error occurs again, continue with the next step. • Remove the DC 2 Power Supply. • Look inside the Power Supply and check continuity of the 15-amp fuse on the board. (continued on next page)		

Table 174. MAP 0511-C for +5V, +12V, -12V and +42V Alarm Indicators All On (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Is the Fuse OK?**	Go to Step 2.	Do the following: • Install a new Fuse. • Put the DC 2 Power Supply back into the AC Power Supply and plug in all connectors. • Power on the printer. • If the fuse blows again, install a new DC 2 Power Supply. @
Step 2.	• Check for continuity between PJ513-5 and PJ593-1. **Is it OK?**	• Install a new DC 2 Power Supply. @	• Repair the open circuit.

MAP 0511-D for +42V and (+5M/+12M/+140V/+260V) Alarm Indicators Both On

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 1 Power Supply or DC 2 Power Supply		2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637 (DC 1) 2641 (DC2)
Wiring				

MAP 0511-D BEGINS

Table 175. MAP 0511-D for +42V and (+5M/+12M/+140V/+260V) Alarm Indicators Both On

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 175. MAP 0511-D for +42V and (+5M/+12M/+140V/+260V) Alarm Indicators Both On (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in the connectors, and especially in **PJ591**. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer, to see if the error is still present. If the error occurs again, continue with the next step. • Reset Circuit Breaker (CB501). • Power on the printer. • Measure the dc voltage between PJ553-1, 3 and 2, 4 on the DC 1 Power Supply before the error occurs again. (continued on next page)		

Table 175. MAP 0511-D for +42V and (+5M/+12M/+140V/+260V) Alarm Indicators Both On (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Is the voltage approximately 270 V dc?**	• Install a new DC 1 Power Supply. @	Do the following, one at a time: • SHUTDOWN AND POWER OFF THE PRINTER. • Check continuity of the wiring from PJ553 to PJ552. Repair if necessary. • Install a new DC 2 Power Supply. @

MAP 0511-E for +5V Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply		2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637 (DC 1) 2641 (DC2)
Fuser Control Card FSxxx		2131	3499	2528
Stacker Control Card SCxxx		2120	3457	3019
Toner Control Card PCxxx		2053	3199	2402
YS011 Card		2116	3363	2627
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
Wiring				

MAP 0511-E BEGINS

Table 176. MAP 0511-E for +5V Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 176. MAP 0511-E for +5V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ593** on the DC 2 Power Supply and PJ513 on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. (continued on next page)		

Table 176. MAP 0511-E for +5V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	• Power on the printer, to see if the error is still present. If the error occurs again, continue with the next step. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the B1 Board Cover and remove each card, one at a time. • Power on the printer after each card is removed. This process will determine if one of the cards is defective and is causing the 5 V dc Power Supply to shut down. **Did you find a bad card?**	• Install a new card in the location where you found the defective card. @	Go to Step 2.
Step 2.	There may be a short in the wiring, so do the following: • The +5 V dc voltage goes to the following cards after leaving the B1 Board: – Toner Control Card (PCxxx) – Stacker Control Card (SCxxx) – YS011 Card – Fuser Control Card (FSxxx) – Maintenance Panel • Power off the printer. • Remove the +5 V dc wire from each of the above cards, one at a time, and then power on the printer to see if the +5 V dc Alarm LED comes on again. **Does the Printer power-on after any of the wires are removed?**	• Install a new card in the location where you found the defective card. @	Go to Step 3.

Table 176. MAP 0511-E for +5V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check each of the +5 V dc wires removed from the cards above for a short to ground between the card and the +5 V dc pins of PJ470 on the pin side of the B1 Board. **Did you find a short to ground?**	• Repair the short circuit as needed.	There may be an open circuit causing this problem. Check for continuity between the following points: • PJ511-5 on the SQ081/SQ082 Card to PJ594-1 on the DC 2 Power Supply • PJ513-13 on the SQ081/SQ082 Card to PJ593-7 Repair the open circuit. If there is no open, install the following, one at a time: • DC 2 Power Supply • SQ081/SQ082 Card (the detection circuit could be bad) @

MAP 0511-F for +12V Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply		2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Beam Detect Card (BDxxx)		Printhead Links		
Toner Control Card PCxxx		2053	3199	2402
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
Toner Empty Sensor (S106)		2068	3257	2414
Wiring				

MAP 0511-F BEGINS

Table 177. MAP 0511-F for +12V Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 177. MAP 0511-F for +12V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ593** on the DC 2 Power Supply and PJ513 on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer to see if the error is still present. **Do you still get the same error?**	Go to Step 2.	Apparently a loose connector caused the problem.

Table 177. MAP 0511-F for +12V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 2.	There appears to be a short to ground in the +12 V dc circuit. Do the following: • Check for a short circuit in the +12 V dc network as described below. The +12 V dc voltage comes from the DC 2 Power Supply and is distributed, via the B1 board, to the Toner Control Card (PCxxx) and then to the Beam Detect Card (BDxxx) and Toner Empty Sensor (S106). • Turn off Circuit Breaker (CB501). • Unplug connector PJ470 from the B1 Board. • Place a meter lead on J470-3 (on B1 board) and measure the resistance to ground. **Does the meter indicate a short to ground (less than 5 ohms)?**	Go to Step 4.	Go to Step 3.
Step 3.	• Unplug PJ505 and check P470-3 (with PJ470 still disconnected) to see if it is shorted to ground. **Is it shorted?**	• Repair the shorted wire between PJ505-2 and PJ470-3.	• Check the following for an open circuit: – PJ513-12 on the SQ081/SQ082 Card to PJ593-6 on the DC 2 Power Supply. • If the circuit is good, continue. • Install the following, one at a time: – DC 2 Power Supply – SQ081/SQ082 Card @

Table 177. MAP 0511-F for +12V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Leave the meter lead on J470-3. • Unplug PJ136 on the Toner Control Card (PCxxx) near the Fine Filter. **Does the meter still show a short to ground?**	Go to Step 6.	Go to Step 5.
Step 5.	• Unplug PJ212 on the Beam Detect Card (BDxxx). • With PJ136 unplugged, measure PJ136-31 for a short to ground. **Does the meter indicate a short to ground?**	• Repair the short between PJ136-31 and PJ212-19.	• Install a new Beam Detect Card (BDxxx). @
Step 6.	• Leave the meter lead on J470-3. • Unplug PJ135 on the Toner Control Card (PCxxx) near the Fine Filter. **Does the meter still show a short to ground?**	Go to Step 8.	Go to Step 7.
Step 7.	• Leave the meter lead on J470-3. • Unplug PJ113 on the developer. • With PJ135 unplugged, measure PJ135-36 for a short to ground. **Does the meter indicate a short to ground?**	• Repair the short between PJ135-36 and PJ113-6.	• Install a new Toner Empty Sensor (S106) or repair short between PJ113-6 and PJ111-1. @
Step 8.	• Unplug PJ464 on the left side of the card side of the B1 Board. **Does the meter indicate a short to ground?**	The B1 Board appears to have a short. • Install a new B1 Board. @	Go to Step 9.

Table 177. MAP 0511-F for +12V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 9.	• Unplug PJ1003 on the Toner Control Card (PCxxx) near the Fine Filter. • Place the meter on PJ1003-69/-71 and check for a short to ground. **Note:** Lines 69 and 71 are in parallel. Check each line for a short to ground. **Does the meter indicate a short to ground?**	• Repair the short circuit between PJ1003-69/-71 and PJ464-69/-71.	• Install a new Toner Control Card (PCxxx). @

MAP 0511-G for -12V ALARM

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply		2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Beam Detect Card (BDxxx)		Printhead Links		
Toner Control Card PCxxx		2053	3199	2402
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
Wiring				

MAP 0511-G BEGINS

Table 178. MAP 0511-G for -12V ALARM

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 178. MAP 0511-G for -12V ALARM (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and the DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ593** on the DC 2 Power Supply and PJ513 on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer to see if the error is still present. **Do you still get the same error?**	Go to Step 2.	Apparently a loose connector caused the problem.

Table 178. MAP 0511-G for -12V ALARM (continued)

Step	Questions/Actions	Yes	No
Step 2.	There appears to be a short to ground in the -12 V dc circuit. Do the following: • Check for a short circuit in the -12 V dc network as described below. The -12 V dc voltage comes from the DC 2 Power Supply and is distributed, via the B1 logic board, to the Toner Control Card (PCxxx) and then to the Beam Detect Card (BDxxx). • Turn off Circuit Breaker (CB501). • Unplug connector PJ470 on the the B1 Board. • Place a meter lead on J470-6 on the B1 Board and measure the resistance to ground. **Does the meter indicate a short to ground (less than 5 ohms)?**	Go to Step 4.	Go to Step 3.
Step 3.	• Unplug PJ505 and check P470-6 with connector PJ470 still disconnected to see if it is shorted to ground. **Is it shorted?**	• Repair the shorted wire between PJ505-8 and PJ470-6.	• Check the following for an open circuit: – PJ513-11 on the SQ081/SQ082 Card to PJ593-5 on DC 2 Power Supply. • If the circuit is good, continue. • Install the following one at a time: – DC 2 Power Supply – SQ081/SQ082 Card @

Table 178. MAP 0511-G for -12V ALARM (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Leave the meter lead on J470-6. • Unplug PJ136 on the Toner Control Card (PCxxx) near the Fine Filter. **Does the meter still show a short to ground?**	Go to Step 6.	Go to Step 5.
Step 5.	• Unplug PJ212 on the Beam Detect Card (BDxxx). • With PJ136 unplugged, measure PJ136-27 for a short to ground. **Does the meter indicate a short to ground?**	• Repair the short between PJ136-27 and PJ212-15.	• Install a new Beam Detect Card (BDxxx). @
Step 6.	• Unplug PJ464 on the left side of the card side of the B1 Board. **Does the meter indicate a short to ground?**	The B1 Board appears to have a short. • Install a new B1 Board. @	Go to Step 7.
Step 7.	• Unplug PJ1003 on the Toner Control Card (PCxxx) near the Fine Filter. • Place the meter on PJ1003-70/-72 and check for a short to ground. **Note:** Lines 70 and 72 are in parallel. Check each line for a short to ground. **Does the meter indicate a short to ground?**	• Repair the short circuit between PJ1003-70/-72 and PJ464-70/-72.	• Install a new Toner Control Card (PCxxx). @

MAP 0511-H for +24VD Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply		2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
B1J1, B1J3, B1J5, B1J9 Card		B1 Logic Card Links		
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
Wiring				

MAP 0511-H BEGINS

Table 179. MAP 0511-H for +24VD Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 179. MAP 0511-H for +24VD Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Power off the printer. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on DC 1 Power Supply and the DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ594** on the DC 2 Power Supply and PJ514 on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer, to see if the error is still present. If the error occurs again, continue with the next step. • Power off the printer. • Remove the B1 Board Cover and remove each of the following cards one at a time: – B1J1 Card – B1J3 Card – B1J5 Card – B1J9 Card • Power on the printer after each card is removed. This process will determine if one of the cards is defective and is causing the 24 V dc Power Supply to shut down. (continued on next page)		

Table 179. MAP 0511-H for +24VD Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Did you find a bad card?**	• Install a new card or component in the location where you found the defective card. @	Go to Step 2.

Table 179. MAP 0511-H for +24VD Alarm (continued)

Step	Questions/Actions	Yes	No
Step 2.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** • Check for a short circuit in the +24 V dc network. The +24 V dc voltage goes to the following components and cards besides those in the B1 Board: – Secondary Erase Lamp Starter (ST101) – Primary Erase Lamp Starter (ST102) – AOM Driver (AM202) – AOM Driver (AM203) (Two-Beam Printhead) – AOM Driver (AM204) (Four- and Five-Beam Printhead) – AOM Driver (AM205)(Four- and Five-Beam Printhead) – AOM Driver (AM206) (Five-Beam Printhead) – Hot Roll Control Card HR091 – Relay Board RB091/RB092 – Relay Board (RB101) – Cleaner Housing Motor (M106) – Steering Motor (M601) – Shutter Control Motor (M602) – Pendulum Motor (M704) – Oiler-Belt Motor (M706) – Stacker Length Motor (M707) – Relay (K601) – Usage Meter (L401) (continued on next page)		

Table 179. MAP 0511-H for +24VD Alarm (continued)

Step	Questions/Actions	Yes	No
Step 2 (cont.)	• Check for a short circuit (cont.): – Oil Pump 1 (L701) – Oil Pump 2 (L702) – Oil Pump 3 (L703) – Oil Pump 4 (L704) – Oil Pump 5 (L705) – Oil Pump 6 (L706) – Stacker Control Card (SCxxx) – SQ081/SQ082 Card **Note:** Have the customer remove power at the Circuit Breaker before unplugging the Power Cord. **Did you find a short to ground?**	• Repair the short circuit.	Check the following for an open circuit: • PJ514-7 on the SQ081/SQ082 Card to PJ594-7 on the DC 2 Power Supply. • If the circuit is good, continue. • Install the following, one at a time: – DC 2 Power Supply – SQ081/SQ082 Card @

MAP 0511-I for +24VB Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1J1, B1J3, B1J5 Card		B1 Logic Card Links		
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
Wiring				

MAP 0511-I BEGINS

Table 180. MAP 0511-I for +24VB Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 180. MAP 0511-I for +24VB Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ594** on the DC 2 Power Supply and PJ514 on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer, to see if the error is still present. If the error occurs again, continue with the next step. • Power off the printer. • Remove the B1 Board Cover at the rear of the printer and remove each of the following cards, one at time. – B1J1 Card – B1J3 Card – B1J5 Card • Power on the printer after each card is removed. This process will determine if one of the cards is defective and causing the +24 VB Power Supply to shut down. (continued on next page)		

Table 180. MAP 0511-I for +24VB Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Did you find a bad card?**	• Install a new card in the location where you found the defective card. @	Go to Step 2.
Step 2.	**Does the 24 VB Alarm LED still light?**	• Install a new SQ081/SQ082 Card. @	There appears to be a short to ground somewhere on the B1 Board. • Look for something on the pin side of B1, such as staples or pieces of wire that might be shorting out the 24 VB voltage. If you find nothing, you may have to change the B1 Board.

MAP 0511-J for +24VE ALARM

Symptom Explanation	Conditions That Could Cause This Symptom
The 24 VE Alarm LED turns on.	1. Defective Toner Control Card (PCxxx) 2. Defective Fuser Control Card (FSxxx) 3. Defective DC 2 Power Supply 4. Defective Relay Board RB091/RB092 5. Defective SQ081/SQ082 Card 6. Defective Hot Roll Control Card HR091 7. Defective B1J9 Card 8. Short/open circuit in the voltage/thermal network

REFERENCES

- Wiring Diagrams -
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)
  WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
  WD31 - AC Motors (M603, M605, M606 & M609)
  WD33 - AC Motors (M604, M701, M702 & M803)
  WD38 - Printer DC Power Distribution (Printers without M610)
  WD42 - Laser Modulator and Beam Detect (Single Beam Printhead)
  WD65 - Fuser Sensors (FSxxx)
  WD66 - Preheat Control

FIX VERIFICATION

- POR the Printer (see Power-On Reset).

QUICK CHECKS

- Visually inspect all cabling in the circuit, especially in **PJ594** on the DC 2 Power Supply, and PJ514 on the SQ081/SQ082 Card mounted on the AC Power Supply.

SERVICE CHECKS

- POR the Printer (Power-On Reset).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
SQ081/SQ082 Card	50%	2142	3507 (200 V) 3509 (400 V)	2642
Toner Control Card PCxxx	20%	2053	3199	2402
Fuser Control Card FSxxx	10%	2131	3499	2528
DC 2 Power Supply	05%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
Hot Roll Control Card HR091	05%	2064	3397	2534
Wiring	05%			
Relay Board RB091/RB092	05%	2135, 2136	3501	
High Voltage Power Supply	%	2059	3205	2328

MAP 0511-J BEGINS

Table 181. MAP 0511-J for +24VE Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	The 24VE voltage is used in the Motor Thermal Network of the Printer. A defective card probably caused this error. If the new cards listed do not fix the problem, then the cause is probably a pinched wire in the Thermal Network. Refer to the Wiring Diagrams for references to all of the Motor Thermal circuits to find the short circuit. Note "24VE" and all "TH" line names to determine where to check for the short circuit.		

MAP 0511-K for +24VH Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply	50%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
High Voltage Power Supply	%	2059	3205	2328
Wiring				

MAP 0511-K BEGINS

Table 182. MAP 0511-K for +24VH Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 182. MAP 0511-K for +24VH Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ593** on the DC 2 Power Supply and **PJ513** on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer to see if the error is still present. If the error occurs again, continue with the next step. • SHUTDOWN AND POWER OFF THE PRINTER. This error may be caused by a shorted High Voltage Power Supply. To determine if this is the cause, it will be necessary to do the following steps: – Open the Printer Center Rear Cover. – Unplug Connector PJ116 at the High Voltage Power Supply and using a pin pusher tool, push out PJ116-1. – Replug Connector PJ116. – Power on the printer. (continued on next page)		

Table 182. MAP 0511-K for +24VH Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Does the 24VH Alarm LED come on again? (SRC 211 may be displayed. If it is, ignore it and answer this question No.)**	Do the following, one at a time. Check the following for an open circuit: • PJ513-8 on the SQ081/SQ082 Card to PJ593-2 on DC 2 Power Supply. • PJ513-9 to PJ593-3 on the DC 2 Power Supply. • PJ513-10 to PJ593-4 on the DC 2 Power Supply. • Check for a short to ground between PJ116-1 and PJ507-6 on the DC 2 Power Supply. If the Wiring checks OK, continue on. • Install a new DC 2 Power Supply. • Install a new SQ081/SQ082 Card. (The detection circuit could be bad.) @	• Install a new High Voltage Power Supply. @

MAP 0511-L for +42V Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply	50%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
B1J1, B1J3 or B1J5Card		B1 Logic Card Links		
SQ081/SQ082 Card	04%	2142	3507 (200 V) 3509 (400 V)	2642
Wiring				

MAP 0511-L BEGINS

Table 183. MAP 0511-L for +42V Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 183. MAP 0511-L for +42V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ591** on the DC 1 Power Supply and PJ513 on the SQ081/SQ082 Card. • Check connector PJ508 on the left side of the AC Power Supply for pushed pins or a bad connection. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer to see if the error is still present. If the error occurs again, continue with the next step. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the B1 Board cover at the rear of the printer and remove each of the following cards, one at a time: – B1J1 Card – B1J3 Card – B1J5 Card • Power on the printer after each is removed. This process will determine if one of the cards is defective and is causing the the 42 V dc Power Supply to shut down. (continued on next page)		

Table 183. MAP 0511-L for +42V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Did you find a bad card?**	• Install a new card in the location where you found the defective card. @	Go to Step 2.
Step 2.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Do the following: – Turn off Circuit Breaker (CB501). – Replug all cables on the Power Supplies. – Leave the cover of the AC Power Supply open. – Turn on Circuit Breaker (CB501). – Power on the printer. – Carefully measure the voltage at PJ561-1 on the DC 2 Power Supply before the error occurs again. The error may occur 5 to 10 seconds after you power on. **Does the voltage measure approximately 15 V dc or greater?**	Go to Step 3.	• Install a new DC 2 Power Supply. @

Table 183. MAP 0511-L for +42V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Carefully measure the voltage at PJ562-1 on the DC 1 Power Supply before the error occurs. **Is the voltage approximately 15 V dc or greater?**	Check the following for an open circuit: • PJ513-15 on the SQ081/SQ082 Card to PJ591-6 on the DC 1 Power Supply. • If the circuit is good, continue. • Install the following, one at a time: – DC 1 Power Supply – SQ081/SQ082 Card @	• Repair the open circuit between PJ561-1 and PJ562-1. • Ensure that PJ561-2 to PJ562-2 is also making a good connection.

MAP 0511-M for +5VM/+12VM/+140V/+260V Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
Toner Control Card PCxxx		2053	3199	2402
DC 1 Power Supply		2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637
DC 2 Power Supply		2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
B1J8 Card		B1 Logic Card Links		
Mirror Motor (M201)		Printhead Links		
Mirror Motor Driver Board (MDxxx)		Printhead Links		
Short in wiring				

Note: For Single Beam Printhead @ 150 PPM, +140 V is present. For Single Beam & Two Beam Fixed Resolution Printheads @ 229 PPM, +260 V is present. For Four and Five Beam Printheads, +120 V is present. For Two Beam Switchable Resolution Printheads printers, +140 V is present.

Table 184. MAP 0511-M for +5VM/+12VM/+140V/+260V Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ504 on the right side of the AC Power Supply to isolate the Mirror Motor, Mirror Motor Driver Board (MDxxx) and Cables. • Reset Circuit Breaker (CB501). • Power on the printer. **Does the error occur again?**	Go to Step 2.	Go to Step 5.

Table 184. MAP 0511-M for +5VM/+12VM/+140V/+260V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 2.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Check all connectors on the DC 1 Power Supply and DC 2 Power Supply to ensure that they are seated correctly. Check for pushed pins in connectors, especially in **PJ591** on the DC 1 Power Supply and PJ513 on the SQ081/SQ082 Card. • Close the cover of the AC Power Supply and reconnect PJ510, PJ515, and PJ517. • Power on the printer to see if the error is still present. **Do you still get the same error?**	Go to Step 3.	Apparently a loose connector caused the problem.

Table 184. MAP 0511-M for +5VM/+12VM/+140V/+260V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Turn off Circuit Breaker (CB501). • Replug all cables on the Power Supplies. • Leave the cover of the AC Power Supply open. • Turn on Circuit Breaker (CB501). • Power on the printer. • Carefully measure the voltage at PJ563-1 on the DC 2 Power Supply before the error occurs again. The error may occur 5 to 10 seconds after power on. **Is the voltage approximately 15 V dc or greater?**	Go to Step 4.	• Install a new DC 2 Power Supply. @

Table 184. MAP 0511-M for +5VM/+12VM/+140V/+260V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Carefully measure the voltage at PJ564-1 on DC 1 Power Supply before the error occurs again. The error may occur 5 to 10 seconds after power on. **Does the voltage measure approximately 15 V dc or greater?**	Check the following for an open circuit: • PJ513-6 on the SQ081/SQ082 Card to PJ591-3 on the DC 1 Power Supply. • PJ513-7 to PJ591-4 • If the circuit is good, continue. • Install the following, one at a time: – DC 1 Power Supply – SQ081/SQ082 Card @	• Repair the open circuit between PJ563-1 and PJ564-1. • Ensure that PJ563-2 to PJ564-2 is also making a good connection.

Table 184. MAP 0511-M for +5VM/+12VM/+140V/+260V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 5.	• SHUTDOWN AND POWER OFF THE PRINTER. • Plug in PJ504. • Remove the inside cover on the right side of the Developer. • Remove the cover over the Mirror Motor Driver Board (MDxxx). • Unplug PJ225 on the Mirror Motor Driver Board (MDxxx). • Power on the printer. **Does the error occur again?**	Go to Step 6.	Check the following for an open circuit: • PJ1003-51 on the Toner Control Card (PCxxx) to PJ464-51 on the B1 Board • PJ464-51 on the B1 Board to B1J8-A78 • For printers with MD141 Board, PJ226-5 on the Mirror Motor Driver Board (MDxxx) to PJ1007-34 on the Toner Control Card (PCxxx) • For printers with a MD192 Board ; PJ262-41 on the Mirror Motor Driver Board (MDxxx) to PJ1020-15 on the PC551 Card If the circuits are good, install the following, one at a time: • Mirror Motor (M201) • Mirror Motor Driver Board (MDxxx) • Toner Control Card (PCxxx) • B1J8 Card @

Table 184. MAP 0511-M for +5VM/+12VM/+140V/+260V Alarm (continued)

Step	Questions/Actions	Yes	No
Step 6.	• SHUTDOWN AND POWER OFF THE PRINTER. • Plug in PJ225. • Unplug PJ224 • Reset Circuit Breaker (CB501). • Power on the printer. **Does the error occur again?**	Check the following cable for a short to ground: • PJ504 to PJ224. • Repair or replace the cable.	• Install a new Mirror Motor Driver Board (MDxxx). @

MAP 0511-N

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Printer AC Power Supply	%	2084	3507 (200V) 3509 (400V)	2635
AC Power Supply Cooling Fan (B501)	%	2084	3507 (200V) 3509 (400V)	
SQ081/SQ082 Card	04%	2142	3507 (200 V) 3509 (400 V)	2642
Short in wiring	01%			

MAP 0511-N BEGINS

Table 185. MAP 0511-N for the Transformer Thermal Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 185. MAP 0511-N for the Transformer Thermal Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<7> Line voltage is present when the printer is powered-off. Disconnect the power cord before working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Hold your hand above Transformer (T501) and Transformer (T502) to feel for excessive heat. Do not touch the Transformers. **Are either of the Transformers hotter than usual?**	Go to Step 3.	Go to Step 2.
Step 2.	• Unplug the connector PJ512 from the SQ081/SQ082 Card • Measure for continuity of the Thermal Circuit of both Transformers (PJ512-8 to -9). **Do the thermals show continuity?**	• Install a new SQ081/SQ082 Card.	The thermals are built into the transformers and they cannot be replaced. • Install a new AC Power Supply @

Table 185. MAP 0511-N for the Transformer Thermal Alarm (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check the Power Supply Filter. **Is the filter clogged?**	• Clean the filter. @	Go to Step 4.
Step 4.	• Check to see if the AC Power Supply Cooling Fan (B501) is operating. **Is the fan operating correctly?**	• Install a new AC Power Supply. @	• Install a new AC Power Supply Cooling Fan (B501). @

MAP 0511-O for Soft Start Resistor Thermal Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642
SR081 Card		2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643
Thermal Switch (TH501 or TH502)		2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Relay (K503)	%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Wiring	01%			

MAP 0511-O BEGINS FOR SOFT TH ALARM

Note: This problem is usually caused by a defective relay K503. Remove and examine relay K503. Reinstall K503 if it is not defective and continue with this MAP.

Table 186. MAP 0511-O for Soft Start Resistor Thermal Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 186. MAP 0511-O for Soft Start Resistor Thermal Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	 **DANGER** **<7> Line voltage is present when the printer is powered-off. Disconnect the power cord before working in this area.** • SHUTDOWN AND POWER OFF THE PRINTER. • Power off the printer for about 5 minutes and then power on until the error occurs again. • Power off the printer. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Turn off CB501 on the front of the AC Power Supply. • Unplug PJ510, PJ515, and PJ517 from the SQ081/SQ082 Card and open the Printer AC Power Supply Cover. • Hold your hand above the Soft Start Resistors and check for excessive heat. Do not touch the Resistors. **Are any of the Resistors very hot?**	Go to Step 3.	Go to Step 2.

Table 186. MAP 0511-O for Soft Start Resistor Thermal Alarm (continued)

Step	Questions/Actions	Yes	No
Step 2.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** • Allow the soft start resistors to cool enough so that the thermal switch will close and not cause the error. • Unplug connector PJ512. • Measure for continuity of the thermal circuit on PJ512-10 and -11 on the thermal side of the connector. **Note:** Have the customer remove power at the circuit breaker before you unplug the power cord. **Is there continuity?**	Do the following, one at a time: • Check continuity of the wiring from PJ578 to PJ512-10 and PJ512-11 on the SQ081/SQ082 Card. Repair if necessary. • Install a new SQ081/SQ082 Card. @	• Measure both thermal switches (TH501 or TH502) to determine which one is open. • Install a new thermal switch (TH501 or TH502) to replace the defective one. @

Table 186. MAP 0511-O for Soft Start Resistor Thermal Alarm (continued)

Step	Questions/Actions	Yes	No
Step 3.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Plug in PJ510, but leave the AC Power Supply Cover open. • Turn on CB501, but do not power on the printer. • Measure the voltage between PJ528-1 and PJ527-1 on the SR081 Card. **Does the voltage measure between 180 and approximately 200 V ac?**	Go to Step 4.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** • SHUTDOWN AND POWER OFF THE PRINTER. • Check Connector PJ527 to ensure that it is plugged correctly and there are no pushed pins. • Check the wiring for continuity between PJ527 and Transformer (T503). • Repair as necessary. **Note:** Have the customer remove power at the Circuit Breaker before you unplug the Power Cord.

Table 186. MAP 0511-O for Soft Start Resistor Thermal Alarm (continued)

Step	Questions/Actions	Yes	No
Step 4.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Power on the printer. • Measure the voltage between PJ529-3 and PJ527-1 on the SR081 Card. **Does the voltage change from the voltage measured above to 0 V soon after power on?**	• Check the wiring and connectors between PJ529-3 and Relay (K503) for continuity. • If the wiring checks OK, install a new Relay (K503). @	Do the following: • Check for an open between PJ526-9 and PJ511-2. Repair if necessary. • If the wiring checks are OK, continue by installing the following one at a time: – SR081 Card – SQ081/SQ082 Card @

MAP 0511-P for Mirror Motor Thermal Alarm

Symptom Explanation	Conditions That Could Cause This Symptom
The MIRROR TH LED turns on.	• PJ510 unplugged on the SQ081/SQ082 Card mounted on the AC Power Supply. • Jumper Wire in PJ510-11 and 12 not making contact. • Defective SQ081/SQ082 Card

REFERENCES

- Wiring Diagrams - WD25 - Printer Sequence Card (Single Beam Printhead)

FIX VERIFICATION

- POR the Printer (see Power-On Reset).

QUICK CHECKS

- Visually inspect PJ510 on the SQ081/SQ082 Card mounted on the AC Power Supply.

SERVICE CHECKS

- POR the Printer (see Power-On Reset).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
PJ510	95%	2142		
SQ081/SQ082 Card	05%	2142	3507 (200 V) 3509 (400 V)	2642

Informational Note

The mirror motor does not have a thermal. The thermal circuits are jumpered out as described below.

Table 187. MAP 0511-P for Mirror Motor Thermal Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	The Mirror Motor Thermal does not exist. The most likely cause of this error is that Connector PJ510 on the SQ081/SQ082 Card is unplugged. Do the following, in order: • SHUTDOWN AND POWER OFF THE PRINTER. • Open the Printer Right Front Cover and remove the outer AC Power Supply Cover. • Check PJ510 on the SQ081/SQ082 Card and ensure that it is plugged in correctly and no pins are pushed back. Check PJ510-11 and 12 first to ensure that the jumper is making good contact. Repair if necessary. • Install a new SQ081/SQ082 Card. @		

MAP 0511-Q for the Speed Select Alarm

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 1 Power Supply	50%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637
Mirror Motor Driver Board (MDxxx)	%	Printhead Links		
SQ081/SQ082 Card		2142	3507 (200 V) 3509 (400 V)	2642

MAP 0511 BEGINS FOR SPEED SELECT ALARM

Note: When the printer runs at 150 PPM, the mirror motor voltage is +140 V. This alarm is detected when the +140V mirror motor voltage exceeds 177.8 V.

Table 188. MAP 0511–Q for the Speed Select Alarm

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 188. MAP 0511–Q for the Speed Select Alarm (continued)

Step	Questions/Actions	Yes	No
Step 1.	• If the error is caused by a high mirror motor voltage: – Replace the DC1 power supply. • If the error is detected even though the +140 V is normal, replace the following FRUs one at a time: – Mirror Motor Driver Board (MDxxx) – SQ081 Card @		

MAP 0514: B1 Logic Gate Thermal Problem

Symptom Explanation	Conditions That Could Cause This Symptom
The B1 logic board is excessively hot.	• The cooling fans are defective. • The B1 board covers are not installed or are installed incorrectly. • The thermals on B1J1 Card and B1J3 Card are defective. • The error-detection circuitry is defective. • An error line on one of several cards may be defective.

REFERENCES

- Circuit Diagrams - CD104 - B1 Logic Gate Thermal
- Wiring Diagrams -
  WD26 - 200 VAC Blowers (Single Beam Printhead)
  WD26.1 - 200 VAC Blowers (Multi Beam Printhead)

FIX VERIFICATION

- POR the printer to see if the error occurs again (see Power-On Reset).

QUICK CHECKS

- Visually inspect the logic gate fans and wiring.

SERVICE CHECKS

- POR the printer (see Power-On Reset). An error is indicated by **E0dE** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
B1 Board Fan (B403)	79%	2057	3493	
B1J1 Card	07%	B1 Logic Card Links		
B1J3 Card	07%	B1 Logic Card Links		
B1J9 Card	02%	B1 Logic Card Links		
B1J7 Card	02%	B1 Logic Card Links		
B1J10 Card	01%	B1 Logic Card Links		
B1J8 Card	01%	B1 Logic Card Links		
Logic Gate Covers	01%		3189	

MAP 0514 BEGINS

Table 189. MAP 0514

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Is the B1 Board Fan (B403) turning?**	Go to Step 3.	Go to Step 2.
Step 2.	• Measure the voltage between PJ439-1 and PJ439-2 on the fan connector. **Is the voltage approximately 200 V ac?**	• Install new fans as necessary. @	Repair the cause of the missing voltage.
Step 3.	Without touching the transistor heat sinks on the cards in B1J1 and B1J3, try to determine which card is the hottest. **Is either card hotter than usual?**	• If J1 is hotter, install a new B1J1 Card. • If J3 is hotter, install a new B1J3 Card. @	• Install a new B1J9 Card. @

MAP 0515: 24 VD Power Supply Is Off

Symptom Explanation	Conditions That Could Cause This Symptom
The 24 VD Power Supply turns off.	• The DC Unit 2 fails. • The DC Unit 2 Drive circuit is defective. • The Error Detection circuitry is defective. • An Error line on one of several cards may be defective.

REFERENCES

- Wiring Diagrams -
  WD16 - Printer AC Power Supply - (200/208/220/230/240V)
  WD18 - Printer AC Power Supply - (380/400/415V)
  WD24 - Printer DC Power Units and Sequence Card
  WD25 - Printer Sequence Card (Single Beam Printhead)
  WD38 - Printer DC Power Distribution (Printers without M610)

FIX VERIFICATION

- POR the printer to see if the error occurs again (see Power-On Reset).

QUICK CHECKS

- Visually inspect the wiring and Connectors into DC Unit 2.
- Ensure that the B1J9 Card is seated correctly.

SERVICE CHECKS

- POR the printer (see Power-On Reset). An error is indicated by **E0dF** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
DC 2 Power Supply	70%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641
B1J9 Card	20%	B1 Logic Card Links		
SQ081/SQ082 Card	07%	2142	3507 (200 V) 3509 (400 V)	2642
Voltage Jumper PJ520	02%			
Relay (K505)	01%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	

MAP 0515 BEGINS

This MAP fixes problems associated with the loss of the 24 VD supply.

Important

There are times when you will be asked to “Open the Printer AC Power Supply” to measure voltages. It will be necessary to loosen the clamps that hold the cable that goes to PJ510 on the SQ081/SQ082 Card. This allows the cover to be opened with PJ510 connected. The cover should be supported so that there is no strain on the cable.

Table 190. MAP 0515

Step	Questions/Actions	Yes	No
	DANGER **<5> High-voltage is present. Use care while working in this area.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit’s Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 190. MAP 0515 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Unplug PJ510. • Open the Printer AC Power Supply. • Remove the Right Input Bin Cover and check PJ507 on the left side of the AC Power Supply to ensure correct connection. • Check connector PJ594 on the DC 2 Power Supply to ensure that it is connected correctly and that there are no pushed pins. Also check PJ514 on the SQ081/SQ082 Card. • Close the AC Power Supply Cover and plug in PJ510. • Reset Circuit Breaker (CB501) and power on the printer. • Measure the voltage between PJ471-10 and 11 to ground before the error occurs. **Is the voltage aproximately 24 V dc?**	Go to Step 2.	Go to Step 3.
Step 2.	• Ensure that the Voltage Jumper PJ520 on the left side of the AC Power Supply, as you look at the front of the printer, is plugged correctly. • Check the wiring and connectors from PJ507 through PJ471 to B1J9-B97 and B98. **Is the wiring OK?**	• Install a new B1J9 Card. @	• Repair as necessary.

Table 190. MAP 0515 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Power off the printer. • Check Jumper Plug PJ520 on the left side of the AC Power Supply to ensure that it is plugged correctly. If it is OK, continue with the next step. • Power on the printer. • Measure the voltage at PJ514-9 on the SQ081/SQ082 Card before the error occurs. **Is the voltage 24 V dc?**	Go to Step 4.	Check connectors and wiring for continuity as follows: • PJ510-1 on the SQ081/SQ082 Card to PJ481-3 on the B1 Board. • PJ510-2 to PJ481-4 • PJ510-7 to PJ481-2 • PJ514-8 on the SQ081/SQ082 Card to PJ594-8 on the DC 2 Power Supply. • PJ514-9 on the SQ081/SQ082 Card to PJ594-9. • PJ483-3 and PJ483-4 • PJ6008-3 and PJ6008-4 • If the wiring checks OK, install the following: – SQ081/SQ082 Card – DC 2 Power Supply @
Step 4.	• Power off the printer. • Remove the DC 2 Power Supply. • Check the Fuse on the 24VD card in the DC 2 Power Supply. **Is the Fuse OK?**	• Install a new DC 2 Power Supply. @	Go to Step 5.

Table 190. MAP 0515 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Install a new Fuse. • POR the Printer to see if the error occurs again (see Power-On Reset). @ **Does the Fuse blow again?**	Trace the circuits to determine what is causing the short circuit.	The problem was the blown fuse.

MAP 0516: PJ136 Disconnected

Symptom Explanation	Conditions That Could Cause This Symptom
The PJ136 Connector is unplugged or defective.	• There is no continuity between PJ136-1 and -2 • The detection circuit is defective.

REFERENCES

- Circuit Diagrams - CD106 - PJ136 Jumper
- Wiring Diagrams - WD42 - Laser Modulator and Beam Detect (Single Beam Printhead)

FIX VERIFICATION

- POR the printer (see Power-On Reset).

QUICK CHECKS

- Visually inspect Connector PJ136 to ensure correct connection, especially pins 1 and 2.

SERVICE CHECKS

- POR the printer (see Power-On Reset). An error is indicated by **E0EO** on the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Control Card PCxxx	75%	2053	3199	2402

MAP 0516 BEGINS

Table 191. MAP 0516

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• SHUTDOWN AND POWER OFF THE PRINTER. • Open the Left Rear Cover. • Check PJ136 on the Toner Control Card (PCxxx) to ensure that it is correctly connected. **Is it connected correctly?**	Go to Step 2.	• Repair as needed or ensure that it is plugged correctly.
Step 2.	 **DANGER** **<6> When measuring resistance or verifying contiuity, power off the printer and unplug the power cord.** • Check for continuity of the Jumper between PJ136 pins 1 and 2. **Is there continuity?**	• Install a new Toner Control Card (PCxxx). @	• Repair as necessary.

MAP 0600: Printer Interface Map

Symptom Explanation	Conditions That Could Cause This Symptom
An error has occurred on the interface between the printer and the control unit.	• The B1J11 Card is defective • The Mechanism Interface Card (MIC) is defective. • The interface cables or connectors are defective. • Electrical noise can cause various 06XX errors. Sources of electrical noise are: – Coronas (especially the preclean) – Erase Lamps – Erase Lamp Starter – Drum Ground • The open/closed state of a switch is changing too rapidly for the code to report. Some switches that may have this problem are: – Stacker gate open switch (S712) Adjust or install a new switch. – Ready (S1) and Stop (S2) on the Stacker Control Panel (SW511) Ensure the cover over S1 and S2 is not contacting these switches.

REFERENCES

- Wiring Diagrams -
  WD42.2 - Laser Modulator (Two Beam Printhead)
  WD76 - MIC to Printer Control Cable (1 of 2)
  WD77 - MIC to Printer Control Cable (2 of 2)
  WD81.1 - PQE (Two Beam Printhead) (1 of 2)

FIX VERIFICATION

- Run the Printer Interface Test. For details about running this routine, see Mechanism Diagnostics.

QUICK CHECKS

If the SRC is 656, “Printer Interface Error”, look at the Maintenance Panel. If an **E0xx** error is displayed, go to MAP 0010: Symptom Start MAP and use the **E0xx** error code to find the correct MAP to use.

If the error occurs during an operator intervention, ensure that any switches associated with that operator action (for example, cover interlock switches), are adjusted and operating correctly. If you find no problem with a switch, suspect the upper or lower beam missing for the Two Beam Printhead, or microcode. Call your next level of support to see if this is a known problem. You will be asked which level of microcode and EPROM is installed.

Observe if the problem occurs just as the coronas are turned on. If so, suspect arcing.

Note: Connector PJ202 can be plugged upside down. The flat cable wires should come out of the bottom of the connector housing when the cable is plugged in correctly. If the flat cable is solid grey color with a red wire on one edge, ensure that the red wire is on the rear edge of the cable.

SERVICE CHECKS

- Check for both beams on the two beam Laser only.
- Check for electrical noise caused by the following units:
  - Coronas (especially the preclean)
  - Erase Lamps
  - Erase Lamp Starter
  - Drum Ground
- Ensure the Stacker Gate Safety Open Switch (S712) is adjusted and operating correctly.
- Ensure the cover at the right end of the Stacker Control Panel (SW511) is not bent and contacting the Ready (S1) and Stop (S2) switches.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Electrical noise (arcing)	50%			
Interface cable from PJ202 to PJJ6	20%			
Mechanism Interface Card (MIC)	20%	Control Unit Links		
B1J11 Card	08%	B1 Logic Card Links		
Cable from PJ201 to PJ401	01%			
Printer Interface Card (IFxxx))	01%	Printer Interface Links		

MAP 0600 BEGINS

Table 192. MAP 0600

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Does the printer you are working on have either a two-beam or four-beam printhead?**	Go to Step 2.	Go to Step 3.
Step 2.	**Is the error code D70B?**	For a two-beam printhead go to MAP D70B: Printhead Underrun. For a four-beam printhead, go to .	Go to Step 3.
Step 3.	**Note:** Connector PJ202 can be plugged upside down. The flat cable wires should come out of the bottom of the connector housing when the cable is plugged in correctly. If the flat cable is solid grey color with a red wire on one edge, ensure that the red wire is on the rear edge of the cable. • Run the Printer Interface Test. For details about running this routine, see Mechanism Diagnostics. **Did the test end with an error?**	Go to Step 5.	Go to Step 4.

Table 192. MAP 0600 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Do the following, one step at a time, until the problem is solved: • If the error occurs during an operator intervention, ensure that any switches associated with that operator action (for example, cover interlock switches), are adjusted and operating correctly. If you find no problem with a switch, suspect microcode or EPROM. Consult your technical support to see if this is a known problem. You will be asked which level of microcode is installed. • Observe if the problem occurs just as the coronas are turned on. If so, suspect arcing. Check for electrical noise caused by the following units: – Coronas (especially the preclean) – Erase Lamps – Erase Lamp Starter – Drum Ground – Developer **Does the problem still occur?**	Go to Step 5.	One of the above actions fixed the problem.

Table 192. MAP 0600 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Run the Mechanism Interface Card (MIC) Isolation Wrap Test. **Did the test complete without an error?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is solved: • Check the following cables for proper contact at their connectors and for any damage: – Interface cable from PJ202 to PJJ6 on the Mechanism Interface Card (MIC). – Cable PJ401 to PJ201 • Install the following new parts: – Interface cable PJ202 to PJJ6 on the Mechanism Interface Card (MIC). – Printer Logic Card B1J11 Card – Printer Interface Card (IFxxx) – Cable PJ401 to PJ201 @	• Install a new Mechanism Interface Card (MIC). @

MAP 0782: Splice Station Vacuum Switch

Symptom Explanation	Conditions That Could Cause This Symptom
The Splice Station Vacuum Lever will not move.	• The Splice Station Vacuum Lever is binding.
The SPLICE LEVER DOWN message does not reset, even though the Lever is in the 'RUN' position.	• The Splice Lever Switch (S101) is defective. • The Splice Lever Switch (S101) is out of adjustment. • The YS011 Card is defective.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD107 – Splice Lever Switch (S101)
- Wiring Diagrams - WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 68. The status of the Splice Lever Switch (S101) is indicated by the Maintenance Panel.
- Run the Alternate Print Sample to see if the error occurs during printing.

QUICK CHECKS

- Check for binds in the Splice Station Vacuum Lever.

SERVICE CHECKS

- Run Sensor Routine 68. This routine checks the status of the Splice Lever Switch (S101).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Splice Station Vacuum Lever	40%	2116	3365	
Splice Lever Switch (S101)	35%	2116	3359	2623
Splice Lever Switch (S101) adjustment	20%	2116	3359	2623
YS011 Card	05%	2116	3363	2627

MAP 0782 BEGINS

Table 193. MAP 0782

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Open and close the Splice Station Vacuum Lever to check for binds or obstructions. **Does the Splice Station Vacuum Lever open and close correctly?**	Go to Step 2.	• Repair the Splice Station Vacuum Lever.
Step 2.	• Run Sensor Routine 68. • Open and close the Splice Station Vacuum Lever while in Diagnostic mode to test the operation of the Splice Lever Switch (S101). **Does the Splice Lever Switch (S101) operate correctly?**	The problem is intermittent. • Review the QUICK CHECKS and the POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Ensure that the Splice Lever Switch (S101) is adjusted correctly. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Go to Step 3.

Table 193. MAP 0782 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. • Ensure that the Splice Station Vacuum Lever is in the **Run** position. • Disconnect connector PJ125. • Measure the resistance between P125-1 and P125-2 (the switch side of the connector). **Is there continuity between P125-1 and P125-2?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between – PJ125-1 and PJ1001-12 – PJ125-2 and PJ1001-13 • Readjust the Splice Lever Switch (S101) (see Input Area). • Install a new YS011 Card. @	• Install a new Splice Lever Switch (S101). @

MAP 0783: Transfer Station Open

Symptom Explanation	Conditions That Could Cause This Symptom
The Transfer Station will not close.	• The Transfer Station latch mechanism is broken or out of adjustment.
The TRANSFER STATION OPEN message does not reset, even though the Transfer Station mechanism is latched closed.	• The Transfer Station Open Sensor (S302) is defective. • The Transfer Station Open Sensor (S302) is out of adjustment. • The YS011 Card is defective.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD108 - Transfer Station Open Sensor (S302)
- Wiring Diagrams - WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 60. The status of the Transfer Station Open Sensor (S302) is indicated by the Maintenance Panel.
- Run the Alternate Print Sample to see if the error occurs during printing.

QUICK CHECKS

- Check for obvious problems with the Transfer Station latch mechanism.
- Check for obvious problems with the Transfer Station Open Sensor (S302) and the magnet on the Transfer Station latch arm.

SERVICE CHECKS

- Run Sensor Routine 60. This routine checks the status of the Transfer Station Open Sensor (S302).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Transfer Station Latch mechansim	40%		3337	
Transfer Station Open Sensor (S302)	35%	2055	3215	3158
Trasnsfer Station Open Sensor (S302) adjustment	20%	2055	3215	3158
YS011 Card	05%	2116	3363	2627

MAP 0783 BEGINS

Table 194. MAP 0783

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Open and close the Transfer Station to check for binds or obstructions. **Does the Transfer Station open and close correctly?**	Go to Step 2.	• Repair the Transfer Station.
Step 2.	• Check the magnet on the Transfer Station operating arm to ensure that it is not loose or missing. **Is the magnet mounted correctly?**	Go to Step 3.	• Repair or replace the magnet.

Table 194. MAP 0783 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Sensor Routine 60. • Open and close the Transfer Station while in Diagnostic mode to test the operation of the Transfer Station Open Sensor (S302). **Does the Transfer Station Open Sensor (S302) operate correctly?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Ensure that the Transfer Station Open Sensor (S302) is adjusted correctly. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Do the following, one step at a time, until the problem is corrected: • Readjust the Transfer Station Open Sensor (S302). • Check all connectors in the circuit for damage and correct seating. • Install a new Transfer Station Open Sensor (S302). • Install a new YS011 Card. • Repair an open circuit between one of the following pairs: – PJ149-1 and PJ1001-7 – PJ149-2 and PJ1001-9 – PJ149-3 and PJ1001-8 @

MAP 0784: Vacuum Is Off

Symptom Explanation	Conditions That Could Cause This Symptom
The Preheat Platen vacuum shutter does not operate when the Vacuum Switch (S606) is pressed.	• The Vacuum Switch (S606) is defective. • The Hot Roll Control Card HR091 is defective. • The Fuser Control Card (FSxxx) is defective.
The `Vacuum is Off` message is displayed after an Autoload operation failure.	• The Autoload **Stop** button was pressed after an Autoload error. This causes a reset of the maintenance panel and clears the original Autoload error. Repeat the Autoload operation to recreate the error.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD109 - Vacuum Switch (S606)
- Wiring Diagrams - WD58 - Fuser and Stacker Sensors (FSxxx & HR091)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 83. The status of the Vacuum Switch (S606) is indicated by the Maintenance Panel.
- Press the Vacuum Switch (S606) pushbutton several times and observe the Vacuum Shutter for correct operation.

QUICK CHECKS

Note: If maintenance panel error **E01b** or the `Vacuum is Off` message is displayed after an Autoload operation failure, it may be because the Autoload **Stop** button was pressed after an Autoload error. This causes a reset of the maintenance panel and clears the original Autoload error. Repeat the Autoload operation to recreate the error and use the original error indication to enter the MAPs.

- Press the Vacuum Switch (S606) pushbutton several times and check for binds in the pushbutton.

SERVICE CHECKS

- Run Sensor Routine 83. The status of the Vacuum Switch (S606) is indicated by the Maintenance Panel.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Vacuum Switch (S606)	15%	2064	3397	
Hot Roll Control Card HR091	15%	2064	3397	2534
Fuser Control Card FSxxx	05%	2131	3499	2528

MAP 0784 BEGINS

Table 195. MAP 0784

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Note:** If maintenance panel error **E01b** or the `Vacuum is OFF` message is displayed after an Autoload operation failure, it may be because the Autoload **Stop** button was pressed after an Autoload error. This causes a reset of the maintenance panel and clears the original Autoload error. Repeat the Autoload operation to recreate the error and use the original error indication to enter the MAPs. • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ6009. • Measure the resistance between P6009-16 and P6009-17 (the switch side of the connector) while you alternately press and release the Vacuum Switch (S606) pushbutton. **Is there continuity between P6009-16 and P6009-17 when you press the Vacuum Switch (S606) pushbutton?**	Go to Step 2.	Do the following, one step at a time, until the problem is corrected: • Check for an open circuit in the slip-on connectors on the back of the Vacuum Switch (S606). • Install a new Vacuum Switch (S606). @

Table 195. MAP 0784 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Is there continuity between P6009-16 and P6009-17 when you release the Vacuum Switch (S606) pushbutton?**	The Vacuum Switch (S606) is shorted or binding. Do the following, one step at a time, until the problem is corrected: • Check for a bind in the Vacuum Switch (S606) pushbutton. • Install a new Vacuum Switch (S606). @	Do the following, one step at a time, until the problem is corrected: • Check for a poor connection or bent pin on PJ6009-16 and PJ6009-17 on the Hot Roll Control Card HR091. • Install a new Hot Roll Control Card HR091. • Install a new Fuser Control Card (FSxxx). @

MAP 0785: Toner Collector Full

Symptom Explanation	Conditions That Could Cause This Symptom
The CHANGE TONER COLLECTOR message does not reset, even though the toner collector bottle has been exchanged.	• The Toner Collector Bottle Switch (S118) is defective. • The Toner Collector Bottle Switch (S118) is out of adjustment. • The Toner Control Card (PCxxx) is defective.

REFERENCES

- Removals & Adjustments - Air System
- Circuit Diagrams - CD110 - Toner Collector Bottle Switch (S118)
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 53. The status of the Toner Collector Bottle Switch (S118) is indicated by the Maintenance Panel display.
- Run the Alternate Print Sample to see if the error occurs during printing.

QUICK CHECKS

- Visually check the installation of the toner collector bottle to ensure that it is installed correctly.
- Manually operate the Toner Collector Bottle latch mechanism. Check for problems with the Toner Collector switch mechanism.

SERVICE CHECKS

- Run Sensor Routine 53. This routine checks the status of the Toner Collector Bottle Switch (S118).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Collector Bottle not installed correctly	50%			2186
Toner Collector Switch (S118) mechanism	20%	2063	3305	2187
Toner Collector Switch (S118) adjustment	15%	2063	3305	2187
Toner Collector Switch (S118)	10%	2063	3305	2187
Toner Control Card PCxxx	05%	2053	3199	2402

MAP 0785 BEGINS

Table 196. MAP 0785

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Note:** The microcode is reset every time the toner collector bottle is removed. Always install an empty toner collector bottle after you remove the toner collector bottle for any reason, to prevent the toner collector bottle from filling up before the `CHANGE TONER COLLECTOR` message occurs. • Check the installation of the toner collector bottle. **Is the toner collector bottle installed correctly?**	Go to Step 2.	• Install the toner collector bottle correctly.
Step 2.	• Operate the toner collector bottle latch mechanism to check for binds or broken parts. **Does the latch mechanism operate correctly?**	Go to Step 3.	• Correct the binding or broken latch problem.

Table 196. MAP 0785 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Sensor Routine 53 to test the Toner Collector Bottle Switch (S118). • Operate the toner collector bottle latch mechanism while in Diagnostic mode to test the operation of the Toner Collector Bottle Switch (S118). **Does the Toner Collector Bottle Switch (S118) operate correctly?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Ensure that the Toner Collector Bottle Switch (S118) is adjusted correctly. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Go to Step 4.
Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. • Ensure that the toner collector bottle latch mechanism is in the operated position to indicate that a toner collector bottle is installed. • Disconnect connector PJ191. • Measure the resistance between P191-1 and P191-2 (the switch side of the connector). **Is there continuity between P191-1 and P191-2?**	Do the following, one step at a time, until the problem is corrected: • Check the adjustment of the Toner Collector Bottle Switch (S118). • Repair an open circuit between PJ191-1 and PJ135-20 or between PJ191-2 and PJ135-21. • Install a new Toner Control Card (PCxxx). @	• Install a new Toner Collector Bottle Switch (S118). @

MAP 0786: Add Toner

Note: Use this MAP whether or not the **Enhanced Toner Loading System** is installed.

Symptom Explanation	Conditions That Could Cause This Symptom
The ADD TONER message repeats, even though the Toner Hopper has toner.	• The toner is sticking or caking in the Toner Hopper. • The Toner Empty Sensor (S106) is defective. • The Toner Control Card (PCxxx) is defective. • The Mag Brush Motor Gearbox is defective.

REFERENCES

- Removals & Adjustments -
- Circuit Diagrams - CD111 - Toner Empty Sensor (S106)
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 58. The status of the Toner Empty Sensor (S106) is indicated by the Maintenance Panel. Run at least 1200 feet of forms for a complete fix verification.

QUICK CHECKS

- Check the level of toner in the hopper.
- Check for sticking or caking toner in the hopper.
- Check for obvious problems with the Toner Empty sensor.

SERVICE CHECKS

- Run Sensor Routine 58. This routine checks the status of the Toner Empty Sensor (S106).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner sticking or caking in the Toner Hopper	65%			
Toner Empty Sensor (S106)	30%	2068	3257	2414
Toner Control Card PCxxx	05%	2053	3199	2402

MAP 0786 BEGINS

Table 197. MAP 0786

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check the level of toner in the Toner Hopper. **Is the toner level above the Toner Empty Sensor (S106)?**	Go to Step 2.	• Add toner to the Toner Hopper.
Step 2.	• Check for sticking or caking toner in the Toner Hopper. **Is the toner sticking or caking?**	• Loosen the sticking or caking toner.	Go to Step 3.
Step 3.	• Run Sensor Routine 58 to test the Toner Empty Sensor (S106). **With toner covering the sensor, does the Maintenance Panel show oF58?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Do the following, one step at a time, until the problem is corrected: • Check all connectors in the circuit for damage and correct seating. • Install a new Toner Empty Sensor (S106). • Install a new Mag Brush Motor Gearbox. • Install a new Toner Control Card (PCxxx). @

MAP 0787: Toner Collector Not Set

Symptom Explanation	Conditions That Could Cause This Symptom
The CHANGE TONER COLLECTOR message does not reset, even though the toner collector bottle has been exchanged and is installed correctly.	• The Toner Collector Bottle Switch (S118) is defective. • The Toner Collector Bottle Switch (S118) is out of adjustment. • The Toner Control Card (PCxxx) is defective.

REFERENCES

- Removals & Adjustments - Air System
- Circuit Diagrams - CD110 - Toner Collector Bottle Switch (S118)
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 53. The status of the Toner Collector Bottle Switch (S118) is indicated by the Maintenance Panel.
- Run the Alternate Print Sample to see if the error occurs during printing.

QUICK CHECKS

- Visually check the installation of the toner collector bottle to ensure that it is installed correctly.
- Manually operate the Toner Collector Bottle latch mechanism. Check for problems with the Toner Collector switch mechanism.

SERVICE CHECKS

- Run Sensor Routine 53. This routine checks the status of the Toner Collector Bottle Switch (S118).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Collector Bottle not installed correctly	50%			2186
Toner Collector Switch mechanism	20%	2063	3305	2187
Toner Collector Switch (S118)	15%	2063	3305	2187
Toner Collector Switch (S118) adjustment	10%	2063	3305	2187
Toner Control Card PCxxx	05%	2053	3199	2402

MAP 0787 BEGINS

Table 198. MAP 0787

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Note:** The microcode is reset every time the toner collector bottle is removed. Always install an empty toner collector bottle after you remove the toner collector bottle for any reason, to prevent the toner collector bottle from filling up before the `CHANGE TONER COLLECTOR` message occurs. • Check the installation of the toner collector bottle. **Is the toner collector bottle installed correctly?**	Go to Step 2.	• Install the toner collector bottle correctly.
Step 2.	• Operate the toner collector bottle latch mechanism to check for binds or broken parts. **Does the latch mechanism operate correctly?**	Go to Step 3.	• Correct the binding or broken latch problem.

Table 198. MAP 0787 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Run Sensor Routine 53 to test the Toner Collector Bottle Switch (S118). • Operate the toner collector bottle latch mechanism while in Diagnostic mode to test the operation of the Toner Collector Bottle Switch (S118). **Does the Toner Collector Bottle Switch (S118) operate correctly?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Ensure that the Toner Collector Bottle Switch (S118) is adjusted correctly. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Go to Step 4.
Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. • Ensure that the toner collector bottle latch mechanism is in the operated position to indicate that a toner collector bottle is installed. • Disconnect connector PJ191. • Measure the resistance between P191-1 and P191-2 (the switch side of the connector). **Is there continuity between P191-1 and P191-2?**	Do the following, one step at a time, until the problem is corrected: • Check the adjustment of the Toner Collector Bottle Switch (S118). • Repair an open circuit between PJ191-1 and PJ135-20 or between PJ191-2 and PJ135-21. • Install a new Toner Control Card (PCxxx). @	• Install a new Toner Collector Bottle Switch (S118). @

MAP 0788: Change Developer Mix

Symptom Explanation	Conditions That Could Cause This Symptom
CHANGE DEVELOPER MIX is displayed too soon or is always displayed. The logic must detect that the developer drain has been opened to reset the mix life counter (addresses FF1E and FF1F) in the printer memory. If it does not detect the change in the Developer Drain Lever Switch (S112), the logic cannot tell that the mix has been changed. The message is displayed because the mix life counter has exceeded its end-of-life value (addresses FF08 and FF09 for all printers except 150 PPM simplex printers, or addresses FF0A and FF0B for 150 PPM simplex printers) in the printer memory and cannot be cleared.	• If the Diagnostic Function Switch was set to **8**, and the printer was powered on or reset, then the NVS memory was cleared. You will see this message often because the end-of-life value (addresses FF08 and FF09 for all printers except 150 PPM simplex printers, or addresses FF0A and FF0B for 150 PPM simplex printers) have been set to zero. • There is a failure in the Developer Drain Lever Switch (S112) or its sensing circuitry. To fix this problem, go to MAP 0789: Developer Drain Open. • The Developer Drain Lever may have been opened when the power was off; therefore, the logic never reset the counter. • Someone may have advanced the developer mix counter (addresses FF1E and FF1F) in the printer memory. • If you are checking mix life against the mechanical usage meter, you are in error. The mix life counter (addresses FF1E and FF1F) is actually based on the number of revolutions of the magnetic brush in the developer, which is then converted to feet. This pseudo-feet counter may be viewed in the error log. This counter usually is different from the mechanical usage meter and varies with the idle time between print jobs.
(continued on next page)	

Symptom Explanation	Conditions That Could Cause This Symptom
CHANGE DEVELOPER MIX is not displayed at all or is too late.	• Be aware that this message is displayed only when an end-of-forms condition has occurred. • The developer end-of-life counter (addresses FF08 and FF09 for all printers except 150 PPM printers, or addresses FF0A and FF0B for 150 PPM simplex printers) in the printer memory may have been set to a higher value. • The developer mix counter (addresses FF1E and FF1F) in the printer memory may have been set to a lower value. • The developer drain may have been opened sometime during the life of the mix, which resets the developer mix counter (addresses FF1E and FF1F) in the printer memory to zero. • If you are checking mix life against the mechanical usage meter, you are in error. The mix life counter (addresses FF1E and FF1F) is actually based the number of revolutions of the magnetic brush in the developer, which is then equated to feet. This pseudo-feet counter may be viewed in the error log. This counter usually is different from the mechanical usage meter and varies with the idle time between print jobs.

REFERENCES

- Removals & Adjustments - Developer
- Wiring Diagrams -

FIX VERIFICATION

1. Write down the actual life of the developer mix.
2. Write into the developer mix life counter (addresses FF1E and FF1F) in the printer memory a number higher than the end-of-life value (addresses FF08 and FF09 for all printers except 150 PPM simplex printers, or addresses FF0A and FF0B for 150 PPM simplex printers) in the printer memory.
3. Create an end-of-forms condition while printing.
4. `CHANGE DEVELOPER MIX` should be displayed. If another intervention message is displayed, correct it and press **Ready**. Continue until `CHANGE DEVELOPER MIX` is displayed.

QUICK CHECKS

- None

SERVICE CHECKS

- See MAP 0789: Developer Drain Open.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Drain Lever Sensor (S112)	90%	2068	3231	2383
Toner Control Card PCxxx	10%	2053	3199	2402
Operator error	---			
Open or short circuit	---			

MAP 0788 BEGINS

Table 199. MAP 0788

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Do the following, one step at a time, until the problem is corrected: • Read the NVS memory addresses for the developer mix count (FF1F and FF1E) and the end-of-life counter (addresses FF08 and FF09 for all printers except 150 PPM simplex printers, or addresses FF0A and FF0B for 150 PPM simplex printers). Correct any values that are incorrect. • Verify that the Developer Drain Lever Switch (S112) is working correctly. • Read the Conditions That Could Cause This Symptom and select the explanation that best describes your problem. • Correct the conditions described in Conditions That Could Cause This Symptom.		

MAP 0789: Developer Drain Open

Symptom Explanation	Conditions That Could Cause This Symptom
DEVELOPER DRAIN OPEN is always displayed.	• There is a failure in the Developer Drain Lever Switch (S112) or its sensing circuitry.
DEVELOPER DRAIN OPEN is never displayed.	• There is a failure in the Developer Drain Lever Switch (S112) or its sensing circuitry.
CHANGE DEVELOPER MIX is always displayed. The logic must detect that the developer drain has been opened in order to reset the mix life counter (addresses FF1E and FF1F) in the printer memory. If it does not detect the change in the Developer Drain Lever Switch (S112), the logic cannot tell that the mix has been changed. The message is displayed because the mix life counter has exceeded its end-of-life value (addresses FF08 and FF09) in the printer memory and cannot be cleared.	• There is a failure in the Developer Drain Lever Switch (S112) or its sensing circuitry.

REFERENCES

- Removals & Adjustments - Developer
- Circuit Diagrams - CD112 - Developer Drain Lever Switch (S112)
- Wiring Diagrams -
  WD57- Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Fixed Resolution Printhead)
  WD57.1 - Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Switchable Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- See the SERVICE CHECKS to verify correct operation of the Developer Drain Lever Switch (S112)
  At print time, DEVELOPER DRAIN OPEN on the Display/Touch Screen is the same as **E00F** on the Maintenance Panel.

QUICK CHECKS

- Check that the Developer Drain Lever is in the fully closed position.

SERVICE CHECKS

- Run Sensor Routine 5A to test the Developer Drain Lever Switch (S112).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Drain Lever Sensor (S112)	90%	2068	3231	2383
Toner Control Card PCxxx	10%	2053	3199	2402
Mechanical problem preventing closure of the Developer Drain	---			
Open or short circuit	---			

MAP 0789 BEGINS

Note: Be aware that the developer mix counter (addresses FF1E and FF1F) in the printer memory is set to zero if the developer drain is opened with power on (DEVELOPER DRAIN OPEN will be displayed). If there is any uncertainty about the life of the mix, add new mix after the problem is corrected.

Table 200. MAP 0789

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 200. MAP 0789 (continued)

Step	Questions/Actions	Yes	No
Step 1.	Perform the following steps: • Drain the developer mix. • Separate the Control Unit frame from the Printer frame to access the connectors on the right side of the Developer. • Measure the voltage between PJ113-3 + lead and PJ114-2. **Is the voltage +5.0 V dc?**	Go to Step 2.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between – PJ113-3 and PJ135-33 – PJ114-2 and PJ135-40 • Install a new Toner Control Card (PCxxx). • Repair a short circuit to ground in the wiring network described by the following points: – PJ108-1 – PJ135-33 • Install a new Developer Drain Lever Switch (S112). @

Table 200. MAP 0789 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Measure the voltage between PJ114-1 + lead and PJ114-2 as you move the Developer Drain Lever repeatedly between the open and closed position. **Does the voltage change between approximately +5.0 V dc and 0 V dc as you move the lever?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between PJ114-1 and PJ135-39. • Install a new Toner Control Card (PCxxx). @	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • If there is any resistance to the motion of the lever, attempt to free or repair the mechanism. • Repair an open circuit between one of the following pairs of connectors: – PJ108-1 and PJ113-3 – PJ108-2 and PJ114-1 – PJ108-3 and PJ114-2 – PJ114-1 and PJ135-39 • Install a new Developer Drain Lever Switch (S112). • Install a new Toner Control Card (PCxxx). • Repair a short circuit to ground in the wiring network described by the following points: – PJ108-2 – PJ135-39 @

MAP 078A: End Of Forms Sensor 1

Symptom Explanation	Conditions That Could Cause This Symptom
The EOF Sensor (Q103) detected the End of Forms (EOF).	• The hopper is empty. • The paper is torn or otherwise defective, allowing light to pass through. • The EOF Sensor (Q103) is shorted. • The YS011 Card is defective.
The EOF Sensor (Q103) fails to detect the End of Forms (EOF).	• The EOF LED (PL103) is dirty. • The EOF LED (PL103) is open. • The EOF Sensor (Q103) is dirty. • The EOF Sensor (Q103) is open. • The Hot Roll Control Card HR091 is defective. • The YS011 Card is defective.

REFERENCES

- Removals & Adjustments - Transfer Station
- Circuit Diagrams - CD113 - End of Forms (EOF) Sensor (Q103)
- Wiring Diagrams -
  WD58 - Fuser and Stacker Sensors (FSxxx & HR091)
  WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 5D. The Maintenance Panel display and buzzer indicate the status of the EOF Sensor (Q103).
- Print the Primary Print Sample. An error is indicated by `END OF FORMS` on the Display/Touch Screen or by **E001** on the Maintenance Panel.

QUICK CHECKS

- Check for torn, perforated, or reflective forms in the EOF sensor area.
- Clean the EOF LED (PL103) and EOF Sensor (Q103).
- Ensure that the LED is adjusted so that the light is shining on the receiver.

SERVICE CHECKS

- Run Sensor Routine 5D. With paper blocking the light, the Maintenance Panel shows **on5d** and the buzzer is on. With light shining on the sensor, the Maintenance Panel shows **of5d** and the buzzer is off.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Torn or defective paper	60%			
EOF LED (PL103)	15%	2081	3197	2619
EOF Sensor (Q103)	15%	2055	3203	2619
Stacker Control Card SCxxx	05%	2120	3457	3019
YS011	05%	2116	3363	2627

MAP 078A BEGINS

Table 201. MAP 078A

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CHECKS, continue with the questions. • Check the forms supply area for missing, torn, perforated, reflective, or otherwise defective forms that could cause false END OF FORMS messages. **Are the forms OK?**	Go to Step 2.	• Correct the defective forms problem.
Step 2.	• Run Sensor Routine 5D. • Insert and remove paper in the path of the EOF Sensor (Q103) to test its operation. **Does the EOF Sensor (Q103) operate correctly?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Go to Step 3.
Step 3.	• Run Sensor Routine 5D. **Is the EOF LED (PL103) shining light?**	Go to Step 5.	Go to Step 4.

Table 201. MAP 078A (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Measure the voltage at PJ170-2. **Is the voltage +5.0 V dc?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ170-2 and PJ6009-41. • Install a new Hot Roll Control Card HR091. @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ170-1 and PJ6009-40. • Install a new EOF LED (PL103). @
Step 5.	• Check the adjustment of the EOF LED (PL103) and EOF Sensor (Q103). **Is the EOF LED (PL103) adjusted so the light is shining on the EOF Sensor (Q103)?**	Go to Step 6.	• Adjust the EOF LED (PL103) and EOF Sensor (Q103). @
Step 6.	• Measure the voltage at PJ119-2. **Is the voltage greater than +2.5 V dc at PJ119-2?**	Go to Step 7.	Do the following, one step at a time, until the problem is corrected: • Clean EOF LED (PL103) and EOF Sensor (Q103). • Repair an open circuit between one of the following pairs of connectors: – PJ119-1 and PJ1001-10. – PJ119-2 and PJ1001-11. • Install a new EOF Sensor (Q103). @

Table 201. MAP 078A (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Load forms in the machine so the EOF Sensor (Q103) is covered. • Run Sensor Routine 5D. • Measure the voltage at PJ119-2. **Is the voltage greater than +2.5 V dc at PJ119-2?**	The EOF Sensor (Q103) must be shorted. • Install a new EOF Sensor (Q103). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ119-2 and PJ1001-11. • Install a new YS011 Card. @

MAP 078B: Developer Running

Symptom Explanation	Conditions That Could Cause This Symptom
DEVELOPER RUNNING is never displayed (or there is no response to the Developer Run Switch (S107)).	• The Developer Run Switch (S107) is always open. • The Toner Control Card (PCxxx) is defective.
DEVELOPER RUNNING is always displayed (even when the Developer Run Switch (S107) was not pushed).	• The Developer Run Switch (S107) is always closed. • The Toner Control Card (PCxxx) is defective.

REFERENCES

- Removals & Adjustments - Developer
- Circuit Diagrams - CD114 - Developer Run Switch (S107)
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- See the SERVICE CHECKS to verify correct operation of the Developer Run Switch (S107).
  DEVELOPER RUNNING on the Display/Touch Screen is the same as **E01F** on the Maintenance Panel.

QUICK CHECKS

- If the printer has just been powered on, do not try to autoload until the Developer stops running.

SERVICE CHECKS

- Run Sensor Routine 5B to test the Developer Run Switch (S107).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Run Switch (S107)	90%	2068	3231	2387
Toner Control Card PCxxx	10%	2053	3199	2402
Open or short circuit	---			

MAP 078B BEGINS

Table 202. MAP 078B

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	In the following questions, "always displayed" means that the message appears constantly or frequently without anyone pressing the Developer Run Switch (S107) (Switch R). This MAP fixes two conditions: • `DEVELOPER RUNNING` is always displayed. • `DEVELOPER RUNNING` is never displayed (Switch R does not work). **Is `DEVELOPER RUNNING` always displayed?**	Go to Step 2.	Go to Step 3.

Table 202. MAP 078B (continued)

Step	Questions/Actions	Yes	No
Step 2.	DEVELOPER RUNNING is always displayed. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Separate the Control Unit frame from the Printer frame so you can access the connectors on the right side of the Developer. • Locate the PJ114 connector on the Developer. • Disconnect connector P114 from the Developer. • Check continuity through the Developer half (J114) of the connector. The pins you will be checking connect to PJ112 inside the Developer and then to the Developer Run Switch (S107). The circuit should be open when the Developer Run Switch (S107) is not pressed. **Is there an open circuit between pins J114-4 and J114-5?**	The Developer Run Switch (S107) is working correctly, so the problem must be in the Toner Control Card (PCxxx) or the wiring. Do the following, one step at a time, until the problem is corrected: • Install a new Toner Control Card (PCxxx). • Repair a short circuit to ground in the wiring network described by the following points: – PJ114-4 and PJ135-43 – PJ114-4 and PJ112-1 @	There is a problem with the Developer Run Switch (S107) or its circuit. • SHUTDOWN AND POWER OFF THE PRINTER. • Pull the Developer out onto the service rails. • Install a new Developer Run Switch (S107) @

Table 202. MAP 078B (continued)

Step	Questions/Actions	Yes	No
Step 3.	DEVELOPER RUNNING is never displayed. (Switch R does not work). Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Separate the Control Unit frame from the Printer frame so you can access the connectors on the right side of the Developer. • Locate the PJ114 connector on the Developer. • Disconnect connector P114 from the Developer. Check continuity through the Developer half (J114) of the connector. The pins you check connect to PJ112 inside the Developer and then to the Developer Run Switch (S107). **Is there continuity between pins J114-4 and J114-5 when you press and hold the Developer Run Switch (S107)?**	The Developer Run Switch (S107) is working correctly, so the problem must be in the Toner Control Card (PCxxx) or the wiring. Do the following, one step at a time, until the problem is corrected: • Install a new Toner Control Card (PCxxx). • Repair an open circuit between the following pairs: – PJ135-43 and PJ114-4 – PJ135-44 and PJ114-5 @	There is a problem with the Developer Run Switch (S107) or its circuit. • SHUTDOWN AND POWER OFF THE PRINTER. • Pull the Developer out onto the service rails. Do the following, one step at a time, until the problem is corrected: • Check connector PJ112 for correct contact. • Install a new Developer Run Switch (S107). • Repair an open circuit between one of the following pairs of connectors: – PJ112-1 to PJ114-4 – PJ112-2 to PJ114-5 @

MAP 078C: Forms Loading

Symptom Explanation	Conditions That Could Cause This Symptom
The message FORMS LOADING is always displayed.	• There is a failure in the Printer Control Panel (SW721) or its sensing circuitry.
The message FORMS LOADING is never displayed.	• There is a failure in the Printer Control Panel (SW721) or its sensing circuitry.

REFERENCES

- Circuit Diagrams - CD115 - Printer Control Panel (SW721)
- Wiring Diagrams - WD62 - Switches and Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- If FORMS LOADING is never displayed:
  - Perform an autoload operation
- If FORMS LOADING is always displayed:
  - Power on the printer.
  - An error is indicated by FORMS LOADING on the Display/Touch Screen or by **E019** on the Maintenance Panel.

QUICK CHECKS

- If the Autoload **STOP** key does not work, go to MAP 0010: Symptom Start MAP.

SERVICE CHECKS

- Run Sensor Routine 67 to test the Printer Control Panel (SW721).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Printer Control Panel (SW721)	90%	2116	3363	2622
YS011 Card	10%	2116	3363	2627
Open or short circuit	---			

MAP O78C BEGINS

Table 203. MAP 078C

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP fixes two conditions: • FORMS LOADING is always displayed. • FORMS LOADING is never displayed (the **LOAD** key does not work). **Is FORMS LOADING always displayed?**	Go to Step 2.	Go to Step 3.
Step 2.	FORMS LOADING is always displayed. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ138 on the YS011 Card. It is underneath the Splicing Table top cover. • Measure continuity through the switch between points P138-8 and P138-1. The switch should be open when it is not pressed. **Is there an open circuit between points P138-8 and P138-1?**	Do the following, one step at a time, until the problem is corrected: • Install a new YS011 Card. • Repair a short circuit to ground in the wiring network described by the end points PJ138-8 and PJ1010-8. @	• Install a new Printer Control Panel (SW721). @

Table 203. MAP 078C (continued)

Step	Questions/Actions	Yes	No
Step 3.	FORMS LOADING is never displayed (the **LOAD** key does not work). The switch may be always open. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ138 on the YS011 Card. It is underneath the Splicing Table bottom cover. • Measure continuity through the switch between points P138-8 and P138-1 when the **LOAD** key is pressed and held. **Is there continuity through the Printer Control Panel (SW721) between points P138-8 and P138-1 when you press the LOAD key?**	• Install a new YS011 Card. @	• Reconnect connector PJ138. Do the following, one step at a time, until the problem is corrected: • Install a new Printer Control Panel (SW721). • Repair an open circuit between one of the following pairs of connectors: – PJ138-8 and PJ1010-8 – PJ138-1 and PJ1010-1 @

MAP 078D: Toner Loading

Note: Use this MAP only if the Enhanced Toner Loading System is NOT installed.

If the Enhanced Toner Loading System is installed, use MAP 07A0: Toner Loading With Enhanced Toner Loading System.

Symptom Explanation	Conditions That Could Cause This Symptom
TONER LOADING is never displayed (or there is no response to the **Toner Supply** pushbutton).	• The Toner Supply Switch (S121) is open. • The Toner Control Card PCxxx is defective.
TONER LOADING is always displayed (even when the pushbutton was not pushed).	• The Toner Supply Switch (S121) is shorted. • The Toner Control Card PCxxx is defective.
Toner will not load through the Toner inlet when the Toner Supply Switch (S121) is pressed.	• The toner load auger, clutch, pulley, or drive belt are defective. • The toner supply drive circuit is defective. • Switch S8-3 on the B1J11 Card is in the OFF position.

REFERENCES

- Removals & Adjustments - Developer Air System
- Circuit Diagrams - CD114 - Developer Run Switch (S107)
- Wiring Diagrams -
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

Important

The Printer microcode causes a CHANGE TONER COLLECTOR message to be displayed for every eight times that the Toner Supply pushbutton is pressed. It is recommended that an empty toner collector bottle be installed, even if the bottle in the machine is not full.

FIX VERIFICATION

- Press the **Toner Supply** pushbutton. The TONER LOADING message should be displayed, and the toner load motor and auger mechanism should operate.
- Run Sensor Routine 8B. This routine checks the Toner Supply Switch (S121) and its circuitry.
- Run Driver Routine 34. This routine operates the toner load motor and auger mechanism.

QUICK CHECKS

- Press the **Toner Supply** pushbutton. The TONER LOADING message should be displayed, and the toner load motor and auger mechanism should operate.
- Check that switch S8-3 on the B1J11 Card is in the **On** position.

SERVICE CHECKS

- Run Sensor Routine 8B to test the Toner Supply Switch (S121).
- Run Driver Routine 34. This routine operates the toner load motor and auger mechanism.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Supply Switch (S121)	60%	2068	3231	2438
Toner Feed Belt	10%		3257	2369
Toner Auger Pulley	10%	2066	3249	2431
Toner Auger mechanism	09%	2066	3249	2431
Toner Control Card PCxxx	01%	2053	3199	2402
Relay Board (RB101)	01%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	01%	B1 Logic Card Links		
Toner Feed Motor (M102)	01%	2067	3257	2419
Toner Feed Motor (M102) gear head	01%	2067	3257	2419
B1J11 Card	01%	B1 Logic Card Links		

MAP 078D BEGINS

Table 204. MAP 078D

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP fixes three conditions: `TONER LOADING` is never displayed (the Toner Supply switch does not work). `TONER LOADING` is always displayed. Toner does not load when the Toner Supply Switch (S121) is pressed. • Press the Toner Supply Switch (S121). **Is `TONER LOADING` displayed?**	Go to Step 3.	Go to Step 2.

Table 204. MAP 078D (continued)

Step	Questions/Actions	Yes	No
Step 2.	TONER LOADING is never displayed (the Toner Switch does not work). Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Separate the Control Unit frame from the Printer frame so you can access the connectors on the right side of the Developer. • Locate the PJ114 connector on the Developer. • Disconnect connector P114 from the Developer. Check continuity through the Developer half (J114) of the connector. The pins you will be checking connect to PJ190 inside the Developer and then to the Toner Supply Switch (S121). **Is there continuity between pins J114-5 and J114-3 when you press the Toner Supply pushbutton?**	The Toner Supply Switch (S121) is working correctly, so the problem must be in the Toner Control Card PCxxx or the wiring. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between – PJ135-44 and PJ114-5 – PJ135-47 and PJ114-3 • Install a new Toner Control Card PCxxx • Install a new B1J11 Card. @	There is a problem with the Toner Supply Switch (S121) or its circuit. • Check connector PJ190 for correct connection. • If that is not the problem, install a new Toner Supply Switch (S121). @
Step 3.	The TONER LOADING message should reset after approximately one minute. **Does the TONER LOADING message reset after approximately one minute?**	Go to Step 4.	Go to Step 5.

Table 204. MAP 078D (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Run Driver Routine 34. • Visually check the toner loading auger. **Does the toner loading auger turn while Driver Routine 34 is running**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problem, go to MAP 0001: Introduction.	Go to Step 6.

Table 204. MAP 078D (continued)

Step	Questions/Actions	Yes	No
Step 5.	TONER LOADING is always displayed. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Separate the Control Unit frame from the Printer frame so you can access the connectors on the right side of the Developer. • Locate the PJ114 connector on the Developer. • Disconnect connector P114 from the Developer. • Check continuity through the Developer half (J114) of the connector. The pins you check connect to PJ190 inside the Developer and then to the Toner Supply Switch (S121). The circuit should be open when the **Toner Supply** pushbutton is not pressed. **Is there an open circuit between pins J114-5 and J114-3?**	The Toner Supply Switch (S121) is working correctly, so the problem must be in the Toner Control Card PCxxx or the wiring. • Check the wiring from PJ114 to PJ135 for a short circuit to ground. • If that is not the problem, install a new Toner Control Card PCxxx. @	There is a problem with the Toner Supply Switch (S121) or its circuit. Refer to Developer Removal to pull the Developer out onto the service rails. • Check the wiring from PJ114 to PJ190 and to the Toner Supply Switch (S121) for a short circuit to ground. • If that is not the problem, install a new Toner Supply Switch (S121).

Table 204. MAP 078D (continued)

Step	Questions/Actions	Yes	No
Step 6.	 **DANGER** **<5> High-voltage is present. Use care while working in this area.** • Run Driver Routine 34 and measure the voltage between PJ196-1 and PJ196-2. **Was there more than 180 V ac?**	Do the following one at a time until the problem is corrected: • Check the Toner Feed Belt. Adjust or replace as necessary. • The toner feed/supply mechanism should turn with moderate to heavy force. If the mechanism is binding, repair or replace the failing component. Removing the Toner Feed Belt may aid in isolating the binding item. • Check the one-way clutch on the toner auger pulley. The toner auger should rotate when the pulley is turned clockwise from the rear of the developer. If the pulley does not operate correctly, install a new pulley. • Check to see if the toner auger shaft is broken. Replace it if necessary. @ (continued on next page)	Do the following, one at a time, until the problem is corrected: • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Correct any wiring problems in the toner feed circuit. @

Table 204. MAP 078D (continued)

Step	Questions/Actions	Yes	No
Step 6 (cont.)		• Correct any wiring problems from PJ196 to the Toner Feed Motor (M102), including Capacitor (C102). • Install a new Toner Feed Motor (M102). A new Capacitor (C102) comes with the new motor and should be installed at the same time as the new motor. @	

MAP 0791: Change Fine Filter

Symptom Explanation	Conditions That Could Cause This Symptom
The message `CHANGE FINE FILTER` is always displayed, or occurs too often. This message occurs when end-of-forms is reached, and it can be cleared by pressing **Check Reset** for up to 100 000 feet.	• The Filter Pressure Switch (S102) or its sensing circuitry is defective. • An operator error or a failure in the cleaning system has caused a plug or clog in the Cyclone. • A restriction or break in the air hoses.
The message `CHANGE FINE FILTER` is never displayed. You may also have been sent here because of heavy toner contamination of the cleaning system (brush, housing, others). The result is background on the prints and heavy contamination of the cleaner system with toner.	• A restriction or break in the air hoses. • A failure in the Filter Pressure Switch (S102) or its sensing circuitry. • An air leak at the Fine Filter case.

REFERENCES

- Removals & Adjustments - Air System
- Circuit Diagrams - CD116 - Filter Pressure Switch (S102)

- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Cut the forms in the input stack so that an end-of-forms condition will occur. Print the **Print Pack** (1569). An error is indicated by `CHANGE FINE FILTER` on the Display/Touch Screen or by **E00C** on the Maintenance Panel.

QUICK CHECKS

- If the print application consists of heavy printing and solid fill areas, this will cause higher filter usage.
- If the print is excessively light, there may be a transfer problem.
- Install a new Fine Filter and cause an end-of-forms condition to occur.

SERVICE CHECKS

- Run Sensor Routine 55 to test the Filter Pressure Switch (S102).
- Run Driver Routine 02. This routine drive the Cyclone Blower Motor (M104).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Filter Pressure Switch (S102)	40%	2053	3307	2182
Broken, loose, disconnected, or restricted hose	40%			
Toner Control Card PCxxx	20%	2053	3199	2402
Cyclone Blower	%	2063	3309	2173
Open or short circuit	---			

MAP 0791 BEGINS

Table 205. MAP 0791

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CKECKS, continue with the questions. This MAP fixes two conditions: • Always displayed or occurs too often (short filter life) • Never displayed (and possible contamination of the cleaning system) **Are you here because `CHANGE FINE FILTER` is always displayed, or is displayed too often?**	Go to Step 2.	Go to Step 5.
Step 2.	The Filter Pressure Switch (S102) may have failed in the open condition. • Run Sensor Routine 55. **Is oF55 displayed on the Maintenance Panel?**	Go to Step 3.	Go to Step 4.

Table 205. MAP 0791 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The switch is working correctly. Therefore, this step assumes that the customer is complaining about short Fine Filter life. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Toner Collector Bottle and check for packed toner at the bottom of the Cyclone (where it meets the Toner Collector). **Is there packed toner at the bottom of the Cyclone?**	It appears that the Toner Collector overfilled, which caused the toner packing. **Important** Do not remove the Toner Collector Bottle, or operate its table lever, without replacing it with an empty bottle. The logic will assume that a new bottle has been installed if it sees a change in the Toner Collector Bottle Switch (S118). The logic check is made only when the `CHANGE TONER COLLECTOR` message is displayed. If you reinstall a partially full bottle, the bottle can overfill and cause toner packing in the Cyclone.	No problem has been verified. Do the following, one step at a time, until the problem is corrected: • Check all the hoses in the cleaner system for breaks, cracks, sharp bends, and poor connection. Repair as necessary. • If the customer runs prints with a high toner coverage, the Fine Filter life will be reduced. You may need to contact your next lever of support to verify the toner coverage. • It is possible that the Filter Pressure Switch (S102) switches too soon, that is, under little vacuum. This would be the case if the Fine Filter is light in weight when `CHANGE FINE FILTER` is displayed. Normally, the `CHANGE FINE FILTER` message is displayed when the Fine Filter weighs 2.4 Kg (5.3 lb). The Filter Pressure Switch (S102) is correctly indicating at this time.

Table 205. MAP 0791 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector P135 from the Toner Control Card (PCxxx). • Locate the terminals on the Filter Pressure Switch (S102) to which the wires are connected. **Is there continuity between the Filter Pressure Switch (S102) terminals with the power off?**	• Reconnect connector PJ135. • Install a new Toner Control Card (PCxxx). @	• Install a new Filter Pressure Switch (S102). • Repair an open circuit between PJ135-11 and PJ135-12 (wiring to the switch from the Toner Control Card (PCxxx)). @
Step 5.	You are here because `CHANGE FINE FILTER` is never displayed, or because the cleaner system is overloaded with toner. There may be air leakage around the Fine Filter. **Was the Fine Filter door closed?**	Go to Step 6.	• Instruct the operators to always close the Fine Filter door. Go to Step 9.
Step 6.	• SHUTDOWN AND POWER OFF THE PRINTER. • Check all the hoses in the cleaner system for breaks, cracks, sharp bends, and poor connection. **Are the hoses in good condition?**	Go to Step 7.	• Repair the hoses. Go to Step 9.
Step 7.	• Remove the Fine Filter and examine the gasket on the inside at the upper left of the case. **Is the Fine Filter gasket in good condition?**	Go to Step 8.	• Repair or install a new Fine Filter gasket. Go to Step 9. @

Table 205. MAP 0791 (continued)

Step	Questions/Actions	Yes	No
Step 8.	The impeller may be loose within the Cyclone Blower, even though the pulley is rotating. • Run Driver Routine 02. Use caution, as the vacuum is high in this area. **Is there vacuum at the bottom of the Fine Filter case?**	• Stop the routine and install the Fine Filter. No problem has been verified. It appears that the problem is in the Filter Pressure Switch (S102) or its circuitry. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Install the new parts listed below, one at a time, until the problem is corrected: – Filter Pressure Switch (S102) – Toner Control Card (PCxxx) • Repair a short circuit to ground in the wiring network described by the following points: PJ135–11 and Filter Pressure Switch (S102) Go to Step 9. @	• Install a new Cyclone Blower. Go to Step 9. @

Table 205. MAP 0791 (continued)

Step	Questions/Actions	Yes	No
Step 9.	Do the following to clean the cleaner system if necessary: • Clean the Air Chamber and the Cleaner Housing below it. • Install a new Cleaner Brush and reset the appropriate counter. • Clean the Cyclone of any packed toner. @		

MAP 0792: Fuser Oil Empty

Symptom Explanation	Conditions That Could Cause This Symptom
The ADD FUSER OIL message occurs, even though there is still oil in the pump reservoir. Or, the ADD FUSER OIL message does not reset after oil has been added to the reservoir.	• The floating magnet ring on the Oil Empty Sensor (S702) is binding. • The Oil Empty Sensor (S702) is shorted. • The Fuser Control Card (FSxxx) is defective.
The ADD FUSER OIL message does not occur, and the oil reservoir is empty.	• The floating magnet ring on the Oil Empty Sensor (S702) is binding. • There is an open circuit in PJ725 or PJ612. • The Oil Empty Sensor (S702) is open. • The Fuser Control Card (FSxxx) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD117 - Fuser Oil Empty Sensor (S702)
- Wiring Diagrams - WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 82 to test the Oil Empty Sensor (S702).
- Run the Alternate Print Sample and force an end-of-forms condition. An error is indicated by ADD FUSER OIL on the Display/Touch Screen or by **E00A** on the Maintenance Panel.

QUICK CHECKS

- Check for correct oil level in the reservoir.
- Check for a bind in the floating magnet ring on the Oil Empty Sensor (S702).

SERVICE CHECKS

- Run Sensor Routine 82 to test the Oil Empty Sensor (S702).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Oil Empty Sensor (S702) binding	50%	2059	3395	2569
Oil Pump Asm with Oil Empty Sensor (S702)	45%	2059	3395	2569
Fuser Control Card FSxxx	05%	2131	3499	2528

MAP 0792 BEGINS

Note: The ADD FUSER OIL message will be displayed at each End of Forms condition if the oil reservoir is empty. It can be reset by pressing **Check Reset** and **Ready**.

This MAP fixes the following conditions:

1. The ADD FUSER OIL message occurs, even though oil is still in the reservoir.
2. The ADD FUSER OIL message does not reset after oil is added to the reservoir.
3. The ADD FUSER OIL message does not occur when the oil reservoir is empty.

Table 206. MAP 0792

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Are you using this MAP because the ADD FUSER OIL message does not occur when the oil reservoir is empty?**	Go to Step 2.	Go to Step 5.
Step 2.	• Ensure that connector PJ725 is connected correctly. **Is connector PJ725 connected correctly?**	Go to Step 3.	Repair the connector PJ725 as necessary.

Table 206. MAP 0792 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Remove the three screws that hold the Oil Empty Sensor (S702) assembly in the Oil Pump Assembly. • Remove the Oil Empty Sensor (S702) assembly from the Oil Pump Assembly. • Check for binds in the floating magnet ring at the bottom of the switch shaft. **Does the floating magnet ring operate correctly without binding?**	Go to Step 4.	• Repair the binding magnet ring or install a new Oil Pump Assembly if necessary. @
Step 4.	• Disconnect connector PJ725. • Measure the resistance between P725-2 and P725-3 (the switch side of the connector) while you slide the floating magnet ring up and down on the switch shaft. If the switch is operating correctly, the resistance reading will switch from an open circuit when the ring is up, to a short circuit when the ring is down. **Does the Oil Empty Sensor (S702) operate correctly?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ725-2 and PJ612-31 or between PJ725-3 and PJ612-32. • Install a new Fuser Control Card (FSxxx). @	• Install a new Oil Pump Assembly. @

Table 206. MAP 0792 (continued)

Step	Questions/Actions	Yes	No
Step 5.	The ADD FUSER OIL message must be occurring early, or it cannot be reset. • Disconnect connector PJ725. This should simulate a full oil reservoir. • Run Sensor Routine 82. With PJ725 disconnected, the Maintenance Panel should show **oF82**. **Does the Maintenance Panel show oF82?**	• Check the Oil Empty Sensor (S702) for binds in the floating magnet ring at the bottom of the switch shaft. • Repair the binding magnet ring or install a new Oil Pump Assembly, whichever is necessary. @	• Install a new Fuser Control Card (FSxxx). @

MAP 0793: End Of Oiler Belt Reached

Symptom Explanation	Conditions That Could Cause This Symptom
The CHANGE OILER BELT message occurs, even though there is still Fuser Oiler Belt on the roll. Or, the CHANGE OILER BELT message does not reset after the Fuser Oiler Belt has been changed.	• The Oiler Belt End Switch (S610) is open. • The Oiler Belt End Switch (S610) is out of adjustment. • The Fuser Control Card (FSxxx) is defective.
The CHANGE OILER BELT message does not occur when the Fuser Oiler Belt is at the end of the roll.	• The Oiler Belt End Switch (S610) is shorted. • The Oiler Belt End Switch (S610) is out of adjustment. • The Fuser Control Card (FSxxx) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD118 - Oiler Belt End Switch (S610)
- Wiring Diagrams - WD64 - Fuser Sensors (FSxxx and FUxxx Cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 81. The status of the Oiler Belt End Switch (S610) is indicated by the Maintenance Panel display.
- The CHANGE OILER BELT message occurs only after an End of Forms condition. Run the Alternate Print Sample and force an end-of-forms condition before the test is complete. An error is indicated by a CHANGE OILER BELT message in the Display/Touch Screen or by E009 in the Maintenance Panel display.

QUICK CHECKS

- Check the operation and installation of the Fuser Oiler Belt.
- Check the operation and adjustment of the Oiler Belt End Switch (S610).

SERVICE CHECKS

- Run Sensor Routine 81. This routine checks the status of the Oiler Belt End Switch (S610).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Fuser Oiler Belt installation	60%			
Oiler Belt End Switch (S610) adjustment	25%	2073	3447	2562
Oiler Belt End Switch (S610)	10%	2073	3447	2613
Fuser Control Card FSxxx	05%	2131	3499	2528

MAP 0793 BEGINS

Table 207. MAP 0793

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Note:** The `CHANGE OILER BELT` message appears at each End of Forms condition if the Fuser Oiler Belt is at the end of the roll. This MAP fixes the following conditions: • The `CHANGE OILER BELT` message occurs before the Fuser Oiler Belt reaches the end of the roll. • The `CHANGE OILER BELT` message doesl not reset after a new Fuser Oiler Belt has been installed. • The `CHANGE OILER BELT` message does not occur when the Fuser Oiler Belt reaches the end of the roll. • Check the operation and installation of the Fuser Oiler Belt. See "Changing the Oiler Belt" in the *Operator's Guide* for details. **Is the Fuser Oiler Belt installed correctly?**	Go to Step 2.	• Correct the installation of the Fuser Oiler Belt.

Table 207. MAP 0793 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Check the mechanical operation of the Oiler Belt End Switch (S610) and its actuator. **Are the Oiler Belt End Switch (S610) and its actuator operating correctly?**	Go to Step 3.	• Repair the switch actuator or install a new Oiler Belt End Switch (S610), as necessary. @
Step 3.	**Are you using this MAP because the `CHANGE OILER BELT` message does not occur when the Fuser Oiler Belt reaches the end of the roll?**	Go to Step 4.	Go to Step 6.
Step 4.	• Check carefully to ensure that the Fuser Oiler Belt is installed correctly. **Does the metal bar at the end of the Fuser Oiler Belt operate the actuator for the Oiler Belt End Switch (S610) when the Fuser Oiler Belt is at the end of the roll?**	Go to Step 5.	Do the following, one step at a time, until the problem is corrected: • Install a new Fuser Oiler Belt. • Repair the actuator or adjust the Oiler Belt End Switch (S610). @
Step 5.	• Disconnect connector PJ643. This should simulate an “End of Fuser Oiler Belt” condition. • Run Sensor Routine 81. • With connector PJ643 disconnected, the Maintenance Panel should show **on81**. **Does the Maintenance Panel show on81?**	Do the following, one step at a time, until the problem is corrected: • Adjust the Oiler Belt End Switch (S610). • Install a new Oiler Belt End Switch (S610). @	• Install a new Fuser Control Card (FSxxx). @

Table 207. MAP 0793 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• SHUTDOWN AND POWER OFF THE PRINTER. • Ensure that the Oiler Belt End Switch (S610) is in the normal or non-operated condition. • Disconnect connector PJ643. • Measure the resistance between P643-1 and P643-2 (the switch side of the connector). **Is there continuity between P643-1 and P643-2?**	Do the following, one step at a time, until the problem is corrected: • Adjust the Oiler Belt End Switch (S610). • Repair an open circuit between PJ643-1 and PJ612-27 or between PJ643-2 and PJ612-28. • Install a new Fuser Control Card (FSxxx). @	Do the following, one step at a time, until the problem is corrected: • Check for a loose connector on the Oiler Belt End Switch (S610). • Adjust the Oiler Belt End Switch (S610). • Install a new Oiler Belt End Switch (S610). @

MAP 0794: Fuser Oiler Gate Open

Symptom Explanation	Conditions That Could Cause This Symptom
The OILER GATE OPEN message occurs, even though the Fuser Oiler Gate is closed.	• The Oiler Gate Open Switch (S605) has an open circuit. • The Oiler Gate Open Switch (S605) is out of adjustment. • The Hot Roll Control Card HR091 is defective. • The Fuser Control Card (FSxxx) is defective.
The OILER GATE OPEN message does not occur when the Fuser Oiler Gate is open.	• The Oiler Gate Open Switch (S605) has a short circuit. • The Hot Roll Control Card HR091 is defective. • The Fuser Control Card (FSxxx) is defective.

REFERENCES

- Removals & Adjustments - Fuser
- Circuit Diagrams - CD119 - Oiler Gate Open Switch (S605)
- Wiring Diagrams - WD58 - Fuser and Stacker Sensors (FSxxx & HR091)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 80. The status of the Oiler Gate Open Switch (S605) is indicated by the Maintenance Panel display.
- An error is indicated by OILER GATE OPEN on the Display/Touch Screen or by **E01E** on the Maintenance Panel.
- Switch machine power off, then on to run the power-on diagnostics. An error is indicated by **E01E** on the Maintenance Panel.

QUICK CHECKS

- Check the operation and adjustment of the Fuser Oiler Gate and Oiler Gate Open Switch (S605).

SERVICE CHECKS

- Run Sensor Routine 80. This routine checks the status of the Oiler Gate Open Switch (S605).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Oiler Gate Open Switch (S605) adjustment	75%	2073	3397	2566
Oiler Gate Open Switch (S605)	20%	2073	3397	2566
Hot Roll Control Card HR091	04%	2064	3397	2534
Fuser Control Card FSxxx	02%	2131	3499	2528

MAP 0794 BEGINS

Table 208. MAP 0794

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Open and close the Fuser Oiler Gate to check for binds or obstructions. **Does the Fuser Oiler Gate open and close correctly?**	Go to Step 2.	• Repair the Fuser Oiler Gate.
Step 2.	• Run Sensor Routine 80. • Open and close the Fuser Oiler Gate while in Diagnostic mode to test the operation of the Oiler Gate Open Switch (S605). **Does the Oiler Gate Open Switch (S605) operate correctly?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Ensure that the Oiler Gate Open Switch (S605) is adjusted correctly. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. If you find no problems, go to MAP 0001: Introduction.	Go to Step 3.

Table 208. MAP 0794 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. • Ensure that the Fuser Oiler Gate is closed and latched. • Disconnect connector PJ6009. • Measure the resistance between P6009-14 and P6009-15 (the switch side of the connector). **Is there continuity between P6009-14 and P6009-15?**	Go to Step 4.	Do the following, one step at a time, until the problem is corrected: • Check for an open circuit in the slip-on connectors on the Oiler Gate Open Switch (S605). Check the adjustment of the Oiler Gate Open Switch (S605). • Install a new Oiler Gate Open Switch (S605). @
Step 4.	• Open the Fuser Oiler Gate. • Measure the resistance between P6009-14 and P6009-15 (the switch side of the connector). **Is there continuity between P6009-14 and P6009-15?**	The Oiler Gate Open Switch (S605) must be shorted. • Install a new Oiler Gate Open Switch (S605). @	Do the following, one step at a time, until the problem is corrected: • Install a new Hot Roll Control Card HR091. • Install a new Fuser Control Card (FSxxx). @

MAP 0795: Set Forms Direction

Symptom Explanation	Conditions That Could Cause This Symptom
The message SET FORMS DIRECTION is always displayed.	• The Printer Control Panel (SW721) or its sensing circuitry is defective.
The message SET FORMS DIRECTION is never displayed.	• The Printer Control Panel (SW721) or its sensing circuitry is defective.

REFERENCES

- Removals & Adjustments -
- Circuit Diagrams - CD115 - Printer Control Panel (SW721)
- Wiring Diagrams - WD62 - Switches and Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- If SET FORMS DIRECTION is never displayed:
  - Load forms.
  - The indication is SET FORMS DIRECTION on the Display/Touch Screen or **E02C** on the Maintenance Panel.
- If SET FORMS DIRECTION is always displayed:
  - Power on the printer.
  - An error is indicated by SET FORMS DIRECTION on the Display/Touch Screen or **E02C** on the Maintenance Panel.

QUICK CHECKS

- Be aware that this message appears whenever one of the **Forms Feed** keys is pressed.
- Press the correct **Forms Set** key on the Autoload Control Panel.

SERVICE CHECKS

- Run Sensor Routine 67 to test the Printer Control Panel (SW721).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Printer Control Panel (SW721)	90%	2116	3363	2622
YS011 Card	10%	2116	3363	2627
Open circuit	---			

MAP 0795 BEGINS

Table 209. MAP 0795

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP fixes two conditions: • `SET FORMS DIRECTION` is always displayed (or a **Forms Set** key does not work). • `SET FORMS DIRECTION` is never displayed. **Is `SET FORMS DIRECTION` always displayed (or a Forms Set key does not work)?**	Go to Step 2.	Go to Step 4.
Step 2.	`SET FORMS DIRECTION` is always displayed (or a **Forms Set** key does not work). The switch should be open when it is not pressed. A switch may be always open. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ138 on the YS011 Card. **Is there continuity through the switch between points P138-5 and P138-1 when you press and hold the right (perforation down) Forms Set key?**	Go to Step 3.	Do the following, one step at a time, until the problem is corrected: • Install a new Printer Control Panel (SW721). • Repair an open circuit between one of the following pairs of connectors: – PJ138-5 and PJ1010-5 – PJ138-1 and PJ1010-1 @

Table 209. MAP 0795 (continued)

Step	Questions/Actions	Yes	No
Step 3.	**Is there continuity through the switch between points P138-6 and P138-1 when you press and hold the left (perforation up) Forms Set key?**	• Install a new YS011 Card. @	Do the following, one step at a time, until the problem is corrected: • Install a new Printer Control Panel (SW721). • Repair an open circuit between one of the following pairs of connectors: – PJ138-6 and PJ1010-6 – PJ138-1 and PJ1010-1 @
Step 4.	SET FORMS DIRECTION is never displayed. A key may be always on (switch always closed). Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ138 on the YS011 Card. The switch should be open when it is not pressed. **Is there an open circuit through the switch between points P138-5 and P138-1?**	Go to Step 5.	• Install a new Printer Control Panel (SW721). @

Table 209. MAP 0795 (continued)

Step	Questions/Actions	Yes	No
Step 5.	**Is there an open circuit through the switch between points P138-6 and P138-1?**	Do the following, one step at a time, until the problem is corrected: • Install a new YS011 Card. • Repair a short circuit to ground in the wiring network described by the following points: – PJ138-5 and PJ1010-5 – PJ138-6 and PJ1010-6 @	• Install a new Printer Control Panel (SW721). @

MAP 0796: Stacker Full

Symptom Explanation	Conditions That Could Cause This Symptom
Stacker Full is detected even though the stacker is not full.	• Stacker Table Lower Limit Switch (S701) is defective. • Stacker Control Card (SCxxx) is defective.
Stacker Full is detected with a loose stack of forms because the Stacker Table moved down too fast.	• Right Stacker Height LED (PL702) is defective. • Right Stacker Height Sensor (Q702) is defective. • Left Stacker Height LED (PL703) is defective. • Left Stacker Height Sensor (Q703) is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD34 - Stacker Table Switches (S701, S704)
  CD32 - Stacker Height Sensor (Q703)
- Wiring Diagrams -
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 7A. This routine checks the Stacker Table Lower Limit Switch (S701) and circuit.
- Run Sensor Routine 8D. This routine checks the Right Stacker Height Sensor (Q702) and circuit.
- Run Sensor Routine 8E. This routine checks the Left Stacker Height Sensor (Q703) and circuit.
- Run the Alternate Print Sample. An error is indicated by STACKER FULL message on the Display/Touch Screen or by **E004** on the Maintenance Panel.

QUICK CHECKS

- Ensure that the Right Stacker Height LED (PL702) and the Left Stacker Height LED (PL703) are both shining onto the Photosensors.
- Ensure that all of the upper stacker LEDs and Photosensors are clean.
- Ensure that the stacker height adjustment is set correctly. If this adjustment is set too high, frequent stacker full messages may occur.

SERVICE CHECKS

- Run Sensor Routine 7A. This routine checks the Stacker Table Lower Limit Switch (S701) and circuit.
- Run Sensor Routine 8D. This routine checks the Right Stacker Height Sensor (Q702) and circuit.
- Run Sensor Routine 8E. This routine checks the Left Stacker Height Sensor (Q703) and circuit.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Table Lower Limit Switch (S701)	70%	2118	3489	3015
Stacker Control Card SCxxx	15%	2120	3457	3019
Right Stacker Height LED (PL702)	05%	2118	3483	2973
Right Stacker Height Sensor (Q702)	05%	2118	3483	2973
Left Stacker Height LED (PL703)	03%	2118	3471	2973
Left Stacker Height Sensor (Q703)	02%	2117	3471	2973

MAP 0796 BEGINS

Table 210. MAP 0796

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	The Stacker Table Lower Limit Switch (S701) is normally closed until the Stacker Table reaches the lower limit.When the metal tab on the Stacker Table enters the gap of the switch, the switch circuit opens. • Remove all of the paper from the stacker and raise the table high enough to ensure that the metal tab is not activating the Stacker Table Lower Limit Switch (S701). • Run Sensor Routine 7A. **Does the Maintenance Panel show of7A?**	Go to Step 2.	Go to Step 6.
Step 2.	• Remove the forms from the Stacker and lower the Stacker Table far enough to observe the Stacker Height Lamps. **Is the Right Stacker Height LED (PL702) on?**	Go to Step 3.	Go to Step 7.

Table 210. MAP 0796 (continued)

Step	Questions/Actions	Yes	No
Step 3.	**Is the Left Stacker Height LED (PL703) on?**	Go to Step 4.	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ157-17 and PJ733-1 – PJ157-18 and PJ733-2 • Install a new Left Stacker Height LED (PL703). @
Step 4.	• Run Sensor Routine 8D to check the Right Stacker Height Sensor (Q702). • Use a piece of paper to block the light between the Right Stacker Height LED (PL702) and the Right Stacker Height Sensor (Q702). **Does the Right Stacker Height Sensor (Q702) switch on and off correctly?**	Go to Step 5.	Go to Step 8.
Step 5.	• Run Sensor Routine 8E to check the Left Stacker Height Sensor (Q703). • Use a piece of paper to block the light between the Left Stacker Height LED (PL703) and the Left Stacker Height Sensor (Q703). **Does the Left Stacker Height Sensor (Q703) switch on and off correctly?**	No problem has been clearly found. • Retrace your steps through this MAP. • Refer to the QUICK CHECKS. • Refer to the POSSIBLE FAILING PARTS OR ADJUSTMENTS.	Go to Step 10.

Table 210. MAP 0796 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ705. • Measure the resistance between J705-1 and J705-2 (the switch side of the connector). **Is there continuity between J705-1 and J705-2?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ705-1 and PJ157-5 – PJ705-2 and PJ157-6 • Install a new Stacker Control Card (SCxxx). @	• Install a new Stacker Table Lower Limit Switch (S701). @
Step 7.	**Is the Left Stacker Height LED (PL703) on?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ157-15 and PJ732-1 – PJ157-16 and PJ732-2 • Install a new Right Stacker Height LED (PL702). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ157-15 and PJ732-1 – PJ157-16 and PJ732-2 – PJ157-17 and PJ733-1 – PJ157-18 and PJ733-2 • Install a new Stacker Control Card (SCxxx). @

Table 210. MAP 0796 (continued)

Step	Questions/Actions	Yes	No
Step 8.	**Is the optical axis aligned correctly?**	Go to Step 9.	• Align the Right Stacker Height LED (PL702) so the light shines on the Right Stacker Height Sensor (Q702).
Step 9.	• Ensure that the light from the Right Stacker Height LED (PL702) is shining on the Right Stacker Height Sensor (Q702). • Measure the voltage at PJ731-2. **Is the voltage greater than +3 V dc?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ157-20 and PJ731-2. • Install a new Stacker Control Card (SCxxx). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ157-19 and PJ731-1. • Install a new Right Stacker Height Sensor (Q702). @
Step 10.	**Is the optical axis aligned correctly?**	Go to Step 11.	• Align the Left Stacker Height LED (PL703) so the light shines on the Left Stacker Height Sensor (Q703).
Step 11.	• Ensure that the light from the Left Stacker Height LED (PL703) is shining on the Left Stacker Height Sensor (Q703). • Measure the voltage at PJ730-3. **Is the voltage greater than +3 V dc?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ157-22 and PJ730-3. • Install a new Stacker Control Card (SCxxx). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ157-21 and PJ730-1. • Install a new Left Stacker Height Sensor (Q703). @

MAP 0797: Stacker Gate Open

Symptom Explanation	Conditions That Could Cause This Symptom
The STACKER GATE OPEN error occurs, even though the Stacker Gate is closed.	• The Stacker Gate Safety Open Switch (S712) is defective. • The Stacker Gate Safety Open Switch (S712) is out of adjustment. • The Stacker Control Card (SCxxx) is defective.

REFERENCES

- Removals & Adjustments -
  Stacker
  Fuser
- Circuit Diagrams - CD120 - Stacker Gate Open Switch (S712)
- Wiring Diagrams -
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 77. The status of the Stacker Gate Safety Open Switch (S712) is indicated by the Maintenance Panel display.
- Run the Alternate Print Sample. An error is indicated by `STACKER GATE OPEN` on the Display/Touch Screen or by **E01C** on the Maintenance Panel.
- Switch machine power off then on to run the power-on diagnostics. An error is indicated by `STACKER GATE OPEN` on the Display/Touch Screen or by **E01C** on the Maintenance Panel.

QUICK CHECKS

- Check the operation and adjustment of the Stacker Gate and the Stacker Gate Safety Open Switch (S712).

SERVICE CHECKS

- Run Sensor Routine 77. This routine checks the status of the Stacker Gate Safety Open Switch (S712).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Gate Open Switch (S712)	95%	2117	3467	2967
Stacker Control Card SCxxx	05%	2120	3457	3019

MAP 0797 BEGINS

Table 211. MAP 0797

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Open and close the Stacker Gate to check for binds or obstructions. **Does the Stacker Gate open and close correctly?**	Go to Step 2.	• Repair the Stacker Gate.
Step 2.	• Run Sensor Routine 77. • Open and close the Stacker Gate while in Diagnostic mode to test the operation of the Stacker Gate Safety Open Switch (S712). **Does the Stacker Gate Safety Open Switch (S712) operate correctly?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Ensure that the Stacker Gate Safety Open Switch (S712) is adjusted correctly. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. If you find no problems, go to MAP 0001: Introduction.	Go to Step 3.

Table 211. MAP 0797 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. • Ensure that the Stacker Gate is closed and latched. • Disconnect connector PJ734. • Measure the resistance between P734-3 and P734-4 (the switch side of the connector). **Is there continuity between P734-3 and P734-4?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ734-3 and PJ157-7 or between PJ734-4 and PJ157-8. • Readjust the Stacker Gate Safety Open Switch (S712). • Install a new Stacker Control Card (SCxxx). @	Do the following, one step at a time, until the problem is corrected: • Readjust the Stacker Gate Safety Open Switch (S712). • Install a new Stacker Gate Safety Open Switch (S712). @

MAP 0798: Stacker Table Down

Symptom Explanation	Conditions That Could Cause This Symptom
The Stacker Table does not raise even though the Table UP switch is pressed.	• "Stacker Enabled" configuration item is set to No or the post-processor is still enabled. • The Pre/postprocessor interface is failing. • Table UP switch is open. • Table STOP switch is shorted. • Table DOWN switch is shorted. • Fuser Control Card (FSxxx) is defective • Stacker Table Upper Limit Switch (S704) is defective • Right Stacker Height LED (PL702) and Left Stacker Height LED (PL703) are defective.
No response when the Stacker Table UP, Table STOP, or Table DOWN switches are pressed.	• Table UP switch is open. • Table STOP switch is open. • Table DOWN switch is open. • Fuser Control Card (FSxxx) is defective.
The Stacker Table moves down too fast, causing forms to stack loose or to flow onto the floor.	• Stacker Height LEDs or Sensors are dirty. • Right Stacker Height LED (PL702) is open. • Left Stacker Height LED (PL703) is open. • Right Stacker Height Sensor (Q702) is open. • Left Stacker Height Sensor (Q703) is open. • Stacker Control Card (SCxxx) is defective.
The Stacker Table is all the way down and the forms flow onto the floor with no error messages.	• The B1J9 Card is defective.

REFERENCES

- Removals & Adjustments - Stacker
- Circuit Diagrams -
  CD131 - Stacker Control Panel (SW511)
  CD34 - Stacker Table Switches (S701, S704)
  CD32 - Stacker Height Sensor (Q703)
- Wiring Diagrams -
  WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101)
  WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 7E. This routine checks the Stacker Control Panel (SW511) switches.
- Run Sensor Routine 78. This routine checks the Stacker Table Upper Limit Switch (S704) and circuit.
- Run Sensor Routine 8D. This routine checks the Right Stacker Height Sensor (Q702) and Right Stacker Height LED (PL702) operation.
- Run Sensor Routine 8E. This routine checks the Left Stacker Height Sensor (Q703) and Left Stacker Height LED (PL703) operation.
- Print the **Print Pack** (1569). An error is indicated by `STACKER TABLE DOWN` on the Display/Touch Screen or by **E016** on the Maintenance Panel.

QUICK CHECKS

- Ensure that the Right Stacker Height LED (PL702) and the Left Stacker Height LED (PL703) are both shining onto the Photosensors.
- Ensure that all of the upper stacker LEDs and Photosensors are clean.

SERVICE CHECKS

- Run Sensor Routine 7E. This routine checks the Stacker Control Panel (SW511) switches.
- Run Sensor Routine 78. This routine checks the Stacker Table Upper Limit Switch (S704) and circuit.
- Run Sensor Routine 8D. This routine checks operation of the Right Stacker Height Sensor (Q702) and Right Stacker Height LED (PL702).
- Run Sensor Routine 8E. This routine checks operation of the Left Stacker Height Sensor (Q703) and Left Stacker Height LED (PL703).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Control Panel (SW511)	50%	2118	3455	2957
B1J9 Card	10%	B1 Logic Card Links		
Stacker Table Upper Limit Switch (S704)	10%	2118	3489	3017
Stacker Control Card SCxxx	08%	2120	3457	3019
Fuser Control Card FSxxx	07%	2131	3499	2528
Right Stacker Height LED (PL702)	05%	2118	3483	2973
Left Stacker Height LED (PL703)	05%	2118	3471	2973
Right Stacker Height Sensor (Q702)	03%	2118	3483	2973
Left Stacker Height Sensor (Q703)	02%	2117	3471	2973

MAP 0798 BEGINS

Table 212. MAP 0798

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run Sensor Routine 7E. • Test the Table Up switch. **Does the Table Up switch operate correctly?**	Go to Step 2.	Go to Step 6.
Step 2.	• Run Sensor Routine 7E. • Test the Table Stop switch. **Does the Table Stop switch operate correctly?**	Go to Step 3.	Go to Step 9.
Step 3.	• Run Sensor Routine 7E. • Test the Table Down switch. **Does the Table Down switch operate correctly?**	Go to Step 4.	Go to Step 11.

Table 212. MAP 0798 (continued)

Step	Questions/Actions	Yes	No
Step 4.	The Stacker Table Upper Limit Switch (S704) is normally closed until the Stacker Table reaches the upper limit. When the metal tab on the Stacker Table enters the gap of the switch, the switch circuit opens. • Remove all of the paper from the stacker and ensure that the Stacker Table is low enough that the metal tab is not activating the Stacker Table Upper Limit Switch (S704). • Run Sensor Routine 78. **Does the Maintenance Panel show oF78?**	The problem may be caused by a failure of one of the Stacker Height LEDs or Sensors. Go to MAP 0172: Stacker Table Timeout, Step 1.	Go to Step 5.
Step 5.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ703. • Measure the resistance between P703-1 and P703-2 (the switch side of the connector). **Is there continuity between P703-1 and P703-2?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ703-1 and PJ157-13 or between PJ703-2 and PJ157-14. • Install a new Stacker Control Card (SCxxx). @	• Install a new Stacker Table Upper Limit Switch (S704). @
Step 6.	• Check the configuration value for the “Stacker Enabled” item under **Configure Printer**. **Is the “Stacker Enabled” configuration value set to Yes?**	Go to Step 7.	“Stacker Enabled” must be set to Yes to allow the stacker to work.

Table 212. MAP 0798 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Check the Enabled field for all postprocessors using the **Configure Pre/Postprocessor** procedure. **Are all postprocessors disabled (the Enabled field set to No)?**	Go to Step 8.	• Disable all postprocessors.
Step 8.	• Disconnect the Pre/postprocessor interface connector (P229) from connector J229. • Set the Diagnostic Function Switch on the B1J11 Card to **0** and toggle the Reset switch to exit diagnostic mode. • Test the Table Up switch. **Does the Table Up switch operate correctly?**	There is a problem with the Pre/postprocessor interface. Go to MAP 0800: Pre/Postprocessing Interface Start Map.	Go to Step 13.
Step 9.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ6012. • Measure the resistance between P6012-10 and P6012-11 (the switch side of the connector). **Is there continuity between P6012-10 and P6012-11?**	The Table Stop switch is shorted. • Install a new Stacker Control Panel (SW511). @	Go to Step 10.

Table 212. MAP 0798 (continued)

Step	Questions/Actions	Yes	No
Step 10.	• Continue to measure the resistance between P6012-10 and P6012-11. • Press and hold the **Table Stop** switch. **Is there continuity between P6012-10 and P6012-11?**	• Install a new Fuser Control Card (FSxxx). @	The Table Stop switch is open. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ728-10 and PJ6012-10 or between PJ728-11 and PJ6012-11. • Install a new Stacker Control Panel (SW511). @
Step 11.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ6012. • Measure the resistance between P6012-12 and P6012-13 (the switch side of the connector). **Is there continuity between P6012-12 and P6012-13?**	The Table Down switch is shorted. • Install a new Stacker Control Panel (SW511). @	Go to Step 12.

Table 212. MAP 0798 (continued)

Step	Questions/Actions	Yes	No
Step 12.	• Continue to measure the resistance between P6012-12 and P6012-13. • Press and hold the **Table Stop** switch. **Is there continuity between P6012-12 and P6012-13?**	• Install a new Fuser Control Card (FSxxx). @	The Table Down switch is open. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ728-12 and PJ6012-12 or between PJ728-13 and PJ6012-13. • Install a new Stacker Control Panel (SW511). @
Step 13.	• SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect connector PJ6012. • Measure the resistance between P6012-8 and P6012-9 (the switch side of the connector). **Is there continuity between P6012-8 and P6012-9?**	The Table Up switch is shorted. • Install a new Stacker Control Panel (SW511). @	Go to Step 14.

Table 212. MAP 0798 (continued)

Step	Questions/Actions	Yes	No
Step 14.	• Continue to measure the resistance between P6012-8 and P6012-9. • Press and hold the **Table Up** switch. **Is there continuity between P6012-8 and P6012-9?**	Do the following, one step at a time, until the problem is corrected: • Install a new Fuser Control Card (FSxxx). • Install a new B1J9 Card. @	The Table Up switch is open. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between PJ728-8 and PJ6012-8 or between PJ728-9 and PJ6012-9. • Install a new Stacker Control Panel (SW511). @

MAP 0799: Fine Filter Not Installed

Symptom Explanation	Conditions That Could Cause This Symptom
The Fine Filter is not installed or is not fully seated. The Fine Filter Switch (S108) is normally closed when the Fine Filter is installed.	• The Fine Filter Switch (S108) or sensing circuitry is defective.

REFERENCES

- Removals & Adjustments - Air System
- Circuit Diagrams - CD121 - Fine Filter Switch (S108)
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).
  An error is indicated by `CHECK FINE FILTER` on the Display/Touch Screen or by **E018** on the Maintenance Panel.

QUICK CHECKS

- Fully seat the Fine Filter.

SERVICE CHECKS

- Run Sensor Routine 54 to test the Fine Filter Switch (S108).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Fine Filter Switch (S108)	90%	2053		2184
Toner Control Card PCxxx	10%	2053	3199	2402
Open or short circuit	---			

MAP 0799 BEGINS

Table 213. MAP 0799

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	This MAP fixes two conditions: • `CHECK FINE FILTER` is always displayed • `CHECK FINE FILTER` is never displayed **Is `CHECK FINE FILTER` always displayed?**	Go to Step 2.	Go to Step 3.
Step 2.	`CHECK FINE FILTER` is always displayed. The switch should be closed when the Fine Filter is installed. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Ensure that the Fine Filter is installed. • Locate the PJ131 connector between the Fine Filter Case and the Cyclone. • Disconnect connector PJ131. Check continuity through the switch by answering the following question: **Is there continuity between pins P131-1 and P131-2 with the Fine Filter installed?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Install a new Toner Control Card (PCxxx). • Repair an open circuit between one of the following pairs of connectors: – PJ135-13 and PJ131-2 – PJ135-14 and PJ131-1 @	Do the following, one step at a time, until the problem is corrected: • Try to correct a binding or maladjusted Fine Filter Switch (S108). Use the Maintenance Panel Extension Cable to run Sensor Routine 54, if desired. • SHUTDOWN AND POWER OFF THE PRINTER. • Install a new Fine Filter Switch (S108). @

Table 213. MAP 0799 (continued)

Step	Questions/Actions	Yes	No
Step 3.	CHECK FINE FILTER is never displayed. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Fine Filter. • Locate the PJ131 connector between the Fine Filter Case and the Cyclone. • Disconnect connector PJ131. Check continuity through the switch by answering the following question: **Is there an open circuit between pins P131-1 and P131-2 when the Fine Filter is removed?**	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Install a new Toner Control Card (PCxxx). • Repair a short circuit to ground in the wiring network described by PJ135-13 and PJ131-2 end points. @	Do the following, one step at a time, until the problem is corrected: • Try to correct a binding or badly adjusted Fine Filter Switch (S108). Use the Maintenance Panel Extension Cable to run Sensor Routine 54, if desired. • SHUTDOWN AND POWER OFF THE PRINTER. • Install a new Fine Filter Switch (S108). @

MAP 079A: Tension Arm Position Incorrect

Symptom Explanation	Conditions That Could Cause This Symptom
The blue mark on the Tension Arm should be positioned within the notch on the frame. The message `CHECK TENSION ARM` is displayed.	• The forms are not installed correctly. • There is a failure in the Tension Arm Encoder Board (EN123), Tension Arm Encoder Board (EN122), or their sensing circuitry. • There is a problem with the Scuff Rolls or Pressure Rolls (see MAP 0134: Fuser Wrap). • The manifold distribution filter is clogged. • There is a problem with the Preheat Platen Vacuum adjustment. • If the problem occurs after an NPRO, the Upper Tractor Jam Sensor (Q301) may be dirty.

REFERENCES

- Removals & Adjustments -
  Transfer Station
  Fuser
  Air System
- Circuit Diagrams - CD11 - Tension Arm Encoder
- Wiring Diagrams -
  WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
  WD63 - Forms Path Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).
  An error is indicated by CHECK TENSION ARM o the Display/Touch Screen or **E01A** on the Maintenance Panel.

QUICK CHECKS

1. Perform the following steps to recover from this error:
   a. Ensure that the manifold distribution filter is clean.
   b. Ensure that the perforation is correctly aligned on the scale.
   c. Press the vacuum pushbutton and wait for the vacuum off indicator to stop flashing.
   d. Press the Stacker **Table Up** key to run the Scuff Rolls for five seconds.
   e. Position the blue mark on the Tension Arm in the notch.
   f. Press the vacuum pushbutton and wait for the vacuum off indicator to stop flashing.
2. If the problem occurs again, especially after an NPRO, clean the Upper Tractor Jam Sensor (Q301). Use a pencil eraser if necessary.

SERVICE CHECKS

- Run Sensor Routine 64 to display the Tension Arm positions.
- Perform the Check procedure under Tension Arm Position.
- Perform the Check procedure under Tension Arm Parallelism.
- Perform the Check procedure under Tension Arm Encoder Position.
- Run Adjustment Routine C6 to adjust the Tension Arm Encoder position. The displays are the same as routine 64, above, but the Forms Feed keys are operational.
- Perform the Check procedure under Preheat Platen Vacuum Adjustment.
- Run Driver Routine 24 to test the Vacuum Blower Motor (M105).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Tension Arm Encoder Board (EN123)	25%	2125	3321	3090
Tension Arm Encoder Board (EN122)	25%	2125	3321	3090
Forms Width Sensor Board (PW091)	10%	2123	3333	3046
YS011 Card	10%	2116	3363	2627
Vacuum Blower Motor (M105)	10%	2063	3309	2191
Relay Board (RB101)	10%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	10%	B1 Logic Card Links		
Tension Arm Position adjustment	---			3106
Tension Arm Parallelism adjustment	---			3105
Preheat Platen Vacuum adjustment	---			2189
Upper Tractor Jam Sensor (Q301)	---	2123	3317	3152
Open or short circuit	---			

MAP 079A BEGINS

Table 214. MAP 079A

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	If you find no problems using the QUICK CHECKS, continue with the questions. If the Scuff Rolls are not providing enough tension, the Tension Arm rises. The forms must be loaded to do the following check. If an autoload is not possible, manually load the forms. Perform the following steps: • Ensure that the perforation is correctly aligned on the scale by the Lower Rear Tractor. • Press the vacuum pushbutton and wait for the vacuum off indicator to stop flashing. • Press the Stacker **Table Up** key to run the Scuff Rolls for five seconds. • Position the blue mark on the Tension Arm in the notch. • Press the vacuum pushbutton and wait for the vacuum off indicator to stop flashing. **Can the Tension Arm be held in place by the forms tension?**	Go to Step 2.	There is a problem with the Scuff Rolls or Pressure Rolls. Go to MAP 0134: Fuser Wrap.

Table 214. MAP 079A (continued)

Step	Questions/Actions	Yes	No
Step 2.	Certain autoload errors, such as SRC 186, time out. The display changes to CHECK TENSION ARM. • Perform an autoload operation. **Was the autoload successful?**	Go to Step 3.	Go to the correct MAP for the first error message displayed.
Step 3.	Perform the following steps: • Remove the forms from the printer. • Rotate the Splice Lever to the down (splice) position. • Run Driver Routine 24 and check for vacuum while the routine is running. **Is vacuum present at the Splicing Table when the routine is running?**	Go to Step 5.	Go to Step 4.
Step 4.	The vacuum system is not operating correctly. **Can you hear the Vacuum Blower Motor (M105) running while Driver Routine 24 is running?**	• Rotate the Splice Lever to the up (run) position. • Repair the hoses from the Vacuum Blower Motor (M105) to the Distribution Manifold. (See Manifold Distribution Filter to help locate the parts.)	• Rotate the Splice Lever to the up (run) position. Go to Step 13.
Step 5.	• Rotate the Splice Lever to the up (run) position. **Is the Tension Arm firmly mounted and clamped to its shaft?**	Go to Step 6.	The Tension Arm has come loose from its mounting or its shaft. • Perform the adjustment. Also do the Tension Arm Parallelism and Tension Arm Encoder Position adjustments.

Table 214. MAP 079A (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Perform the Check procedure under Tension Arm Position. **Is the Tension Arm Position adjustment correct?**	Go to Step 7.	• Perform the adjustment. • Also do the Tension Arm Parallelism and Tension Arm Encoder Position adjustments.
Step 7.	• Perform the Check procedure under Tension Arm Parallelism. **Is the Tension Arm Parallelism adjustment correct?**	Go to Step 8.	• Perform the adjustment. If the problem continues, go to Step 8.

Table 214. MAP 079A (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Run Sensor Routine 64 to display the Tension Arm positions. **Do all of the positions display as the Tension Arm is moved through its full range of motion?**	Go to Step 9.	• SHUTDOWN AND POWER OFF THE PRINTER. There is a problem with the Tension Arm Encoder circuits. Do the following, one step at a time, until the problem is corrected: • Check the following connectors for proper contact: – PJ141 – PJ302 – PJ305 – PJ306 – PJ307 • Install the new parts listed below, one at a time, until the problem is corrected: – Tension Arm Encoder Board (EN123) – Tension Arm Encoder Board (EN122) – Forms Width Sensor Board (PW091) – YS011 Card @ (continued on next page)

Table 214. MAP 079A (continued)

Step	Questions/Actions	Yes	No
Step 8 (cont.)			• Repair an open circuit between one of the following pairs of connectors: – PJ307-11 and PJ141-11 – PJ307-12 and PJ141-12 – PJ307-13 and PJ141-13 – PJ307-15 and PJ141-15 – PJ307-29 and PJ141-29
Step 9.	Perform the following steps: • Perform the adjustment procedure under “Tension Arm Damping Force” in Transfer Station. (EC dependent) • Perform an autoload and run test prints. Press **Stop** and **Ready** several times to re-create the problem. **Does the problem still exist?**	Go to Step 10.	The problem was fixed by the Tension Arm Damping Force adjustment.
Step 10.	• Perform the Check procedure under Tension Arm Encoder Position adjustment. **Is the Tension Arm Encoder position correct?**	Go to Step 11.	• Perform the adjustment.
Step 11.	• Perform the Check procedure under Preheat Platen Vacuum Adjustment. **Is the adjustment correct?**	The Scuff Roll may not be providing enough tension. Go to MAP 0134: Fuser Wrap.	Go to Step 12.

Table 214. MAP 079A (continued)

Step	Questions/Actions	Yes	No
Step 12.	• Perform the Preheat Platen Vacuum Adjustment procedure. **Can you adjust the vacuum to the correct value?**	• Perform an autoload and run test prints. Press **Stop** and **Ready** several times to verify the fix.	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair the vacuum hoses from the Distribution Manifold to the Vacuum Plate and Preheat Platens. • Install a new Vacuum Blower Motor (M105). @
Step 13.	The Vacuum Blower Motor (M105) is a three-phase ac motor. You will be asked to make three voltage measurements in each of the following steps, to determine if the correct ac voltage is present. • Install the Maintenance Panel Extension Cable. • Run Driver Routine 24 and measure the voltage between the following connectors while the routine is running. – PJ633-1 and PJ633-2 – PJ633-1 and PJ633-3 – PJ633-2 and PJ633-3 **Are all three voltage measurements 200 V ac?**	• Install a new Vacuum Blower Motor (M105). @	Go to Step 14.

Table 214. MAP 079A (continued)

Step	Questions/Actions	Yes	No
Step 14.	• Run Driver Routine 24 and measure the voltage at PJ501-10 while the routine is running. **Does the voltage switch from +24 V dc to 0 V dc when the routine runs?**	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between one of the following pairs of connectors: – PJ633-1 and PJ503-4 – PJ633-2 and PJ503-6 – PJ633-3 and PJ503-5 • Install a new Relay Board (RB101). @	Do the following, one step at a time, until the problem is corrected: • SHUTDOWN AND POWER OFF THE PRINTER. • Repair an open circuit between PJ501-10 and PJ481-12. • Install a new B1J9 Card. @

MAP 079C: Toner Supply Low

Note: Use this Map only if the Enhanced Toner Loading System is installed.

Symptom Explanation	Conditions That Could Cause This Symptom
The TONER SUPPLY LOW message repeats, even though the Toner Hopper has toner.	• The toner is sticking or caking in the Toner Hopper. • The Toner Empty Sensor (S106) is defective. • The Toner Control Card (PCxxx) is defective.

REFERENCES

- Removals & Adjustments - 2353
- Circuit Diagrams - CD111 - Toner Empty Sensor (S106)
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run Sensor Routine 58. The status of the Toner Empty Sensor (S106) is indicated by the Maintenance Panel display.

  Run at least 1200 feet for a complete fix verification.

QUICK CHECKS

- Check the level of toner in the hopper.
- Check for sticking or caking toner in the hopper.
- Check for obvious problems with the Toner Empty sensor.

SERVICE CHECKS

- Run Sensor Routine 58. This routine checks the status of the Toner Empty Sensor (S106).

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts LinkParts Link	Removals & Adjustments Link
Toner sticking or caking in the Toner Hopper	65%			
Toner Empty Sensor (S106)	30%	2068	3257	2414
Toner Control Card PCxxx	05%	2053	3199	2402

MAP 079C BEGINS

Table 215. MAP 079C

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Check the level of toner in the Toner Hopper. **Is the toner level above the Toner Empty Sensor (S106)?**	Go to Step 2.	• Add toner to the Toner Hopper.
Step 2.	• Check for sticking or caking toner in the Toner Hopper. **Is the toner sticking or caking?**	• Loosen the sticking or caking toner.	Go to Step 3.
Step 3.	• Run Sensor Routine 58 to test the Toner Empty Sensor (S106). **With toner covering the sensor, does the Maintenance Panel display read oF58?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problems, go to MAP 0001: Introduction.	Do the following, one step at a time, until the problem is corrected: • Check all connectors in the circuit for damage and correct seating. • Install a new Toner Empty Sensor (S106). • Install a new Toner Control Card (PCxxx). @

MAP 07A0: Toner Loading With Enhanced Toner Loading System

Note: Use this MAP only if the Enhanced Toner Loading System is installed.

Symptom Explanation	Conditions That Could Cause This Symptom
The printer has the Enhanced Toner Loading System and there is no response to the Toner Supply pushbutton.	• The Toner Supply Switch (S121) is open. • The Toner Control Card (PCxxx) is defective. • The Relay Board (RB241) is defective. • The auger mechanism is defective. • The Toner Supply Motor is defective. • Switch S8-3 on the B1J11 Card is in the ON position.

Note: Use this MAP in place of MAP 078D: Toner Loading if the printer has the Enhanced Toner Loading System installed.

REFERENCES

- Removals & Adjustments - Developer
- Circuit Diagrams - CD122 - Toner Supply Switch (S121)
- Wiring Diagrams -
  WD30 - Single Phase AC Motors (M102, M103, M301 & M302)
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Press the **Toner Supply** pushbutton. The Toner Supply Motor and auger mechanism should operate.
- Run Sensor Routine 8B. This routine checks the Toner Supply Switch (S121) and its circuitry.

QUICK CHECKS

- Press the **Toner Supply** pushbutton. The Toner Supply Motor and auger mechanism should operate.
- Check to see that switch S8-3 on the B1J11 Card is off.

SERVICE CHECKS

- Run Sensor Routine 8B to test the Toner Supply Switch (S121).
- Press the **Toner Supply** pushbutton. The Toner Supply Motor and auger mechanism should operate.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Supply Switch (S121)	60%	2068	3231	2438
Toner Supply Belt	10%		3257	2369
Toner Auger Pulley	10%	2066	3249	2431
Toner Auger mechanism	10%	2066	3249	2431
Toner Control Card PCxxx	03%	2053	3199	2402
Relay Board (RB241)	03%	2062	3205	
Toner Supply Motor (M112)	03%	2068	3251	2431
B1J11 Card	01%	B1 Logic Card Links		

Important

The Printer microcode causes a CHANGE TONER COLLECTOR message to be displayed for every eight times that the Toner Load pushbutton is pressed following a toner collector bottle change. It is recommended that you install an empty toner collector bottle, even if the bottle in the machine is not full.

MAP 07A0 BEGINS

Table 216. MAP 07A0

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Press and hold the **Toner Supply** pushbutton for 3 or 4 seconds. **Note:** A quick press and release of the **Toner Supply** pushbutton activates the Toner Supply Motor. Holding the pushbutton down for more than 2 seconds turns on the Toner Loading LED indicator instead of running the motor. **Does the toner motor LED turn on?**	Go to Step 3.	Go to Step 2.

Table 216. MAP 07A0 (continued)

Step	Questions/Actions	Yes	No
Step 2.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Separate the Control Unit frame from the printer frame so you can access the connectors on the right side of the Developer. • Locate the PJ114 connector on the Developer. • Disconnect connector P114 from the Developer. Check continuity through the Developer half (J114) of the connector. The pins you will be checking connect to PJ190 inside the Developer and then to the Toner Supply Switch (S121). **Is there continuity between pins J114-5 and J114-3 when you press the Toner Supply pushbutton, and no continuity when you release the pushbutton?**	The Toner Supply Switch (S121) is working correctly, so the problem must be in the Toner Control Card PCxxx or the wiring. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs: – PJ135-44 and PJ114-5 – PJ135-47 and PJ114-3 • Install a new Toner Control Card PCxxx • Install a new B1J11 Card @	There is a problem with the Toner Supply Switch (S121) or its circuit. Pull the Developer out onto the service rails. • Check connector PJ190 for correct connection. • If that is not the problem, install a new Toner Supply Switch (S121).
Step 3.	The switch and circuits are good and the toner motor LED is on. • Quickly press and release the **Toner Supply** pushbutton to deactivate the LED. • Quickly press and release the **Toner Supply** pushbutton again. **Does the toner load auger turn when the Toner Supply pushbutton is pushed?**	The problem is intermittent. • Review the QUICK CHECKS and POSSIBLE FAILING PARTS OR ADJUSTMENTS. • Check all connectors in the circuit for damage and correct seating. • Retrace your steps through the MAPs. • If you find no problem, go to MAP 0001: Introduction.	Go to Step 4.

Table 216. MAP 07A0 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Measure the voltage between J1015-1 and J1015-2. **Does the voltage measure more than 180 V ac?**	Go to Step 6.	Go to Step 5.
Step 5.	• Press the **Toner Supply** pushbutton again and measure the voltage between J1015-1 and J1015-2. **Does the voltage measure more than 180 V ac?**	Go to Step 6.	Do the following one at a time until the problem is corrected: • Install a new Relay Board (RB241). • Install a new Toner Control Card PCxxx • Correct any wiring problems in the toner supply circuit. @
Step 6.	Do the following one at a time until the problem is corrected: • Check the Toner Supply Belt. Adjust or replace as necessary. • Check the auger shaft for broken or binding parts. The shaft should rotate freely. • Replace the Toner Supply Motor Assembly. @		

MAP 0800: Pre/Postprocessing Interface Start Map

MAP 0800 BEGINS

Table 217. MAP 0800

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Is an 841 or 842 SRC displayed?**	Do the following, one at a time, until the problem is corrected: • Ensure that connectors PJJ1 and PJ229 are connected correctly. • Install a new cable between PJJ1 and PJ229. • Install a new Mechanism Interface Card (MIC). • Install a new B1J11 Card. • Install a new B1J10 Card. • Install a new Toner Control Card (PCxxx).	Go to Step 2.
Step 2.	**Is a D20A or D204 SRC displayed?**	• Disable the pre/post port and then enable the port. If the problem is not fixed, go to Step 3.	Go to Step 3.

Table 217. MAP 0800 (continued)

Step	Questions/Actions	Yes	No
Step 3.	**Important** The Coupled Interface Adapter Card is required to use a coupled interface. The intelligent interface uses only the Isolation card. It is important to know which type of interface is being used by the Pre/postprocessor or the wrap plug during diagnostics. If you have attempted to connect to a Pre/postprocessor or to run a wrap test incorrectly (Coupled Interface Adapter Card is/is not installed), there is a possibility that the Isolation card has been damaged. A data stream can only be passed to a Pre/postprocessor by using the intelligent interface. If you are using a Troy MICR printer or a Beste Bunch color printer, you must use the intelligent interface. Most of the unwinder/folder combinations provided by RSI, Wallace, Hunkeler, Boewe, and others use the coupled interface, and therefore require the Coupled Interface Adapter Card. • Inspect the Isolation card for the failing interface. **Is a Coupled Interface Adapter Card mounted to the Isolation card?**	It is assumed that this interface is to be the coupled type. If it is not, and you have already made the connection, the Isolation card may be damaged. If it is, go to MAP 0810: Coupled Pre/Processing Interfaces.	It is assumed that this interface is to be the intelligent type. If it is not, and you have already made the connection, the Isolation card may be damaged. If it is, go to MAP 0820: Intelligent Pre/Processing Interfaces.

MAP 0810: Coupled Pre/Processing Interfaces

Table 218. Sense Data Format

Byte 0	Byte 1	Byte 2 - 10
10	Test Number 18 = Port 1 19 = Port 2 1A = Port 3	Error code, each 1 byte in length (up to 9 error codes may be displayed.)

Table 219. Coupled Pre/Postprocessing Interface Diagnostic Error Codes

Byte 2 of Sense Data (Hex values)	Action	Definition
01	Ensure the Isolation card is connected correctly.	The pre/postprocessing interface wrap test could not detect the presence of the Isolation card on this port. The remainder of the pre/postprocessing interface wrap test is not run.
02 to 1B 1D to 20	Go to Step 6.	Error occurred during wrap of the Isolation card and Mechanism Interface Card (MIC).
1C 24 to 35	Go to Step 9.	Error occurred during wrap of the Isolation card, internal cabling, and the Coupled Interface Adapter Card.
Other errors	Call your next level support.	An unexpected result was displayed.

MAP 0810 BEGINS

Table 220. MAP 0810

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Disconnect the Pre/postprocessor at the connector at the rear of the Control Unit. • Remove the Control Unit Right Side Cover. • Connect the power leads on the Pre/postprocessing Interface Wrap Plug marked **A** to the power connector PT01 provided inside the Control Unit. • Install the Pre/postprocessing Interface Wrap Plug in the external connector. Use the following table to identify the connector for the pre/postprocessing port being used: **Port Connector** **1** P/P1 (P/P DEVICE 1 TG) **2** P/P2 (P/P DEVICE 2 TG) **3** P/P3 (P/P DEVICE 3 TG) • Run the coupled pre/postprocessing interface wrap test. **Did the test fail with an error displayed?**	Go to Step 2.	Go to Step 3.

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Is SRC D096 displayed?**	In addition to the SRC, sense data will be displayed. See Table 218. During the pre/postprocessing interface wrap test, more than one error may be encounterd. The first error code encountered will appear in Byte 2. See Table 219.	A different error occurred during the pre/postprocessing interface wrap test. Go to MAP 0010: Symptom Start MAP.

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The pre/postprocessing interface wrap test did not fail. The problem is in the Pre/postprocessor, Mechanism Interface Card (MIC), or the printer logic or cabling. • Install the pre/postprocessing interface test card (1587). • Set "DEVICE READY" to Yes on the test card. When the test card is properly installed and the configuration item Stacker Enable is set to No in Configure Printer, the stacker table descends to the bottom or remains down if it is already there. If it is not down, run a test print to cause the stacker table to descend. **Does the stacker table operate correctly?**	Go to Step 4.	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ229-7 and PJJ1-10 (see WD82 - MIC to Coupled Pre/Postprocessor Interface) – PJ229-7 and PJ1007-7 (see WD88 - Pre and Postprocessing Printer Circuitry) • Install a new Toner Control Card (PCxxx). • Install a new MIC Card
Step 4.	• Perform all of the Coupled Interface Test Card checks. **Did the interface check OK?**	There is a problem with the Pre/postprocessor.	Go to Step 5.

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Run the MIC isolation wrap test. **Did the test fail?**	• Install a new Mechanism Interface Card (MIC).	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ229 and PJJ1 – PJ229 and PJ1007 • Install a new Toner Control Card (PCxxx).

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 6.	An error was detected while running a wrap test from the Mechanism Interface Card (MIC) through the Isolation card. To see if the port on the Mechanism Interface Card (MIC) has failed, you will run the test again using a different port on the Mechanism Interface Card (MIC) as the only change. Use the following table to identify the connector for the pre/postprocessing port being used: **Port Connector** **1** PJJ11 (MIC P11) **2** PJJ9 (MIC P9) **3** PJJ7 (MIC P7) Perform the following steps: • Disconnect the interface at the Mechanism Interface Card (MIC) at the connector shown above. • Plug the connector into another pre/post connector on the Mechanism Interface Card (MIC) from the choices shown above. • Run the coupled pre/postprocessing interface wrap test again on the port to which you are connected. **Did the test fail?**	Go to Step 7.	• Install a new Mechanism Interface Card (MIC).

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 7.	The problem is in the Isolation card, the Coupled Interface Adapter Card, or the cable which connects it to the Mechanism Interface Card (MIC). **Does this control unit have more than one Isolation card?**	Go to Step 8.	• SHUTDOWN AND POWER OFF THE PRINTER. Install the new parts listed below, one at a time, until the problem is corrected: • Isolation card • Cable between the Isolation card and the Mechanism Interface Card (MIC).

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 8.	To check for a problem with the cable, it will be installed into a second Isolation card and tested again. Use the following table to identify the connector for the pre/postprocessing port being used: **Port Connector** **1** PJF01 (P/P CARD 1 TOP) **2** PJF02 (P/P CARD 2 TOP) **3** PJF03 (P/P CARD 3 TOP) Perform the following steps: • Disconnect the cable (from the Isolation card to the Mechanism Interface Card (MIC)) at the Isolation card on another port. • Connect the cable from the failing port onto the Isolation card of the other port. Both ends of the cable have now been installed in the other port. • Move the Pre/postprocessing Interface Wrap Plug to the other port. • Run the pre/postprocessing interface wrap test on the other port, as you did in the step above. **Did the test run correctly?**	• SHUTDOWN AND POWER OFF THE PRINTER. Install the new parts listed below, one at a time, until the problem is corrected: • Isolation card • Coupled Interface Adapter Card	The cable that has been moved to the second port has a problem. • Install a new cable.

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 9.	An error occurred while running the pre/postprocessing interface wrap test. An internal cable will be eliminated by running the wrap test directly at the Coupled Interface Adapter Card. Use the following table to identify the connector for the pre/postprocessing port being used: **Port Connector** **1** PJF04 (P/P CARD 1 BOT) **2** PJF05 (P/P CARD 2 BOT) **3** PJF06 (P/P CARD 3 BOT) Perform the following steps: • Disconnect the cable at the connector shown above. • Install the Pre/postprocessing Interface Wrap Plug marked **A** at the Coupled Interface Adapter Card. • Run the coupled pre/postprocessing interface wrap test. **Did the test fail?**	Go to Step 10.	• Install a new cable from the pre/postprocessing interface external connector P/P to the Coupled Interface Adapter Card.

Table 220. MAP 0810 (continued)

Step	Questions/Actions	Yes	No
Step 10.	**Important** You will be asked to use a different wrap plug in this step. The plug will be marked **B**. Do not use the plug marked **A**, as it will damage the Isolation card. Perform the following steps: • Disconnect the Pre/postprocessing Interface Wrap Plug from the Coupled Interface Adapter Card. • Disconnect the Coupled Interface Adapter Card from the Isolation card. • Connect the power leads on the Pre/postprocessing Interface Wrap Plug marked **B** to the power connector PJT01 provided inside the Control Unit. • Install the Pre/postprocessing Interface Wrap Plug marked **B** at the Isolation card. • Run the pre/postprocessing interface wrap test. **Did the test fail?**	• Install a new Isolation card.	• Install a new Coupled Interface Adapter Card.

MAP 0820: Intelligent Pre/Processing Interfaces

Table 221. Sense Data Format

Byte 0	Byte 1	Bytes 2-10
10	Test Number 15 = Port 1 16 = Port 2 17 = Port 3	Error code, each 1 byte in length (Up to 9 error codes may be displayed.)

Table 222. Intelligent Pre/Postprocessing Interface Diagnostic Error Codes

Byte 2 of Sense Data (Hex values)	Action	Definition
01	Ensure Isolation card is connected correctly.	The pre/postprocessing interface wrap test could not detect the presence of the Isolation card on this port. The remainder of the pre/postprocessing interface wrap test is not run.
02 to 1B 1D to 20	Go to Step 4.	Error occurred during wrap of Isolation card and Mechanism Interface Card (MIC).
1C 24 to 4D	Go to Step 7.	Error occurred during wrap of Isolation card and the internal cabling.
Other errors	Call your next level support.	An unexpected result was displayed.

MAP 0820 BEGINS

Table 223. MAP 0820

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Disconnect the Pre/postprocessor at the connector at the rear of the control unit. • Remove the control unit right side cover. • Connect the power leads on the Pre/postprocessing Interface Wrap Plug marked **B** to the power connector PJT01 provided inside the control unit. • Install the Pre/postprocessing Interface Wrap Plug in the external connector. Use the following table to identify the connector for the pre/postprocessing port being used: **Port** **Connector** **1** P/P1 (P/P DEVICE 1 TG) **2** P/P2 (P/P DEVICE 2 TG) **3** P/P3 (P/P DEVICE 3 TG) • Run the intelligent pre/postprocessing interface wrap test. **Did the test fail with an error displayed?**	Go to Step 2.	Go to Step 3.

Table 223. MAP 0820 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Is SRC D095 displayed?**	In addition to the SRC, sense data will be displayed. See Table 221. During the pre/postprocessing interface wrap test, more than one error may be encounterd. The first error code encountered will appear in byte 3. See Table 222.	A different error occurred during the pre/postprocessing interface wrap test. Go to MAP 0010: Symptom Start MAP.
Step 3.	• Run the MIC isolation wrap test. **Did the test fail?**	• Install a new Mechanism Interface Card (MIC).	• SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ229 and PJJ1 (see WD83 - MIC to Intelligent Postprocessor) – PJ229 and PJ1007 (see WD88 - Pre and Postprocessing Printer Circuitry) • Install a new B1J9 Card. • Correct a problem with the Pre/postprocessor.

Table 223. MAP 0820 (continued)

Step	Questions/Actions	Yes	No
Step 4.	An error was detected while running a wrap test from the Mechanism Interface Card (MIC) through the Isolation card. To see if the port on the Mechanism Interface Card (MIC) has failed, the test will be run again using a different port on the Mechanism Interface Card (MIC) as the only change. Use the following table to identify the connector for the pre/postprocessing port being used: **Port Connector** **1** PJJ11 (MIC P11) **2** PJJ9 (MIC P9) **3** PJJ7 (MIC P7) Perform the following steps: • Disconnect the interface at the Mechanism Interface Card (MIC) at the connector shown above. • Plug the connector into another pre/post connector on the Mechanism Interface Card (MIC) from the choices shown above. • Run the intelligent pre/postprocessing interface wrap test again on the port to which you are connected. **Did the test fail?**	Go to Step 5.	• Install a new Mechanism Interface Card (MIC).

Table 223. MAP 0820 (continued)

Step	Questions/Actions	Yes	No
Step 5.	The problem is in the Isolation card or the cable that connects it to the Mechanism Interface Card (MIC). **Does this control unit have more than one Isolation card?**	Go to Step 6.	• SHUTDOWN AND POWER OFF THE PRINTER. Install the new parts listed below, one at a time, until the problem is corrected: • Isolation card • Cable between the Isolation card and the Mechanism Interface Card (MIC).

Table 223. MAP 0820 (continued)

Step	Questions/Actions	Yes	No
Step 6.	To check for a problem with the cable, it will be installed into a second Isolation card and tested again. Use the following table to identify the connector for the pre/postprocessing port being used: **Port Connector** **1** PJF01 (P/P CARD 1 TOP) **2** PJF02 (P/P CARD 2 TOP) **3** PJF03 (P/P CARD 3 TOP) Perform the following steps: • Disconnect the cable (from the Isolation card to the Mechanism Interface Card (MIC)) at the Isolation card on another port. • Connect the cable from the failing port onto the Isolation card of the other port. Both ends of the cable have now been installed in the other port. • Move the Pre/postprocessing Interface Wrap Plug to the other port. • Run the pre/postprocessing interface wrap test on the other port, as you did in the step above. **Did the test run correctly?**	• Install a new Isolation card.	The cable that has been moved to the second port has a problem. • Install a new cable.

Table 223. MAP 0820 (continued)

Step	Questions/Actions	Yes	No
Step 7.	An error occurred while running the pre/postprocessing interface wrap test. An internal cable will be eliminated by running the wrap test directly at the Coupled Interface Adapter Card. Use the following table to identify the connector for the pre/postprocessing port being used: **Port Connector** **1** PJF04 (P/P CARD 1 BOT) **2** PJF05 (P/P CARD 2 BOT) **3** PJF06 (P/P CARD 3 BOT) Perform the following steps: • Disconnect the cable at the connector shown above. • Install the Pre/postprocessing Interface Wrap Plug marked **B** at the Isolation card. • Run the intelligent pre/postprocessing interface wrap test. **Did the test fail?**	• Install a new Isolation card.	• Install a new cable from the pre/postprocessing interface external connector P/P to the Isolation card.

MAP 1000: Print Quality Start Map

How to Use

You can use either guided maintenance (MAPs) or the Print Quality Symptoms Checklist, but first try the MAPs. If you cannot fix the problem using MAPs, use the checklist to ensure that the printer is within specifications.

Guided Maintenance (MAPs)

When you have a print quality problem, make enough prints to clearly identify the type and pattern of the problem. Use one of the print samples generated by **Print Pack** diagnostics (1569). If the print quality problem does not appear on any of the available patterns, have the customer submit the failing job, or look at a job supplied by the customer.

Use the print samples to help identify the print quality problem and determine the MAP entry point. The print samples provide a visual guide to the problem. Look for a sample that is similar to the print quality defect you found on the machine prints.

The first three print samples are reference prints and show typical print quality. These prints were made with the print contrast set at the center position **4**.

Go to the MAP number and entry point indicated in Print Quality Symptoms Checklist or in the print samples (identified by Print Sample Group in Print Quality Symptoms Checklist). If you do not find the problem in the MAP chosen, examine the prints from the machine again to determine if another MAP can be used. For example, the print may have marks, but MAP 1001: Repeating Spots Or Marks does not find the problem. The problem may actually be a small amount of fuser offset.

Print Quality Symptoms

Use Print Quality Symptoms Checklist when:

- The MAPs did not work (two or more problems may be present).
- You want to do a complete print quality check.
- Your next level of support has asked for the information.

You may want to copy the checklist and use it to record the values for later reference.

Recommendations

- Schedule a time to do all items in the print quality checklist. You will then have a reference point in addition to valuable experience.
- When you have a problem, think about what can change from the reference point: contamination, aging supplies and PM items, shifting electrical and mechanical adjustments, and so on.
- Understand that one problem can cause another. An incorrect developer gap might cause background or streaks. Cleaning is not enough—you must find the source of the problem.

Table 224. Print Quality Symptoms

If the failure is indicated by:	Print Sample Group	Take this action:
Scanner rejects bar codes		Go to MAP 1021: Bar Code Problems.
Print bloom A horizontal band of darker print across the page, ranging in thickness from 12 to 25 mm (0.5 to 1 in.) is normal. Every time printing stops, the print directly under the hot roll “blooms” and appears darker than the other parts of the page.	Reference print 4	If the backup roll lift motor (M610) and hardware is installed on the printer, ensure that it is operating correctly. If the hardware is installed, check the timing (see Modify Backup Roll Lift Motor Open/Close Timing (Position 5).) If the hardware is not installed, consider ordering the “Bloom EC. If the backup roll lift motor is operating correctly and bloom continues to be a problem for your customer, consult your marketing support. The way print jobs are sent to the printer can affect the number of pages that have “bloom.”

Table 224. Print Quality Symptoms (continued)

If the failure is indicated by:	Print Sample Group	Take this action:
Wrinkled prints	N/A	Do the following, one step at a time, until the problem is solved: 1. Check the paper in the box to determine if the paper is defective. 2. Ensure that the preheat control is not set too high. This is a likely problem if wrinkling occurs only on the sheets that stopped on the preheat platen. 3. Determine if the paper was stored incorrectly and now contains too much moisture. 4. Check the vacuum pressure and adjust or repair as necessary. 5. Perform the check procedure under Skew Sensor (D603). If the form is not tracking correctly with the steering disabled, use MAP 0133: Skew Error as if there were a skew problem. Check for problems with the hot roll bearings. Listen for noises and watch for eccentric rotation. Check whether the hot roll front collar and drive collar were replaced at the last 12 Mft PM procedure.

Table 224. Print Quality Symptoms (continued)

If the failure is indicated by:	Print Sample Group	Take this action:
Oil on prints	N/A	Check the fuser oiling mechanism, including the tubes from the oil supply. Repair or replace as necessary. If you find no oiling mechanism failure, reduce the fuser oil rate during idle time by altering printer NVS memory location FF0C. (See Read From or Write to Memory (Position 2).) The factory value in location FF0C is 20. Increasing the value in FF0C reduces the fuser oil rate during idle. Increasing FF0C too much can result in fuser offset, so try increasing the value in increments of 20 until the problem is fixed. Location FF0C is a decimal number with a maximum value of 99. Refer to Chapter 2. Diagnostics for the correct value to use in FF0C and FF0D for the 229 PPM Feature (DW1/DW2 Only).. Remove the oiler belt, manually advance it to a dry spot, and reinstall it. Use isopropyl alcohol on a lint-free cloth to clean the excess fuser oil from around the fuser and stacker.
Discolored paper	N/A	Some papers may become discolored if left in contact with the preheat platen for long periods with the printer powered on. Ensure that the preheat control is not set too high.
Toner on perforation or a horizontal gray bar on the top of the first page or bottom of the last page	N/A	The following transfer station adjustments should be checked and adjusted where necessary: 1. Retractor detent position (3063) 2. Retractor to PC Drum gap (3066) 3. Path Modifier position (3052) 4. Lower Tractor timing adjustment (3146)

Table 224. Print Quality Symptoms (continued)

If the failure is indicated by:	Print Sample Group	Take this action:
Horizontal dark bar (repeating or random) caused by an undetected mag brush bias arc	D	Go to MAP 0231: Mag Brush Bias Error and, when the defect is visible, answer Yes to the question, “Did an SRC 231 error occur?”.
Repeating spots or marks	D	Go to MAP 1001: Repeating Spots Or Marks.
Random spots or marks	D	Go to MAP 1002: Random Spots Or Marks.
Light streaks in the print	E	Go to MAP 1003: Light Streaks.
Voids, missing print, or poor contrast	E	Go to MAP 100A: Voids, Missing Print, Or Poor Contrast.
Light print	I	Go to MAP 1018: Light Print.
Light print - Trailing edges only	I	Go to MAP 1018: Light Print.
Light print - One beam is normal and the other is light.	I	Go to MAP 1018: Light Print.
Poor solid area fill	J	Go to MAP 1020: Poor Solid Area Fill Or Images.
Dark streaks	F	Go to MAP 1004: Dark Streaks Or Black Lines.
Background or dirty prints	C	Go to MAP 1005: Background Or Dirty Prints.
Background caused by every other line being written by the Two-beam printhead	C	Go to MAP 1005: Background Or Dirty Prints.
Black prints	H	Go to MAP 1006: Black Prints.
Blank prints	B	Go to MAP 1007: Blank Prints.
Residual image Image repeats one PC drum rotation (824 mm; 32.4 in.) after printing.	A	Go to MAP 1008: Residual Images.

Table 224. Print Quality Symptoms (continued)

If the failure is indicated by:	Print Sample Group	Take this action:
Offset image Hot roll offset shows up after one hot roll rotation (314 mm; 12.4 in.). Certain forms, especially labels, remain hot in the stacker and either offset on facing pages or stick together.	A	Do not press, shear, strap, or wrap the output stack while it is hot. Call your next level support for help in evaluating the forms. Ensure that the preheat control is not set too high. Go to MAP 1009: Fuser Offset Or Forms Sticking Together.
Poor fusing	A	Fusing problems over the entire page are usually caused by the forms. Call your next level support for help in evaluating the forms. Ensure that the preheat control is not set too low. Go to MAP 1010: Poor Fusing.
Line Length not correct (compressed)	N/A	Line length could be compressed on both ends. Go to MAP 1011: Registration Or Skew.
Incorrect registration or skewed image	N/A	Go to MAP 1011: Registration Or Skew.
Wavy printing	N/A	Do the following, one step at a time, until the problem is solved: 1. Correct any abnormal machine vibration. 2. Go to MAP 1012: Altered Characters Or Images.
Altered characters or images	G	Go to MAP 1012: Altered Characters Or Images.
Lines or bars extended in the scan direction	G	Go to MAP 1012: Altered Characters Or Images.
Diagonal bands	G	Go to MAP 1012: Altered Characters Or Images.
Image loss (voids) near perforations	N/A	Go to MAP 100A: Voids, Missing Print, Or Poor Contrast.
Image loss on last page of print when paper stops	N/A	Go to MAP 100A: Voids, Missing Print, Or Poor Contrast.

Table 224. Print Quality Symptoms (continued)

If the failure is indicated by:	Print Sample Group	Take this action:
Print too dark or lines too wide	N/A	Go to MAP 1013: Characters Too Dark Or Stoke Width Too Wide.
Kanji or small font characters filled in	N/A	This printer is not designed to print kanji fonts smaller than 24 pels x 24 pels. If the problem is occurring with larger kanji fonts, go to MAP 1013: Characters Too Dark Or Stoke Width Too Wide.
Kanji or small fonts too light	N/A	Increase the contrast setting to correct light fonts. If there is a problem with small fonts when the developer mix life is less than 1000 kft, go to MAP 1018: Light Print.
Background shadow on trailing edge of characters	C	Go to MAP 1014: Background Shadows (Bleeding).

Print Quality Checklist

Use this table as a checklist when troubleshooting a print quality problem.

Important

- Calibrate the drum clearance gauge before you make any measurement.
- To make the output of two printers look similar, measure the parameters in Print Quality Symptoms Checklist for both of them. Start at the top of the table. The checks are grouped by the tool required and by order of importance.

Table 225. Print Quality Checklist

Item	Tool	Notes/ References
Operator controls		Print contrast 4 is for normal text printing.
Coronas		Clean and in good condition
Too little mix		Check drain tube for spilled mix.
Mag brush A angle		2464
Mag brush B and C angle		2464
Conveyor roll angle		2440
Developer mix age	PM log	1.6 M on the developer mix counter at 150 PPM 1.4 M on the developer mix counter at 229 and 310 PPM and 324 PPM
PC drum age	PM log	Only for reference
PM procedures	PM log	±150 kft of schedule
PC drum cleaning	Drum shaft extension	Alcohol on a lint-free cloth to remove toner, adhesives, and fingerprints
Mag brush bias voltage adjustment	Digital voltmeter	2330

Table 225. Print Quality Checklist (continued)

Item	Tool	Notes/ References
Transfer corona voltage adjustment	Digital voltmeter	2339
Preclean corona voltage adjustment	Digital voltmeter	2339
Precharge corona	Digital voltmeter	2339
Toner control calibration on Toner Control Card (PCxxx)	Digital voltmeter	2402
PC drum surface voltage	Electrostatic voltmeter	2331
Erase lamp filters		Clean.
Cleaner station		Clean.
Mag brush A to doctor blade gap	Doctor/scraper gauge or feeler gauge	2453
Mag brush B to doctor blade gap	Doctor/scraper gauge or feeler gauge	2453
Mag brush C to scraper gap	Scraper gauge or feeler gauge	2459
Developer to PC drum gap	Drum clearance gauge	2446
Retractor to PC drum gap	Drum clearance gauge	3066
Path modifier position	Path modifier gauge	3052
Lower tractor timing	Tension gauge	3146
Charge corona to PC drum gap	Drum clearance gauge	Adjust only if the PC drum surface voltage varies more than 60 V dc from front to rear with a new PC drum. Best if front and rear are the same. 2316
Preclean corona to PC drum gap	Drum gauge and small scale	2323

Table 225. Print Quality Checklist (continued)

Item	Tool	Notes/ References
Laser beam power	Laser power tool	Beam Power Check Single Beam Beam Power Check Two Beam 240 Beam Power Check Two Beam 240/300
Return mirror clean	Lint-free cloth	Printhead Cleaning Procedure Single Beam Two Beam 240 Printhead Cleaning Procedure Two Beam 240/300
Pressure across cyclone	Vacuum gauge	2173
Vacuum at preheat platen	Vacuum gauge	2189

MAP 1001: Repeating Spots Or Marks

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is spots or marks that occur in repeating patterns. The marks may not appear on every page, but do appear at a fixed repeating distance when printing continuous pages. Group D contains samples of spots and marks.	• The PC drum has been damaged. A new PC drum probably needs to be installed, but first correct the cause of the damage. Possible causes of PC drum damage are: – A PC drum spacing is not correct and the drum is being scratched. – There is an autoload problem that causes the forms to be loose at the transfer point. The forms may have loaded late by one pin feed hole onto the upper tractor pins. – The developer mix has debris in it. – A corona is arcing. – A paper jam damaged the drum. • A corona or mag brush is discharging at a fixed point of the drum. • The PC drum has toner or adhesive on it that can be removed with alcohol. • The hot roll is worn or defective. • The backup roll is dirty or damaged. • The backup idler roll (Duplex printer 2) is dirty or damaged. • Something in the stacker, fuser, or autoload bridge is rubbing on the forms. • The PC drum has a pattern worn into it from printing the same pattern for over 1 Mft. • The capstan pinch rollers that are used during autoload are not moving out of the paper path and are rubbing on the printed page. Heavy forms and labels may have this problem, but lightweight forms will look fine.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Transfer Station
  Drum Drive and Photoconductor (PC)
  Developer
  Stacker

FIX VERIFICATION

- Run the Primary Print Sample for at least 30 prints to see if the repeating spots occur. If the defect the customer has noticed does not appear on prints made using the print samples, print the other print samples to see if the spot/mark appears.

QUICK CHECKS

- Check the customer’s unused forms to see if the spots or marks are present before printing.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
PC Drum	80%	2082	3261	2467
Hot Roll	10%	2073	3387	2537
Corona arcing	04%	2082 (charge/precharge/preclean) 2123 (transfer)	3211 (charge) 3209 (precharge/preclean) 3337 (transfer)	2313 (charge) 2320 (precharge/preclean/transfer)
Mag Brush arcing	%	2067	3237	2392
Backup Roll	03%	2073	3431	2503
Backup Idler Roll (if installed)	02%	2073	3241	2522
High Voltage Power Supply	01%	2059	3205	2328

MAP 1001 BEGINS

Table 226. MAP 1001

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the All White Print Sample and Primary Print Sample print samples for at least 30 prints each, to see if the repeating spots occur. If the defect the customer has noticed does not appear on these prints, print the other test patterns to see if the spot/mark will appear. Save this output for a reference point as you work on the problem. You may have more than one source of spots or marks, so check the print sample carefully for different patterns. • Do the QUICK CHECKS. If spots or marks on the printed output are not visible on unfused pages between the transfer station and the fuser, then investigate the fuser area. **Are the spots or marks visible on the unfused pages between the transfer station and fuser?**	Go to Step 2.	Go to Step 7.

Table 226. MAP 1001 (continued)

Step	Questions/Actions	Yes	No
Step 2.	The PC drum circumference is 824 mm (32.45 in.). Spots or marks caused by PC drum damage repeat at that distance (every drum rotation) when continuous pages are printed. **Do the spots or marks repeat every drum rotation?**	Go to Step 3.	Go to Step 4.
Step 3.	• Remove the PC drum and inspect it for damage. **Are there any scratches, chips, or physical damage on the surface of the PC drum?**	Go to Step 9.	Go to Step 5.
Step 4.	• Check the transfer station while forms are loaded to see if the capstan pinch rollers are touching the paper. These minirollers in the transfer station are used only during autoload and should not touch the paper during printing. **Are the capstan pinch rollers touching the paper during printing?**	• Adjust or replace the capstan pinch roll mechanism. @	Go to MAP 1002: Random Spots Or Marks, Step 12.

Table 226. MAP 1001 (continued)

Step	Questions/Actions	Yes	No
Step 5.	**Is there adhesive build up or fused-on toner on the surface of the PC drum?**	Go to Step 6.	• Install a new PC drum. • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @

Table 226. MAP 1001 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Clean the PC drum. • Check the print after printing a full box of paper. **Are there still spots or marks that repeat every drum rotation?**	• Install a new PC drum. • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @	If the problem was adhesive buildup on the PC drum surface, running a box of paper about every ten boxes of labels helps keep the adhesive from building up. If the adhesive buildup is a continual problem, contact your marketing support to assist the customer with selecting a better label. If the problem was fused-on toner, check the following developer adjustments: • Mag Brush Roll to Doctor Blade Gap (2453) • Developer to PC Drum Gap (2446) @
Step 7.	• Check the hot roll for damage or worn areas. **Is the hot roll in good condition?**	Go to Step 8.	• Install a new hot roll • Reset the PM counter. @

Table 226. MAP 1001 (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Check the fuser oiler belt for excessive buildup. It is normal for the belt to be coated with toner, paper dust, and chads. If there is so much toner and debris on the belt that it cannot keep the hot roll clean, then there is excessive buildup. **Is there excessive buildup on the fuser oiler belt that could be causing the spots?**	Go to MAP 1002: Random Spots Or Marks, Step 3.	• Check the following items to isolate the source of spots and marks: – Backup Roll – Backup Idler Roll (Duplex printer 2) – Scuff Roll – Scuff Pressure Rollers – Stacker Finger Belts – Pendulum – Anything in the stacker, fuser, or autoload bridge that contacts the paper. • Repair or replace as required. @

Table 226. MAP 1001 (continued)

Step	Questions/Actions	Yes	No
Step 9.	You need to install a new PC drum, but first do the following to prevent damaging the new drum: • Perform an autoload operation. Ensure that the forms are wrapped tightly around the transfer station. • If the forms are loose, check the following adjustments. – Capstan Pinch Roll adjustment (3025) – Upper Tractor Timing adjustment (3150) – Lower Tractor Timing adjustment (3146) • Adjust any PC Drum & Developer Clearances/Gaps that are not correct. • Ensure that there are no objects in the developer mix that can scratch the drum. • View or print the Error Log (1565). If you find several of the same type of error, go to the MAP for that error and check any adjustments that may affect paper jams or arcing. • Install a new PC drum. • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @		

MAP 1002: Random Spots Or Marks

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is spots or marks that occur in a random manner. The marks may not appear on every page. Group D contains samples of spots and marks. Check carefully to ensure that the spots are random and that there is no repeating pattern. If you find a repeating pattern, go to MAP 1001: Repeating Spots Or Marks.	• Ensure that the preheat control is not set too low. This can cause toner to build up on the oiler belt, which can then become loosened and deposited on the forms by the hot roll. • The developer mix is contaminated or defective. • The toner is contaminated or defective. You will have to replace the developer mix also. • The cleaner brush is defective. • The cleaner housing air system is clogged or defective. This includes leaks around the fine filter, the fine filter door being open, and a defective Cyclone Blower Motor (M104). • Excessive toner has built up in the developer. • A corona or mag brush roll is arcing. • The capstan pinch rollers used during autoload are not moving out of the paper path and are rubbing on the printed page. Heavy forms and labels may have this problem, while lightweight forms will look fine. • The forms are defective. (continued on next page)
	• The fuser oiler area has one or more of these problems. – The oiler belt is defective or has excessive buildup. – The Oiler-Belt Motor (M706) is defective . – The B1J3 Card is defective. – An oil pump is defective. – The B1J5 Card is defective. – The B1J9 Card is defective. • A bearing or seal in the developer is defective and is creating debris.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Fuser
  Cleaner
  Transfer Station
  Drum Drive and Photoconductor (PC)
- Circuit Diagrams -
  CD16 - Three-Pump Oiling System
  CD17 - Six-Pump Oiling System
- Wiring Diagrams -
  WD53 - Motors M706 and M707
  WD54 - Oil Pumps L701, L702 & L703
  WD54.1 - Oil Pumps L701, L702, L703, L704, L705, & L706
  WD66 - Preheat Control
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run the All White Print Sample and Primary Print Sample print samples for at least 100 pages each, and check the prints carefully for print defects. If the defects the customer has noticed do not appear on these print samples, print the other test patterns to see if the spot/marks will appear.

QUICK CHECKS

1. Ensure that the Preheat Control is not set too low.
2. Be aware that the forms select position A uses less oil than the B and C positions. Some forms and print applications with heavy toner coverage may require more oil flow, even if the form is light in weight.
3. Check the customer's unused forms to see if the spots or marks are present before printing.
4. Clean all the corona assemblies.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Mix	40%			
Oiler Belt mechanism	40%	2073	3443	
Cleaner Brush	05%	2082	3225	2220
Developer bearing or seal	05%			
Oil Pump	01%	2059	3395	2569
B1J3 Card	01%	B1 Logic Card Links		
B1J5 Card	01%	B1 Logic Card Links		
B1J9 Card	01%	B1 Logic Card Links		
Cyclone Blower	01%	2063	3309	2173
High Voltage Power Supply	01%	2059	3205	2328
Preheat Control setting	---			
Forms Select setting	---			
Forms	---			
Toner	---			
Air system problem	---			
Developer (toner buildup)	---			

MAP 1002 BEGINS

Table 227. MAP 1002

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the All White Print Sample and Primary Print Sample print samples for at least 100 prints each to see the frequency with which the defects occur. If the defect the customer has noticed does not appear on these print samples, print the other test patterns to see if the spot/mark will appear. Save this output for a reference point as you work on the problem. You may have more than one source of spots or marks, so check the print sample carefully as you work on the problem. If any of the marks repeat at the same place every drum rotation, go to MAP 1001: Repeating Spots Or Marks and fix the repeating marks first, then return to this MAP if any random marks remain. • Do the QUICK CHECKS. **Do you still have random spots or marks?**	Go to Step 2.	Finished

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Check the transfer station while forms are loaded to see if the capstan pinch rollers are touching the paper. These minirollers in the transfer station are used only during autoload and should not touch the paper during printing. **Are the capstan pinch rollers touching the paper during printing?**	Go to Step 3.	Go to Step 4.
Step 3.	• Adjust or replace the capstan pinch roll mechanism. **Do you still have random spots or marks?**	Go to Step 4.	Finished
Step 4.	• Check the fuser oiler belt for excessive buildup. It is normal for the oiler belt/oiler wick roll to be coated with toner, paper dust, and chads. If there is so much toner and debris on the oiler belt/oiler wick roll that it cannot keep the hot roll clean, then there is excessive buildup. **Is there excessive buildup on the fuser oiler belt/oiler wick roll that could be causing the random spots?**	Go to Step 5.	Go to Step 12.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 5.	If this printer is DR1/2 or IRx, go to Step 7. **Is there any oiler belt remaining on the supply roll?**	Go to Step 6.	The excessive oiler belt buildup is caused by an end-of-belt condition that is not being detected. • Check for any obvious problems like incorrect installation of the belt, a broken tab on the end of the oiler belt, or a binding or broken Oiler Belt End Switch (S610). • Repair or replace as needed. If you find no obvious problems, go to MAP 0793: End Of Oiler Belt Reached to repair an “end of oiler belt” that is not detected.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Locate the Oiler-Belt Motor (M706) and remove the motor cover. • Mark the end of the motor shaft with a pencil as a reference point to check for motor rotation. • Run Driver Routine 28 from the Maintenance Panel. **Did the motor shaft turn approximately one rotation when you ran Driver Routine 28?**	Go to Step 7.	Do the following, one at a time, until the Oiler-Belt Motor (M706) turns while you run Driver Routine 1652. • Check PJ723 for correct contact. • Remove the Oiler-Belt Motor (M706) and ensure that the oiler belt mechanism is not binding. Repair or replace as necessary. • Install a new Oiler-Belt Motor (M706). • Correct any open or short between PJ723 and PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. @ • After you correct the problem, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil .

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Remove the oiler belt and check to see if oil is being fed through all the oil holes while you run Driver Routines 2A, 2B, 2C. • Use run option **E0** with loop count **FF** for continuous operation of the routines . Because the continuous loop option only remains active for one routine, you must re-enter **E0** and **FF** each time you run a routine. **Does oil feed through the holes while the Driver Routines are run continuously?**	Go to Step 9.	Go to Step 8.
Step 8.	• Check the oil pump assembly oil level. **Is the oil pump assembly empty?**	Go to MAP 0792: Fuser Oil Empty to repair a “Fuser Oil Empty” condition that was not detected.	To fix the oil feeding problem, go to Step 18.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 9.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect the connector from J612 on the Fuser Control Card (FSxxx). • Check for a short circuit to ground at each of the following points on the wiring: – P612TC-33 – P612TC-35 – P612TC-37 – P612TC-39 – PJ667-1 – PJ667-3 – PJ668-1 – PJ668-3 **Is there an open circuit between each of the points and ground?**	Go to Step 10.	Use the wiring diagrams to repair a short circuit to ground.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Perform the following steps: • Disconnect connectors PJ667 and PJ668. • Check for continuity between the following pairs of points: – P612TC-33 and P612TC-34 – P612TC-34 and P612TC-35 – P612TC-35 and P612TC-36 – P612TC-36 and P612TC-37 – P612TC-37 and P612TC-38 – P612TC-38 and P612TC-39 – P612TC-39 and P612TC-40 **Is there an open circuit between each of the pairs of points?**	Go to Step 11.	• Repair the short circuit you found in the above step.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 11.	Check for short circuits in the preheat control by checking the following resistance values: • 0 to 3.32 kohm (±10%) between J612TC-33 and P612TC-33 as the temperature control is rotated from low to high. • 0 to 3.32 kohm (±10%) between J612TC-35 and P612TC-35 as the temperature control is rotated from low to high. • 0 to 1.80 kohm (±10%) between J612TC-37 and P612TC-37 as the temperature control is rotated from low to high. • 0 to 1.80 kohm (±10%) between J612TC-39 and P612TC-39 as the temperature control is rotated from low to high. **Are the resistance values through the preheat control correct?**	• Reconnect connectors PJ667, PJ668, and the connector to J612. If there is no failing component and if excessive oiler belt/oiler wick roll buildup is a problem, do the following: • Emphasize operator cleaning for the oiler belt/oiler wick roll. See the *Operator's Guide* for details. • Contact your marketing support to assist the customer with selecting forms that produce less debris on the oiler belt/oiler wick roll. (continued on next page)	• Install a new preheat control. @

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 11 (cont.)		• The oiler belt speed and oil feed rate can be increased until the customer finds better forms. This may allow the customer to continue using these forms, but will increase the supplies usage. Contact your next level of support before changing the belt speed and oil feed rate. Changing the value in printer memory location FF20 to 32 and FF21 to 01 will run the oiler belt at its maximum rate and double the amount of oil fed. The normal value for FF20 is 64, and for FF21 is 08.	
Step 12.	• Remove the PC drum. • Thoroughly clean all the process components around the PC drum. Give special attention to the developer. • Cover the developer with paper to prevent toner from the cleaner station falling into the developer. Remove the cleaner brush and clean the cleaner housing. **Was the cleaner housing or cleaner brush excessively loaded with toner?**	Go to Step 14.	Go to Step 13.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 13.	• Reinstall the PC drum. **Do you still have random spots or marks?**	Go to Step 14.	Finished
Step 14.	• Check the air system for problems. • Repair any air system problems and install a new cleaner brush. • Reset the PM counter. **Do you still have random spots or marks?**	Go to Step 15.	Finished
Step 15.	If the defects are occurring frequently, then dumping the developer mix and installing new mix can be a quick check on whether the toner or something in the developer is contributing to the problem If the defect goes away completely, then it was the mix. If the frequency of the defect is dramatically reduced after the mix is changed and then begins to increase, investigate a toner or developer mechanism problem. • Dump the developer mix and install new mix. • Print up to 3 boxes of print samples. **Do you still have random spots or marks?**	Go to Step 16.	Finished
Step 16.	**Did the frequency of defects go to zero right after you instaled new mix and then increase as you printed?**	Go to Step 17.	Go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 17.	Either the toner is defective or something in the developer mechanism is producing debris. Do the following, one at a time, until the problem is corrected: • Check all the bearings and seals in the developer. Repair or replace as necessary. • Check the following developer adjustments: – Developer to PC Drum Gap (2446) – Mag Brush “A” to Doctor Blade (2453) – Mag Brush “B” to Doctor Blade (2453) – Mag Brush C to Scraper Gap (2459) • Remove all the toner and developer mix. Clean the toner hopper and developer mix areas. • Install “known good” toner and developer mix. **Do you still have random spots or marks?**	Go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there.	Finished

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 18.	**Do any of the pumps work?**	Go to Step 19.	Do the following, one at a time, until the problem is corrected: • Check connector PJ745 or PJ776 for correct contact. • Install a new B1J5 Card. • Repair any shorts or opens from the oil pumps to PJ480. • Install a new B1J9 Card. • After you correct the problem, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2Bfor 10 loops to feed oil. @
Step 19.	• Check for a loose or broken wire from PJ745 or PJ776 to the pump that did not work. **Is the wiring OK?**	Go to Step 20.	• Repair the wiring problem. • After you correct the problem, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2Bfor 10 loops to feed oil.

Table 227. MAP 1002 (continued)

Step	Questions/Actions	Yes	No
Step 20.	To help isolate whether the pump/plumbing is defective or the driver circuit is defective, the drive circuit from a working pump will be applied to the pump that did not work. • Connect the wires from a working pump to the one that did not work. Run the driver routine for the pump that did work and check to see if oil is now fed. Remember to use the continuous feed option. **Is oil being fed now?**	• Reconnect the pump wires to their correct pump. Do the following, one at a time, until the oil feeds correctly when the oil pump driver routines are run: • Install a new B1J5 Card. • Install a new B1J9 Card. • Correct any wiring problem in the oil pump driver circuit. • After you correct the problem, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil . @	• Reconnect the pump wires to their correct pump. Do the following, one at a time, until the problem is corrected: • Repair any leaks in the oil supply system. • Install a new oil pump assembly. • Repair any blockages in the oil supply mechanism. • After you correct the problem, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2Bfor 10 loops to feed oil. @

MAP 1003: Light Streaks

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is light streaks or missing print in narrow or wide bands. Group E contains samples of these problems. If the defect is similar to a sample other than one in Group E, go to the MAP indicated on that sample.	• A corona is dirty or has some paper debris in it. (The transfer corona is the most likely corona.) • The PC drum is filmed or has a light scratch on it. • Something is blocking part of the developer mix flow in the developer. • The scanning laser beam is being partially blocked or scattered by: – Dirty or defective return mirror – Dirty or defective F-theta lens – Dirty or defective mirror motor window – Debris or cables in the beam chute • The paper is defective. The paper problem could be a visible crease or a nonuniformity that is not visible.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Transfer Station
  Drum Drive and Photoconductor (PC)
  Coronas & High Voltage Power Supply
  Developer
- Removals & Adjustments -
  Single Beam Printhead
- Removals & Adjustments -
  Two Beam 240 Printhead
- Removals & Adjustments -
  Two Beam 240/300 Printhead

FIX VERIFICATION

- Run the Primary Print Sample for 100 pages.

QUICK CHECKS

1. Clean all corona assemblies.
2. Open the transfer station and check for debris in the transfer area (chads, small pieces of paper, and so on).
3. The precharge corona assembly is identical to the transfer corona and can be interchanged to isolate a problem with the transfer corona. Repair or replace the transfer corona if the light streak is eliminated by interchanging the transfer corona with the precharge corona.
4. Check to see if the defect occurs on different forms.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Dirty Corona	30%	2082		2314
Developer flow	30%			
PC Drum	20%	2082	3261	2467
Mag Brush Roll A	15%	2067	3237	2392
Printhead problem	05%	Printhead Links		
Forms	---			

MAP 1003 BEGINS

Table 228. MAP 1003

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Primary Print Sample for at least 30 prints. Use the print sample that shows the problem the best for reference. Save this output for a reference point as you work on the problem. You may have more than one source for this problem, so check print samples frequently as you work on the problem. • Do the QUICK CHECKS. **Do you still have light streaks?**	Go to Step 2.	Finished

Table 228. MAP 1003 (continued)

Step	Questions/Actions	Yes	No
Step 2.	If a piece of debris gets stuck between the doctor blade and the mag brush the flow of developer mix is restricted; this will cause a light streak. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the PC drum. • Power on the printer. • Push the **Developer Run** button to start and stop the developer and check the developer mix flow over the mag brushes. If a piece of debris is restricting the flow, an indentation will be visible in the developer mix on the mag brushes, after the doctor blade. Normal mix flow over the mag brushes is uniform. **Is the flow over the mag brushes normal?**	Go to Step 4.	Go to Step 3.

Table 228. MAP 1003 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Loosen the doctor blade and open the gap between the doctor blade and the mag brushes. • Rotate the mag brushes by hand, to move up whatever is restricting the flow on to the mag brushes. • Remove any debris (chads, pieces of paper, toner clumps). • If you suspect that the developer mix has other debris, inspect the developer for any defective mechanism such as bearings, or seals that may be generating debris. Repair or replace as necessary. • Install new developer mix. • Reset the PM counter. • Adjust the Mag Brush Rolls to Doctor Blade 2453. • Run the Primary Print Sample. @ **Do you still have light streaks?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the PC drum. Go to Step 4.	Finished

Table 228. MAP 1003 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Inspect the PC drum for wide scratches or a film on the surface in the area where the light streaks are occurring in the print. Wide scratches, a film of adhesive, or a film of toner on the PC drum can cause light streaks. Small, thin scratches on the drum surface are normal and will not cause light streaks. **Hint** You can reverse the PC drum to check if the streaks move when the PC is installed reversed. If the streaks move, the streaks are PC related. **Is the PC drum surface normal?**	Go to Step 6.	Go to Step 5.
Step 5.	**Note:** Before you replace the PC drum, do the following: • Push the Developer **Run** button. • Check the bead pile height on Mag Brush A, B, and C. • If the bead pile height on Mag Brush A is lower than on Mag Brush B and C, install a new Mag Brush A • If the PC drum is filmed, try cleaning it with alcohol and a lint free cloth. • If the drum surface cannot be cleaned, install a new PC drum. • If the PC drum has wide scratches, check the gaps around the drum with the drum clearance gauge and inspect for any objects that may be scratching the drum. • Correct any problems you find. @ (continued on next page)		

Table 228. MAP 1003 (continued)

Step	Questions/Actions	Yes	No
Step 5 (cont.)	• Install a new PC drum • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. • Print 200 pages of the Primary Print Sample. **Do you still have light streaks?**	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the PC drum. Go to Step 6.	Finished
Step 6.	• Inspect the beam chute for any debris or cables that might be interfering with the laser beam as it scans the PC drum. Remove any debris, or move the cables. • Reinstall the PC drum. • Run the Primary Print Sample. **Do you still have light streaks?**	Go to Step 7.	Finished

Table 228. MAP 1003 (continued)

Step	Questions/Actions	Yes	No
Step 7.	If the following components in the printhead are dirty or defective, they can cause light streaks: • Return Mirror • F-theta Lens • Mirror Motor window • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the printhead cover. Do the following, one at a time, until the problem is corrected: • Remove any debris that could be in the scanning beam path. • If the return mirror has any fingerprints on it or is dirty, clean it. • Check the F-theta lens for any cracks. Install a new lens if you find any cracks. • If either the F-theta Lens or the mirror motor window is dirty, clean it. • Run the Primary Print Sample. **Do you still have light streaks?**	Go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there.	Finished

MAP 1004: Dark Streaks Or Black Lines

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is dark streaks or black lines. The streaks or lines may or may not repeat with each drum rotation. Group F contains samples of dark streaks and black lines. A horizontal band of darker print across the page, ranging in thickness from 12 mm (0.5 inches) to 25 mm (1 inch) is normal. Every time printing stops, the print directly under the hot roll will "bloom" and appear darker than the other parts of the page. Consult your marketing support if this is a problem for your customer. The way print jobs are sent to the printer can affect the number of pages that will have "bloom."	• The PC drum has been scratched. A new PC drum will probably need to be installed, but first correct anything that may continue to cause PC drum damage. Following are some possible causes of PC drum damage: – A PC drum spacing is not correct and the drum is being scratched. – The developer mix has debris in it. – A paper jam damaged the drum. • A corona is dirty or has some paper debris in it. (The charge corona is the most likely corona.) • The hot roll is worn or defective. • There is a cleaner station problem caused by: – Cleaner brush that is worn out or defective. – The cleaner housing air system is clogged or defective. This includes leaks around the fine filter, the fine filter door being open, and a defective Cyclone Blower Motor (M104). • The erase lamp filters are dirty. • The scavenger roll has an excessive developer mix buildup on the PC drum and is causing streaking. This could be caused by: – Defective scavenger roll mechanism – Scavenger roll installed upside down – Defective scavenger roll drive circuit – Mag brush and doctor blade adjustment not correct (continued on next page)

Symptom Explanation	Conditions That Could Cause This Symptom
	• The doctor blade or developer seals have accumulated excess toner that is contacting the drum. • The capstan pinch rollers used during autoload are not moving out of the paper path and are rubbing on the printed page. Heavy forms and labels may have this problem whereas lightweight forms will look fine. • Something in the stacker, fuser, or autoload bridge is rubbing on the forms. • A reflection in the printhead or beam chute is reaching the the drum surface.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Drum Drive and Photoconductor (PC)
  Developer
  Cleaner
  Transfer Station
  Fuser
  Stacker

FIX VERIFICATION

- Run the Primary Print Sample for at least 30 prints to see if the dark streaks or black lines occur. If the defect the customer has noticed does not appear on the primary print sample, print the other test patterns to see if the streaks or lines appear.

QUICK CHECKS

1. Clean all the corona assemblies. Check carefully for paper or any debris in the charge and precharge coronas.
2. Ensure that all the charge corona wires are in their correct positions in the v-slot on the plastic endpieces. If a wire is not in the v-slot, the drum surface voltage will be low, which can cause either uniform background or dark streaks.
3. Check the customer's unused forms to see if the black lines are present before printing or if any creases in the forms may be causing the streaking.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
PC Drum damage	60%	2082	3261	2467
Charge Corona	20%	2082	3211	2313
Hot Roll	10%	2073	3387	2537
Developer problems	05%			
Cleaning problems	05%			
Printhead problems	01%	Printhead Links		

MAP 1004 BEGINS

Table 229. MAP 1004

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Primary Print Sample for at least 30 prints. If the defect the customer has noticed does not appear on the primary print sample, print the other test patterns to see if the defect appear. Save this output for a reference point as you work on the problem. • Do the QUICK CHECKS. **Do you still have streaks or black lines?**	Go to Step 2.	Finished
Step 2.	If there are streaks or lines on the printed output that are not visible on unfused pages between the transfer station and the fuser, then investigate the fuser area. **Are the streaks or lines visible on the unfused pages between the transfer station and fuser?**	Go to Step 3.	Go to Step 4.

Table 229. MAP 1004 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check the transfer station while forms are loaded to see if the capstan pinch rollers are touching the paper. These minirollers in the transfer station are used only during autoload and should not touch the paper during printing. **Are the capstan pinch rollers touching the paper during printing?**	• Adjust or replace the capstan pinch roll mechanism. @	Go to Step 6.
Step 4.	• Check the hot roll for damaged or worn areas. **Is the hot roll in good condition?**	Go to Step 5.	• Install a new hot roll. • Reset the PM hot roll usage counter. @

Table 229. MAP 1004 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Check the fuser oiler belt/oiler wick roll for excessive buildup. It is normal for the belt to be coated with toner, paper dust, and chads. If there is so much toner and debris on the belt that it cannot keep the hot roll clean, then there is excessive buildup. **Is there excessive buildup on the fuser oiler belt/oiler wick roll that could be causing the dark streak or line?**	Go to MAP 1002: Random Spots Or Marks, Step 5.	• Check the following items to isolate the source of streaks or lines: – Backup Roll – Backup Idler Roll (if installed) – Scuff Roll – Scuff Pressure Rollers – Stacker Finger Belts – Pendulum – Anything in the stacker, fuser, or autoload bridge that contacts the paper. • Repair or replace as required. @
Step 6.	• Check the forms at the upper tractors to ensure the forms are under the white nylon guides on the right side of the tractors. **Are the forms correctly loaded?**	Go to Step 7.	• Load the forms correctly.

Table 229. MAP 1004 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Remove the PC drum. Inspect the surface of the PC drum. **Hint** You can reverse the PC drum to check if the streaks move when the PC is installed reversed. If the streaks move, the streaks are PC related. **Are there any scratches or physical damage on the surface of the PC drum?**	Go to Step 12.	Go to Step 8.
Step 8.	Buildup of adhesive on the PC drum from running labels can cause repeating spots or streaks. **Is there adhesive buildup on the surface of the PC drum?**	Go to Step 9.	Go to Step 10.
Step 9.	• Clean the PC drum. • Check the print after printing a full box of paper. **Are there still spots or streaks that repeat every drum rotation?**	Go to Step 10.	The problem was adhesive buildup on the PC drum surface. Running a box of paper about every ten boxes of labels will help keep the adhesive from building up. If the adhesive buildup is a continual problem, contact your marketing support to assist the customer with selecting a better label.

Table 229. MAP 1004 (continued)

Step	Questions/Actions	Yes	No
Step 10.	• Check the scavenger roll to ensure that it is not installed upside down. • Thoroughly clean all the process components around the PC drum. Give special attention to the developer and erase lamp filters. • Cover the developer with paper to prevent toner from the cleaner station falling into the developer. • Remove the cleaner brush and clean the cleaner housing. **Was the cleaner housing or cleaner brush excessively loaded with toner?**	• Check the air system for problems. • Repair any air system problems and install a new cleaner brush. @	Go to Step 11.

Table 229. MAP 1004 (continued)

Step	Questions/Actions	Yes	No
Step 11.	• Run the Primary Print Sample. **Are streaks or lines still a problem?**	Do the following, one at a time, until the problem is corrected: • Cover the Return Mirror to ensure that no reflection or unwanted beam is reaching the PC drum. • Go through all the printhead adjustments in MAP D706: Beam Detect Missing (For Single-Beam Printhead), or MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads) if your printhead has more than one beam; check for dirty lenses, dirty mirrors, or debris in the beam chute and printhead Go to MAP D706: Beam Detect Missing (For Single-Beam Printhead), or MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads), Step 1. (continued on next page)	Finished

Table 229. MAP 1004 (continued)

Step	Questions/Actions	Yes	No
Step 11 (cont.)		• Go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there. **Note:** The Beam Detect Card can reflect the laser beam onto the return mirror. If you determine that the print defect is coming from the laser, adjust the horizontal and/or vertical angle of the Beam Detect Card to eliminate the defect.	
Step 12.	You must install a new PC drum, but first do the following to prevent damaging the new drum: • Thoroughly clean all the process components around the PC drum. Give special attention to the developer and cleaner areas. • Adjust any PC drum clearances that are not correct. • Ensure that there are no objects in the developer mix that can scratch the drum. • View or print the error log (see Error Log). If you find several of the same type of error, go to the MAP for that error and check any adjustments that may affect paper jams or arcing. • Install a new PC Drum. • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @		

MAP 1005: Background Or Dirty Prints

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is background or dirty prints. The problem may occur in small or large portions of the print. Group C contains samples of this problem. More than one problem may be present. Usually there is the primary cause of the background to be fixed plus a general cleaning of the PC drum cavity, including coronas, cleaner housing, erase lamp filters, and developer. Operating environment is critical for machines that run for a period of 4 hours or longer.	• Corona assemblies or wires may be dirty or defective. **Note:** If the corona wires are dirty, ensure that the corona cleaning brushes are properly adjusted and that the operators are cleaning the wires each shift. • Printhead is not adjusted correctly and is partially discharging the drum. • PC drum surface voltage adjustment is incorrect. • Cleaner housing air system is clogged or defective. This problem includes leaks around the fine filter, an open fine-filter door, and a defective cyclone blower. • Incorrect toner is installed. The developer mix also has to be replaced. • Developer mix is worn out or defective, or incorrect developer mix is installed. • Drum shaft is dirty or contaminated. • Brush armatures are worn or make poor contact with mag rolls. • PC drum is overheated; the drum cooling fans are not operating. • Laser aperture (knife edge) needs adjustment. • Laser optics are dirty or need adjustment. • PC drum is worn out or defective. (continued on next page)

Symptom Explanation	Conditions That Could Cause This Symptom
	• There is high concentration of toner caused by: – The toner control voltage adjustment (on the Toner Control Card (PCxxx)) is not correct. – The Toner Control Card (PCxxx) is defective. – The toner control sensor (L101) is jammed with developer mix. – The toner control shaft is not turning. • Developer bias circuit is defective. • Cleaner brush is worn out or defective. • Mag brush and doctor blade adjustments are incorrect. • Erase lamp filters are dirty. • High voltage power supply circuit is defective. • Covers are open and light is exposing the drum. • Developer mix is insufficient. Check for mix leaking into the dump hose.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Coronas & High Voltage Power Supply
  Developer
  Cleaner
  Air System
- Wiring Diagrams -
  WD40 - High Voltage to Coronas
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Run the Primary Print Sample for at least 200 pages, then run the All White Print Sample for 12 pages.

QUICK CHECKS

1. If the PC drum was just replaced, you must do the PC Drum Surface Voltage adjustment.
2. If the covers are open, light may be discharging the drum and causing background. Check print quality after printing with all covers installed and closed.
3. If the PC drum was just cleaned, run 100 to 200 prints using the Primary Print Sample. (The cleaning process can result in background on the first 100 to 200 pages.)
4. Clean all the corona assemblies.
5. Ensure that all the charge corona wires are in their correct positions in the v-slot on the plastic end pieces. If a wire is not in the v-slot, the drum surface voltage will be low, which can cause either uniform background or background varying across the page.
6. Clean toner or contamination off the drum shaft.
7. Brush armatures may be worn or making poor contact with mag rolls. Clean the contact points thoroughly.

Environmental Hint

If the printer has background after running for 4 hours or more but background disappears after the printer has cooled 10 minutes or more, the operating environment may be too warm. See the Environmental Requirements section in the *Introduction and Planning Guide*.

SERVICE CHECKS

DANGER

<5> High-voltage is present. Use care while working in this area.

Check for bias on the mag brush with a digital voltmeter:

1. Set the contrast control to **4**.
2. Remove the PC drum cover.
3. While you Run Adjustment Routine C2 from the Maintenance Panel, measure the voltage directly on the mag brush.

   Bias voltage is dependant on developer mix age. (See Mag Brush Bias Voltage Setting for the correct bias voltage for this developer mix.)

   Note: The voltages in the table is the test point voltage on the power supply. To get the correct voltage for measuring at the mag brush, multiply the numbers in the table by 100.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Parts Link
Charge Corona	30%	2082	3211	2313
Printhead adjustment	20%	Printhead Links		
Drum surface voltage adjustment	10%			2331
Incorrect or worn developer mix	10%			
Cleaner Brush	05%	2082	3225	2220
Cleaner housing and air system	05%	2082	3219	
Incorrect toner	04%			
Laser adjustments	04%	Printhead Links		
Mag brush bias	04%			2330
PC Drum	04%	2082	3261	2467
Cyclone Blower Motor (M104)	01%	2063	3309	2177
Toner Control Card PCxxx	01%	2053	3199	2402
High Voltage Power Supply	01%	2059	3205	2328
B1J9 Card	01%	B1 Logic Card Links		
Covers open	---			
Developer adjustments	---			2440
Humidity setting	---			

Item	Probablilty	Locations Link	Parts Link	Parts Link
Toner control adjustment	---			2402
Toner Control Sensor jammed	---	2068	3253	2412

MAP 1005 BEGINS

Table 230. MAP 1005

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Primary Print Sample and All White Print Sample for at least 30 prints. Use the print sample that shows the problem the best for reference. Save this output for a reference point as you work on the problem. You may have more than one source for this problem, so check print samples frequently as you work on the problem. • Do the QUICK CHECKS. **Do you still have background?**	Go to Step 2.	• If cleaning the corona wires corrected the problem, ensure that the corona brushes are adjusted correctly and that the operators are cleaning the corona wires every shift. Finished.

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 2.	A possible source of background can be the printhead. If the printhead is not adjusted correctly and is partially discharging the drum, background may result. • Cover the return mirror with a folded piece of paper to prevent any laser exposure on the PC drum. The paper should block the scanning beam as it exits the printhead, but the paper should not block the beam detect path. If the paper blocks the beam detect path, a D706 error occurs. • Reinstall the printhead cover. • Run the All White Print Sample. **Do you still have background?**	Go to Step 5.	Go to Step 3.
Step 3.	• Check continuity of the following wires: – PJ136-15 to PJ210-15 – PJ136-3 to PJ210-3 – PJ136-19 to PJ210-17 – PJ136-21 to PJ210-19 **Do the wires have continuity?**	Go to Step 4.	• Repair or replace the damaged wires as necessary.

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Because blocking the scanning laser beam has eliminated the background, there must be a problem with the printhead adjustment. • Ensure that no reflection or unwanted beam is reaching the PC drum. • Do the aperture adjustment. • Go through all the printhead adjustments in MAP D706: Beam Detect Missing (For Single-Beam Printhead), or MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads) if the printhead has more than one beam; check for dirty lenses, dirty mirrors, or debris in the beam chute and printhead. Go to MAP D706: Beam Detect Missing (For Single-Beam Printhead) or MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads), Step 1. **Do you still have background?**	Go to Step 5.	Finished
Step 5.	• Remove the paper on the return mirror. • Reinstall the printhead cover. Go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there. **Do you still have background?**	Go to Step 6.	Finished

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Record the developer mix usage you find in addresses FF1F and FF1E (see Printer Diagnostics). • Measure and record the mag brush bias directly on the mag brush as described in the SERVICE CHECKS. **Was the voltage on the mag brush greater than 250 V dc?**	Go to Step 7.	Go to Step 18.

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Remove the developer cover and check to see if the toner control shaft is turning when the developer is running. • Push the developer run button on the front of the developer. This will run the developer for about a minute. The toner control shaft is below and to the right of the scavenger roll shaft. **Note:** The diagnostic function switch located on the B1J11 Card, must be in position **0** (normal position) for the developer run button to operate. If the shaft did not turn, go to MAP 0234: Toner Overfeed Error, Step 4. • Dump the developer mix and install new, “unused” mix. • Perform the toner control adjustments on the PCxxx Card. Do not reinstall the old developer mix in the printer after the adjustment is complete. See Toner Control Card (PCxxx) for the procedure. @ (continued on next page)		

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 7 (cont.)	If it is impossible to adjust to the correct values, do the following one at a time until you can make the adjustment: • Install a new Toner Control Card (PCxxx). • Install a new Printhead Interface Card (VIxxx). • Repair any shorts to ground in the circuit from PJ135-45 to PJ135-46. • Install a new Toner Control Sensor (L101). • Repair any damage or blockage of the Toner Control Sensor (L101) chute and mechanism. @ **Do you still have background?**	Go to Step 8.	Finished
Step 8.	• Remove the PC drum. • Thoroughly clean all the process components around the PC drum. Give special attention to the developer and erase lamp filters. • Cover the developer with paper to prevent toner from the cleaner station falling into the developer. • Remove the cleaner brush and clean the cleaner housing. **Was the cleaner housing or cleaner brush excessively loaded with toner?**	Go to Step 12.	Go to Step 9.

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 9.	• Inspect the surface of the PC drum. **Hint** You can reverse the PC drum to check if the print defects move when the PC is installed reversed. If the defects move, the defects are likely PC related. **Are there any patterns, discolored areas, or damage that are in the same area as the background?**	Go to Step 11.	Go to Step 10.
Step 10.	• Reinstall the PC drum. **Do you still have background?**	Go to Step 13.	Finished
Step 11.	• Install a new PC drum. • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @ (continued on next page)		

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 11 (cont.)	If you are replacing the PC drum because of a discolored area or filmed-on toner, check the following drum/developer cooling fans for operation when the printer is powered on. Repair or replace as necessary. • Right Rear Developer Fan (B110) • Right Front Developer Fan (B111) • Developer Motor Cooling Fan (B112) • Left Front Developer Fan (B104) • Lower Rear Developer Fan (B108) • Lower Front Developer Fan (B109) • Right Front Process Fan (B114) • Right Rear Process Fan (B115) Be aware that excessive heat can damage the PC drum electrical characteristics. Duplex Printer 2 is especially sensitive to heat build up because the paper that enters Printer 2 is warm from Printer 1. A high temperature operating environment also can cause overheating. Ensure that the room temperature is within the range specified in the planning manual. **Do you still have background?**	Go to Step 13.	Finished
Step 12.	• Check the air system for problems. • Repair any air system problems and install a new cleaner brush. @ **Do you still have background?**	Go to Step 13.	Finished

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 13.	• Check the PC Drum Surface Voltage in the front, center, and rear of the drum. **Was the PC drum surface voltage in good condition?**	Go to Step 15.	Go to Step 14.

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 14.	Follow the adjustment procedure for PC Drum Surface Voltage. If a new PC drum had to be installed to adjust the surface voltage to the correct value, check the following drum and developer cooling fans for operation when the printer is powered on. Repair or replace as necessary. • Right Rear Developer Fan (B110) • Right Front Developer Fan (B111) • Developer Motor Cooling Fan (B112) • Left Front Developer Fan (B104) • Lower Rear Developer Fan (B108) • Lower Front Developer Fan (B109) • Right Front Process Fan (B114) • Right Rear Process Fan (B115) Be aware that excessive heat can damage the PC drum electrical characteristics. Duplex Printer 2 is especially sensitive to heat build-up because the paper that enters Printer 2 is warm from the Printer 1. High temperature operating environment also can cause overheating. Ensure the room temperature is within the range specified in the planning manual. @ **Do you still have background?**	Go to Step 15.	Finished

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 15.	• Verify that the customer is using the correct toner and developer mix. If correct toner or mix is in question, remove all the questionable supplies and install new supplies. **Do you still have background?**	Go to Step 16.	Finished
Step 16.	• If you did not install a new PC drum in a previous step, do it now. • Reset the PM counter when a new PC drum is installed. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. **Do you still have background?**	Go to Step 17.	Finished
Step 17.	• If you did not install a new cleaner brush in a previous step, do it now. **Do you still have background?**	Call your next level of support.	Finished

Table 230. MAP 1005 (continued)

Step	Questions/Actions	Yes	No
Step 18.	• Measure and record the voltage at the CH2 high-voltage connector on the High Voltage Power Supply while you run Driver Routine 0F. **Was the voltage greater than 250 V dc?**	• Correct the open circuit between CH2 and the mag brush.	Do the following, one at a time, until the problem is corrected: • Install a new High Voltage Power Supply. • Install a new Toner Control Card (PCxxx). • Correct any wiring problem in the high-voltage supply circuit. @

MAP 1006: Black Prints

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is black prints. An all-black print has no visible images. The density of the black may vary across the page. If any print is visible, go to MAP 1005: Background Or Dirty Prints for a background problem.	• The printhead zero beam is not adjusted correctly. • The AOM Driver (AM202), AOM Driver (AM203), AOM Driver (AM204), or AOM Driver (AM205) is defective. • The Printhead Interface Card (VIxxx) is defective. • Defective wires between the above components.

REFERENCES

- Wiring Diagrams -
  WD42 - Laser Modulator and Beam Detect (Single Beam Printhead)
  WD42.2 - Laser Modulator (Two Beam Printhead)
  WD42.4 - Laser Modulator (Four Beam Printhead)
  WD46 - Motor M201 (Fixed Resolution Printhead)
  WD46.1 - Motor M201 (Switchable Printhead)

FIX VERIFICATION

- Run the Primary Print Sample.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Printhead zero beam adjustment	90%	Printhead Links		
Printhead Interface Card (VIxxx)	05%	Printhead Links		
AOM Driver	05%	Printhead Links		
Wiring problem	---			

MAP 1006 BEGINS

Table 231. MAP 1006

Step	Questions/Actions	Yes	No
	DANGER **<2> Laser radiation is present when the printer is powered-on.** **Avoid direct exposure to the laser beam.** **Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.** **Do not push the laser filter slide while the printer is powered-on.**		
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 231. MAP 1006 (continued)

Step	Questions/Actions	Yes	No
Step 1.	• Disconnect the DBD and CVD coaxial cables where the control unit connects to the printer. These are connectors PJ203 and PJ204. • Ensure that the zero beam is being blocked by the aperture. Do the Aperture Adjustment if necessary. (SeePrinthead Links) • Reconnect the DBD and CVD coaxial cables. Do the following, one at a time, until the problem is corrected: • Install a new Printhead Interface Card (VIxxx). • Install a new AOM Driver (AM202), AM203, AM204, or AM205. • Correct any wiring problem from the the BD and CVD connectors to the Printhead Interface Card (VIxxx) and AO Drivers. @		

MAP 1007: Blank Prints

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is blank prints with no error code. If an error code is posted with the blank prints, go to the MAP indicated by the error code. An all-blank print has no visible print. If any print is visible, even if it is very light, go to MAP 1018: Light Print for a light-print problem. If the problem is an occasional blank page, there is probably a microcode or software problem. Call the support center for assistance.	• The printhead return mirror or beam chute is not adjusted correctly. • The developer mix is not installed. • The mag brushes are not installed correctly or are defective. • The transfer station retractor mechanism is defective or the retractor adjustment is not correct.

REFERENCES

- Removals & Adjustments -
  Transfer Station
  Developer
  Drum Drive and Photoconductor (PC)
- Removals & Adjustments -
  Single Beam Printhead
- Removals & Adjustments -
  Two Beam 240 Printhead
- Removals & Adjustments -
  Two Beam 240/300 Printhead

FIX VERIFICATION

- Run the Primary Print Sample.

QUICK CHECKS

- Ensure that developer mix is installed.

- If the developer has been “worked on” immediately prior to this problem, ensure that the conveyor roll and mag brushes have been installed in the correct position and that the angles are set correctly.

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Printhead problem	70%	Printhead Links		
Mag Brush Rolls	15%	2067	3237	2392
Retractor mechanism adjustment	15%	2123	3351	3059 (lower), 3061 (upper)

MAP 1007 BEGINS

Table 232. MAP 1007

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Do the QUICK CHECKS. • Run the Primary Print Sample. **Was the print blank?**	Go to Step 2.	If you did nothing during the QUICK CHECKS, the problem is intermittent. Go to Intermittent Failures.
Step 2.	• Check the first page of the Primary Print Sample. Look for a horizontal black or gray bar across the top of the first page. **Was the first page completely blank?**	Go to Step 3.	A black or gray bar across the top of the first page followed by blank print is caused by a defective retractor mechanism or an incorrect retractor adjustment.

Table 232. MAP 1007 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the PC drum and check for anything blocking the beam chute. • If nothing is blocking the beam chute, remove the top cover of the printhead and check for something blocking the return mirror. **Were the beam chute and return mirror OK?**	• Reinstall the PC drum and PC drum cover. Because the scanning beam is being blocked by the exit slit, the return mirror will have to be adjusted. Adjusting the return mirror will affect the vertical print registration. • Center the scanning beam in the exit slit by adjusting the return mirror, then adjust the Vertical Print Registration. (See Printhead Links.)	• Remove whatever is blocking the beam chute or return mirror.

MAP 1008: Residual Images

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is residual images. Residual images appear one drum rotation, 824 mm (32.45 in.), after printing. The residual image may appear in a blank area or in another image. If the residual images are accompanied by high background, go to MAP 1005: Background Or Dirty Prints. Sample A1 shows an example of either residual images or fuser offset. Read the description carefully to determine whether the problem is residual images or fuser offset. If the problem is fuser offset, go to MAP 1009: Fuser Offset Or Forms Sticking Together. If the problem is similar to a sample other than Sample A1, go to the MAP indicated on that sample.	• The erase lamp filters are dirty. • Any of the corona assemblies or wires may be dirty or defective. • The cleaner brush is worn or defective. • The cleaner housing air system is clogged or defective. This includes leaks around the fine filter, the fine filter door being open, and a defective Cyclone Blower Motor (M104). • The developer mix is worn or defective. • The PC drum is worn or defective. • The PC drum surface voltage adjustment is not correct. • A high concentration of toner caused by the following: – The toner control voltage adjustment (on the Toner Control Card (PCxxx)) is not correct. – The Toner Control Card (PCxxx) is defective. – The Toner Control Sensor (L101) is jammed with developer mix. – The toner control shaft is not turning. • The erase lamps are worn-out. • The High Voltage Power Supply circuit is defective. • The toner is defective. The developer mix will also have to be replaced.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Coronas & High Voltage Power Supply
  Developer
  Cleaner
  Air System
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)

FIX VERIFICATION

- Run the Primary Print Sample for at least 200 pages, then run the print sample All White Print Sample for 12 pages.

QUICK CHECKS

1. If the PC drum was just cleaned, run 100 to 200 prints using the Primary Print Sample. (The cleaning process can result in background or offset on the first 100 to 200 pages.)
2. Clean all the corona assemblies.

SERVICE CHECKS

- Clean the erase lamp filters.
- Check the corona and bias voltages.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Dirty Erase Lamp Filter	20%			
Dirty Corona	15%	2082 (charge/precharge/preclean) 2123 (transfer)	3211 (charge) 3209 (precharge/preclean) 3337 (transfer)	2314 (charge) 2321 (precharge/preclean/transfer)
Preclean Corona	15%	2082	3209	2321
Developer Mix	10%			
PC Drum	10%	2082	3261	2467
Cleaner Brush	05%	2082	3225	2220
Cleaner Housing and air system	05%	2082	3219	
Secondary Erase Lamp (PL101)	05%	2082	3211	2493
Primary Erase Lamp (PL102)	05%	2082	3207	2490
Corona voltage adjustment	01%			2339
Toner Control Sensor jammed	01%	2068	3253	2412
Toner Control adjustment	01%			2402
Toner Control Card PCxxx	01%	2053	3199	2402
High Voltage Power Supply	01%	2059	3205	2328
B1J9 Card	01%	B1 Logic Card Links		

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Cyclone Blower Motor (M104)	01%	2063	3309	2177
Toner	01%			

MAP 1008 BEGINS

Table 233. MAP 1008

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• First determine if your problem is "Residual Image" or "Fuser Offset". Look at the printed page at the output of the transfer station and before the fuser. If the problem image is on the paper before fusing, your problem is "Residual Image". **Is your problem "Residual Image"?**	Go to Step 2.	Your problem is "Fuser Offset"; go to MAP 1009: Fuser Offset Or Forms Sticking Together.
Step 2.	• Run the Primary Print Sample for at least 30 prints and check for residual images. • If the defect the customer has noticed does not appear on the primary print sample, print the other test samples to see if it appears. Save this output as a reference point when you work on the problem. If necessary, have the customer run the job on which the problem occurred. • Do the QUICK CHECKS. **Do you still have residual images?**	Go to Step 3.	Finished

Table 233. MAP 1008 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Remove the developer cover and check to see if the toner control shaft is turning when the developer is running. Pushing the developer run pushbutton on the front of the developer runs the developer for about a minute. The toner control shaft is below and to the right of the scavenger roll shaft. If the shaft does not turn, go to MAP 0234: Toner Overfeed Error, Step 7. • Remove the PC drum. • Thoroughly clean all the process components around the PC drum. Give special attention to the developer and erase lamp filters. • Cover the developer with paper to prevent toner from the cleaner station falling into the developer. • Remove the cleaner brush and clean the cleaner housing. **Was the cleaner housing or cleaner brush excessively loaded with toner?**	Go to Step 7.	Go to Step 4.

Table 233. MAP 1008 (continued)

Step	Questions/Actions	Yes	No
Step 4.	**Hint** The PC drum can be reversed to check if the print defect moves when the PC is installed reversed. If the defect move, the defects are PC related. • Inspect the surface of the PC drum. **Are there any patterns or discolored areas that match the residual images?**	Go to Step 6.	Go to Step 5.
Step 5.	• Reinstall the PC drum. **Do you still have residual images?**	Go to Step 8.	Finished
Step 6.	• Install a new PC drum. • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @ **Do you still have residual images?**	Go to Step 8.	Finished

Table 233. MAP 1008 (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Check the air system for problems. • Repair any air system problems and install a new cleaner brush. **Do you still have residual images?**	Go to Step 8.	Finished
Step 8.	• Dump the developer mix and install new, “unused” mix. • Perform the toner control adjustments on the PCxxx Card. Do not reinstall the old developer mix in the printer after the adjustment is complete. If it is impossible to adjust to the correct values, do the following, one at a time, until you can make the adjustment: • Install a new Toner Control Card (PCxxx). • Repair any shorts to ground in the circuit from PJ135-45 to PJ135-46. • Install a new Toner Control Sensor (L101). • Repair any damage or blockage of the Toner Control Sensor (L101) chute and mechanism. @ **Do you still have residual images?**	Go to Step 9.	Finished
Step 9.	Go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there. **Do you still have residual images?**	Go to Step 10.	Finished

Table 233. MAP 1008 (continued)

Step	Questions/Actions	Yes	No
Step 10.	• Install new Secondary Erase Lamp (PL101) and Primary Erase Lamp (PL102). @ **Do you still have residual images?**	Go to Step 11.	Finished
Step 11.	• If you have not installed a new PC drum in a previous step, do it now. • Reset the PM counter if you install a new PC drum. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @ **Do you still have residual images?**	Go to Step 12.	Finished

Table 233. MAP 1008 (continued)

Step	Questions/Actions	Yes	No
Step 12.	• If you did not install a new cleaner brush in a previous step, do it now. @ **Do you still have residual images?**	• Verify that the customer is using the correct toner and developer mix. • If correct toner or mix are in question, remove all the questionable supplies and install new supplies. Call your next level of support if you still have residual images.	Finished

MAP 1009: Fuser Offset Or Forms Sticking Together

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is fuser offset. Fuser offset is most noticeable on blank areas of a page one hot roll rotation later, 314 mm (12.4 in.). Sample A1 shows an example of either residual images or fuser offset. Read the description carefully to determine whether the problem is residual images or fuser offset. If the problem is residual images, go to MAP 1008: Residual Images. If the problem is similar to a sample other than one in Sample A1 go to the MAP indicated on that sample.	• The preheat control is set too high. • The paper is not acceptable for this printer. • The forms select setting on the printer control panel (SW721) is not set correctly. This setting controls the oil flow rate for different weights of paper and the hot roll temperature for plastic labels. • The hot roll is worn-out or defective. • An oil pump is defective. • The paper cooling fans are not operating. • The Oiler-Belt Motor (M706) is defective . • The fuser oil tubing is defective. • The oiler belt mechanism is defective. • The Oiler Belt End Switch (S610) is defective and oiler belt is all used (. • The Oil Empty Sensor (S702) is defective and there is no fuser oil. • The B1J9 Card is defective. • The B1J5 Card is defective. • The backup roll is worn-out or defective. • The preheat control is defective. • The hot roll temperature control is defective. • The hot roll lamps are not installed correctly. • The toner is defective. The developer mix will also have to be replaced. • The developer mix is worn-out or defective.

REFERENCES

- Print Quality Samples
- Removals & Adjustments - Fuser
- Wiring Diagrams -
  WD27 - Motors B602, B703 & 200 VAC Blowers
  WD28 - 200 VAC Blowers
  WD52 - Motor M704
  WD53 - Motors M706 and M707
  WD62 - Switches and Sensors (YS011 Card)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Manually advance the oiler belt to a clean area.
- Add fuser oil to the oiler belt and hot roll to avoid printing with a dry hot roll.
- After you correct the problem, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil .
- Print a full box of forms.

QUICK CHECKS

- Ensure that the Preheat Control is not set too high.
- Check the “Forms Select” setting on the printer control panel (SW721) for correct setting with the customer’s forms. If this solves the problem, explain the operation of this control to the customer.
- Check to see if the problem occurs with other types of forms. If the problem does not occur with other forms, do not waste time and money replacing a lot of parts. The customer should contact marketing for forms-selection assistance.

SERVICE CHECKS

- Verify Oiler-Belt Motor (M706) operation with Driver Routine 28.
- Verify Oil Pump 1 (L701), Oil Pump 2 (L702), and Oil Pump 3 (L703) operation with Driver Routines 2A, 2B, and 2C.
- Verify Oil Empty Sensor (S702) operation with Sensor Routine 82.
- Verify operation of all the paper cooling fans with Driver Routine 32.
- A failure in the preheat control would result in a 28x type SRC being displayed. However, you may verify its correct operation by checking the following resistance values:
  - 0 to 3.32 kohm (±10%) between J612TC-33 and P612TC-33 as the temperature control is rotated from low to high.
  - 0 to 3.32 kohm (±10%) between J612TC-35 and P612TC-35 as the temperature control is rotated from low to high.
  - 0 to 1.80 kohm (±10%) between J612TC-37 and P612TC-37 as the temperature control is rotated from low to high.
  - 0 to 1.80 kohm (±10%) between J612TC-39 and P612TC-39 as the temperature control is rotated from low to high.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll	30%	2073	3387	2537
Oil Pump (L7xx)	20%	2059	3395	2569
Cooling Fan (B603, B623, B624, B625, B626, B703, B704, B705)	10%			
Oiler mechanism	10%			
Backup Roll	04%	2073	3431	2503
Oiler Belt Motor (M706)	04%	2073	3443	2564
Oiler Belt End Switch (S610)	%	2073	3447	2562
Oiler Empty Sensor (S702)	04%	2059	3395	2569
B1J9 Card	04%	B1 Logic Card Links		
B1J5 Card	04%	B1 Logic Card Links		
Forms Select setting	01%			
Fuser Control Card FSxxx	01%	2131	3499	2528
YS011 Card	%	2116	3363	2627
Upper Preheat Platen (PH601)	01%	2073	3429	2576
Lower Preheat Platen (PH602)	01%	2073	3429	2576

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Control Card HR091	01%	2064	3397	2534
Hot Roll Temperature Control Sensor (L601)	01%	2073	3415	2558
B1J8 Card	01%	B1 Logic Card Links		
Forms	---			
Preheat Control setting	---			
Forms Select setting	---			
Hot Roll Lamp installation	---			
Toner	---			
Developer Mix	---			

MAP 1009 BEGINS

Table 234. MAP 1009

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	First, determine if your problem is "Side One Smear" on a system with the 229 PPM Feature (DW1/DW2 Only) installed. Look at the printed form at the output of the Printer 1 before it enters Printer 2. Look at side one of the printed form at the output of the Printer 2 fuser. If the image is smeared in the process direction on side one and the smeared image does not appear until after the form has gone through the Printer 2 fuser, the problem is "Side One Smear". **Note:** The side one smear problem may not occur on all customer prints. It depends on the data being printed. **Is your problem "Side One Smear"?**	Go to Step 2.	Go to Step 3.

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 2.	Do the following one at a time: • Check the “Forms Select” setting on the printer control panel (SW721) on Printer 1. • Ensure that the value in printer memory location FF20 is 24 on Printer 1. (A lower value in FF20 causes more oil to be fed during printing.) For details about reading and writing to memory, see Printer Diagnostics. • Check the “Oil Port Assembly Adustment” for Printer 1. • Ensure that the preheat platen vacuum on Printer 2 is correct. • Ensure that the **Printer Configuration** values are set as follows: – Front Sheet Sequence = Front First – Printer Mode = Duplex • Run about 2000 prints of the Primary Print Sample to determine if the problem has been fixed. **Is side one smear visible on the last forms printed?**	• Increase the preheat control setting on Printer 1 to **7**. • Run about 2000 prints of the Primary Print Sample to determine if the problem has been fixed. If you have not fixed the problem, call your next level support.	The problem has been fixed.

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Determine if your problem is “Residual Image” or “Fuser Offset”. Look at the printed page at the output of the transfer station and before the fuser. If the problem image is on the paper before fusing, your problem is “Residual Image”. **Is your problem “Fuser Offset”?**	Go to Step 4.	Your problem is “Residual Image”; go to MAP 1008: Residual Images.
Step 4.	• Run the Primary Print Sample for up to a full box of paper. Save a sample of the problem as a reference point. If any error codes in the fuser area occur, go to the MAP for that error. • Do the QUICK CHECKS. • Check the PM log; if due, replace the hot roll. • Check the PM log; if due, replace the backup roll. **Do you still have fuser offset or forms sticking together?**	Go to Step 5.	Finished

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Run Driver Routine 32 to check the operation of the paper cooling fans. Run Option **E0** with loop count **FF** for continuous operation of routine **32**. Because the continuous-loop option remains active only for one routine, you must enter **E0** and **FF** again if you run the routine more than once. • Check to see if the following fans are operating while Driver Routine 32 is running: – Paper Cooling Fan (B623) – Paper Cooling Fan (B624) – Paper Cooling Fan (B625) – Paper Cooling Fan (B626) – Stacker Rear Cooling Fan (B603) – Stacker Cooling Blower (B703) (also check this one for a damaged or blocked air duct) – Stacker Front Cooling Fans (B704, B705) **Do all these fans operate correctly?**	Go to Step 6.	Do the following, one at a time, until the fans operate correctly: • Check the wiring to the failing fan and correct any problem. • Repair or replace the failing fan. @
Step 6.	• Check the hot roll and backup roll for damage or worn areas. **Is the hot roll in good condition?**	Go to Step 7.	• Install a new hot roll. • Reset the PM counter. @
Step 7.	**Is the backup roll in good condition?**	Go to Step 8.	• Install a new backup roll. • Reset the PM counter. @

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 8.	If the hot roll lamps are installed incorrectly, poor fusing and offset can occur at different points across the width of the forms. The four hot roll Lamps have heating elements with different lengths, and they must be installed in the correct slot and in the correct orientation. (The lamp ends, with the numbers on them, should be installed toward the front of the printer.) In addition, the lamps can be accidentally “spiralled”, where the rear contacts are all rotated one position off their correct location. **Are the hot roll Lamps installed correctly?**	Go to Step 9.	• Reinstall the hot roll Lamps correctly. @

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 9.	If this printer is DR1/2 or IRx Model, go to Step 11. **Is there any oiler belt remaining on the supply roll?**	Go to Step 10.	The offset is caused by an end-of-belt condition that is not being detected. • Check for any obvious problems like incorrect installation of the belt, a broken tab on the end of the oiler belt, or a binding or broken Oiler Belt End Switch (S610). Repair or replace as needed. If you find no obvious problems, go to MAP 0793: End Of Oiler Belt Reached to repair an end-of-oiler-belt that is not detected. @

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 10.	• Locate the Oiler-Belt Motor (M706) and remove the motor cover. • Mark the end of the motor shaft with a pencil as a reference point to check for motor rotation. • Run Driver Routine 28 from the Maintenance Panel. **Did the motor shaft turn approximately one rotation when you ran Driver Routine 28?**	Go to Step 11.	Do the following, one at a time, until the Oiler-Belt Motor (M706) turns when you run Driver Routine 28: • Check PJ723 for correct contact. • Remove the Oiler-Belt Motor (M706) and ensure that the oiler belt mechanism is not binding. Repair or replace as necessary. • Install a new Oiler-Belt Motor (M706). • Correct any open or short between PJ723 and PJ480. • Install a new B1J3 Card. • Install a new B1J9 Card. • After you correct the problem, remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B for 10 loops to feed oil . @

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 11.	• Remove the oiler belt, advance it to a clean area, reinstall it, and run Driver Routine 2B check to see if oil is being fed through all the oil holes. Use Run Option **E0** with loop count **FF** for continuous operation for the routines. Because the continuous loop option remains active for only one routine, you must enter **E0** and **FF** each time you run a routine. **Does oil feed through the holes while the Driver Routines are run continuously?**	Go to Step 13.	Go to Step 12.
Step 12.	• Check the oil pump assembly oil level. **Is the oil reservoir empty?**	Go to MAP 0792: Fuser Oil Empty to repair a “Fuser Oil Empty” condition that was not detected.	To fix the oil feeding problem, go to MAP 0134: Fuser Wrap, Step 16.
Step 13.	• Check the Hot Roll Temperture Control Sensor (L601) and Hot Roll Over-temperature Sensor (S613) adjustments. Correct if necessary. • Run a full box of forms. If a **291** error occurs, go to MAP 0291: Hot Roll Over Temperature. **Do you still have fuser offset or forms sticking together?**	Go to Step 14.	Finished

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 14.	Fuser offset can be caused by worn-out or defective developer mix. • Dump the old developer mix and install new mix. • Manually advance the oiler belt to a clean area. • Add fuser oil to the oiler belt and hot roll to avoid printing with a dry hot roll. • Print a full box of forms. **Do you still have fuser offset?**	Go to Step 15.	Finished
Step 15.	Normally, the oiler belt/oiler wick roll is moderately coated with toner, paper dust, and chads. If so much toner and debris have accumulated on the oiler belt/oiler wick roll that it cannot keep the hot roll clean, then buildup is excessive. **Is the problem, hot roll offset, caused by excessive buildup on the oiler belt/oiler wick roll?**	If the oiler belt mechanism has no failing component and excessive buildup on the oiler belt/oiler wick roll is a problem, do the following: • Emphasize operator cleaning for the oiler belt See the *Operator's Guide* for details. • Contact your marketing support to assist the customer with selecting forms that produce less debris on the oiler belt. (continued on next page)	Go to Step 16.

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 15 (cont.)		• The oiler belt speed and oil feed rate can be increased until the customer finds better forms. This may allow the customer to continue using these forms, but it will increase supplies usage. Contact your next level of support before changing the belt speed and oil feed rate. Changing the value in printer memory location FF20 to 32 and FF21 to 01 will run the oiler belt at its maximum rate and double the amount of oil fed. The normal value for FF20 is 64, and for FF21 is 8. For details about reading and writing to memory, see Printer Diagnostics.	

Table 234. MAP 1009 (continued)

Step	Questions/Actions	Yes	No
Step 16.	Do the following, one at a time, until the problem is corrected: • The problem is most likely the forms or the way the forms are stored. Re-evaluate whether there is a problem with "known" good forms. • If the problem is occurring during postprocessing and not occurring in the printer stacker, there is nothing more we can do. Assist the customer in evaluating how the forms are handled during postprocessing. • If a new hot roll has not been installed already and the forms appear to be OK, try installing a new hot roll. Add fuser oil to the oiler belt/oiler wick roll and hot roll to avoid printing with a dry hot roll. • Verify that the customer is using the correct toner. If correct toner is in question, remove all the toner and developer mix, and install new supplies. Manually advance the oiler belt to a clean area, or install a new oiler wick roll. Add fuser oil to the oiler belt/oiler wick roll and hot roll to avoid printing with a dry hot roll. • Verify that the customer is using the correct fuser oil. If correct oil is in question, remove all the oil and install new fuser oil, and a new hot roll. Manually advance the oiler belt to a clean area or install a new oiler wick roll. Add fuser oil to the oiler belt/oiler wick roll and hot roll to avoid printing with a dry hot roll. • Verify that the customer is using the correct oiler belt. If correct oiler belt is in question, install a new belt and hot roll. Add fuser oil to the oiler belt/oiler wick roll and hot roll to avoid printing with a dry hot roll. • Check the Forms Select setting (SW721) and the wiring back to to the YS011 Card. Repair or replace as necessary. • Call your next level of support and discuss the problem. The following components are low probability causes of offset or forms sticking together. If directed by support, install the following, one at at a time, until the problem is corrected: – Fuser Control Card (FSxxx) – YS011 Card – Preheat Platen (PH601) – Lower Preheat Platen (PH602) – Hot Roll Control Card HR091 – Hot Roll Temperture Control Sensor (L601) – B1J8 Card @		

MAP 100A: Voids, Missing Print, Or Poor Contrast

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is voids, missing print, or poor contrast on images or characters. Poor contrast can be described as “grainy print” or print that has varying degrees of darkness or lightness over the printed page. Voids or poor contrast near perforations are normal under certain conditions. The printer has the ability to “print to perf,” but there can be significant print quality degradation when printing near perforations: • Roll-feed paper may only be able to print to 2 mm (0.1 in.) of a perforation. • Box paper may be only able to print to 12 mm (0.5 in.) of a perforation. Consult your marketing support if this is a problem for your customer. Go to MAP 1003: Light Streaks for missing print in a band from top to bottom on every page. Group E contains samples of these problems. If the defect is similar to a sample other than one in Group E, go to the MAP indicated on that sample.	• Paper is the most likely cause of these problems. A fundamental paper problem may exist or a “good” paper may have been stored improperly. Smooth, good quality paper having good formation and moisture content just above 4% will produce the best quality print. Paper that has been stored in an extremely wet or dry environment, can show voids along the edge of the page or contrast spots anywhere on the page. • The PC drum is either filmed, lightly scratched, has something stuck on the surface, or is defective. Voids caused by the PC drum will repeat on each drum rotation. • A contrast problem is especially visible on gray prints or prints with a lot of text. Contrast spots can be caused by any of the following: – The transfer corona is dirty. – The transfer voltage adjustment is not correct. – The transfer station retractor adjustment is not correct. – The developer to drum spacing is not correct (which could be caused by worn mag-brushes shaft or bearings). – The doctor blade adjustment is not correct. – The PC drum surface voltage is too high. – Missing print at the bottom of the last page printed as the paper stops: - Print registration (process direction) out of adjustment. - Retractor adjustments incorrect. (continued on next page)

Symptom Explanation	Conditions That Could Cause This Symptom
	• Light “scalloped” areas in the print near the tractor holes can be caused by: – The paper’s being stretched too tight in the tractors. Incorrect paper width adjustment by the operator can cause this problem as well as paper feeding errors. – Deformed tractor holes caused by transfer station adjustments that are not correct. • Dirt or debris moving in the printhead or beam chute can cause voids when it momentarily blocks the beam.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Transfer Station
  Drum Drive and Photoconductor (PC)
  Coronas & High Voltage Power Supply
- Removals & Adjustments -
  Single Beam Printhead
- Removals & Adjustments -
  Two Beam 240 Printhead
- Removals & Adjustments -
  Two Beam 240/300 Printhead

FIX VERIFICATION

- Run the Primary Print Sample on full-width paper or the customer's problem paper if the problem is paper-dependent.

QUICK CHECKS

1. Check the print contrast control. If adjusting it to a darker setting gives acceptable print, explain the function of this control to the operator.
2. Check to ensure the tension in the paper between the transfer station tractors is correct. Explain the correct adjustment to the operator if this solves the problem.
3. Clean all corona assemblies. (Give special attention to the transfer corona.)
4. Try printing on a known "good" paper. If the problem does not occur on good paper, have the customer determine whether the problem paper meets the Forms Design Reference guide specifications and was stored properly before use.

SERVICE CHECKS

- Print Quality Symptoms Checklist.

Service Hint

If you are experiencing missing print or data loss on the trailing edge of the last page of print when the paper stops, check the following:

- Process Direction (Vertical) Adjustment and do the adjustments. (See Printhead Links).
- Do the retractor adjustments in Transfer Station Adjustment Sequence.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Forms	90%			
PC Drum	10%	2082	3261	2467
Transfer Corona voltage adjustment	---			2339
Developer adjustments	---			2440
Printhead adjustments	---	Printhead Links		

MAP 100A BEGINS

Table 235. MAP 100A

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Primary Print Sample on full-width paper or the customer's problem paper if the problem is paper-related. Save this output as reference while you work on the problem. If the voids are caused by poor fusing, go to MAP 1010: Poor Fusing. • Do the QUICK CHECKS. **Do you still have a void or contrast problem?**	Go to Step 2.	Finished
Step 2.	The PC drum circumference is 824 mm (32.45 in.). Voids or poor contrast caused by PC drum damage or something stuck on the drum repeat at that distance when continuous pages are printed. **Do any of the voids repeat at that distance?**	Go to Step 3.	Go to Step 5.

Table 235. MAP 100A (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Remove the PC drum and clean it. If the surface of the PC drum is physically damaged, go to Step 4. **Do you still have a void or contrast problem?**	Go to Step 4.	Finished If the problem was adhesive buildup on the PC drum surface, running a box of paper about every 10 boxes of labels will help keep the adhesive from building up. If the adhesive buildup is a continual problem, contact your marketing support to assist the customer with selecting a better label.

Table 235. MAP 100A (continued)

Step	Questions/Actions	Yes	No
Step 4.	You must install a new PC drum, but first do the following to prevent damaging the new drum: • Adjust any PC drum clearances that are not correct. • View or print the error log (see Error Log). If you find several of the same type of error, go to the MAP for that error and check any adjustments that may affect paper jams. • Install a new PC drum. • Reset the PM counter. Before you replace the PC drum, run the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @ **Do you still have a void or contrast problem?**	Go to Step 5.	Finished
Step 5.	Go to Print Quality Symptoms Checklist. • Check, record, and adjust (as needed) all the items there. **Do you still have a void or contrast problem?**	Go to Step 6.	Finished

Table 235. MAP 100A (continued)

Step	Questions/Actions	Yes	No
Step 6.	• SHUTDOWN AND POWER OFF THE PRINTER. • Check the printhead and beam chute for any debris that could be moving around and momentarily blocking the scanning laser beam. • Check to ensure that none of the wires inside the printhead are in the path of the laser beam. **Do you still have a void or contrast problem?**	It must be the forms. Contact your marketing support to assist the customer with selecting better forms.	Finished

MAP 1010: Poor Fusing

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is poor fusing. The poor fusing may occur over the entire print or only in small areas. Poor fusing is characterized by print that “wipes off” with only light pressure. Smearing of the print when the print is rubbed with moderate to heavy pressure is a normal condition for many papers on this printer. In addition, it is normal for a cloth or piece of paper that is repeatedly rubbed over a printed page to be lightly blackened. Careful forms selection can reduce this problem. If the customer has a problem with smear or print rubbing off, contact your marketing support for assistance in forms selection. If the fusing problem is fuser offset or forms sticking together, go to MAP 1009: Fuser Offset Or Forms Sticking Together.	• The preheat control is set too low. • The “Forms Select” setting on the printer control panel (SW721) is not set correctly. This setting changes the rate of oil flow for different weights of paper and reduces the hot roll temperature for plastic labels. • The forms are not acceptable for this printer. Forms with a rough surface, or surface coatings have poor fusing characteristics. • The hot roll is worn out or defective. • The preheat platen vacuum is not correct because: – The preheat platen vacuum slots or holes are clogged. – The vacuum is not adjusted correctly. – The Vacuum Blower Motor (M105) motor or driver circuit is defective. – The air system leaks. • The preheat control is defective. • The hot roll temperature control is defective. • Contrast set too low on forms greater than 24 lbs. • The forms were stored improperly and the moisture content is too high. • The toner is defective. The developer mix will also have to be replaced.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Air System
  Fuser
- Wiring Diagrams -
  WD29 - 3 Phase AC Motors (M101, M104, M105 & M108)
  WD66 - Preheat Control

FIX VERIFICATION

- Run the Primary Print Sample Rub the fused print with a tissue or clean cloth.

  Read the Symptom Explanation to help you determine what poor fusing is and what is normal for this printer.

QUICK CHECKS

- Ensure that the Preheat Control is not set too low.
- Check the “Forms Select” setting on the printer control panel (SW721) for the correct setting with this customer’s forms.

  If this solves the problem, explain the operation of this control to the customer.

SERVICE CHECKS

- Clean the vacuum slots in the preheat platen with the scraper tool.
- Clean the manifold distribution filter and ensure the vacuum lines to the preheat platen are not blocked.
- Measure the preheat platen vacuum (See Preheat Platen Vacuum Adjustment.)
- Visually inspect the hot roll, backup roll, and backup idler roll (Backup Idler Roll is not present on all printers) for damage or excessive wear.

Hint on Heavy Forms

If you have solid-area-fill fusing problems on forms that are 24 lbs. or heavier, set the contrast higher than C4. The increased setting may eliminate this problem.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Forms	50%			
Hot Roll	20%	2073	3387	2537
Backup Roll	15%	2073	3431	2503
Backup Idler Roll	05%	2073	3241	2522
Preheat Platen vacuum	05%			2189
Vacuum Blower Motor (M105)	01%	2063	3309	2191
Relay Board (RB101)	01%	2084	3507 (200V) 3509 (400V)	
B1J9 Card	01%	B1 Logic Card Links		
HR091 Card	01%	2064	3397	2534
Fuser Control Card FSxxx	01%	2131	3499	2528
Upper Preheat Platen (PH601)	01%	2073	3429	2576
Lower Preheat Platen (PH602)	01%	2073	3429	2576
B1J8 Card	01%	B1 Logic Card Links		
Hot Roll Temperature Sensor (L601)	01%	2073	3415	2558
Toner	01%			
Preheat Control setting	---			
Forms Select setting	---			

MAP 1010 BEGINS

Table 236. MAP 1010

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Primary Print Sample for 30 pages. Save a sample of the problem for a reference point. • Do the QUICK CHECKS. • Check the PM log; if due, replace the hot roll. • Check the PM log; if due, replace the backup roll. • Clean the manifold distribution filter. • Clean the vacuum slots in the preheat platen with the scraper tool. **Do you still have poor fusing?**	Go to Step 2.	Finished
Step 2.	• Check the Hot Roll, Backup Roll, and Backup Idler Roll (the Backup Idler Roll is not present on all printers) for damaged or worn areas. **Is the hot roll in good condition?**	Go to Step 3.	• Install a new hot roll. • Reset the PM counter. @
Step 3.	**Is the backup roll in good condition?**	Go to Step 4.	• Install a new backup roll. • Reset the PM counter. @

Table 236. MAP 1010 (continued)

Step	Questions/Actions	Yes	No
Step 4.	**Is the Backup Idler Roll in good condition? (Answer Yes if your printer is not equipped with a Backup Idler Roll.)**	Go to Step 5.	• Install a new Backup Idler Roll. • Reset the PM counter. @
Step 5.	• Ensure that all the vacuum holes in the preheat platen are open and the vacuum lines to the preheat platen are not blocked. • Measure the preheat platen vacuum (2189). Adjust if possible. @ **Is the preheat platen vacuum OK?**	Go to Step 8.	Go to Step 6.
Step 6.	**Does the Vacuum Blower Motor (M105) run?**	Go to Step 7.	Do the following, one at a time, until the problem is corrected: • Install a new Vacuum Blower Motor (M105). • Install a new Relay Board (RB101). • Install a new B1J9 Card. • Repair a wiring problem in the Vacuum Blower Motor (M105) circuit. @

Table 236. MAP 1010 (continued)

Step	Questions/Actions	Yes	No
Step 7.	Do the following, one at a time, until the vacuum can be adjusted. • Repair any leaks or blockages. • Install a new Vacuum Blower Motor (M105). @ **Do you still have poor fusing?**	Go to Step 8.	Finished
Step 8.	• Check the Hot Roll Temperature Control Sensor (L601) adjustment. @ **Do you still have poor fusing?**	Go to Step 9.	Finished
Step 9.	If the hot roll lamps are installed incorrectly, poor fusing and offset can occur at different points across the width of the forms. The four hot roll lamps have heating elements with different lengths, and they must be installed in the correct slot and in the correct orientation. (The lamp ends, with the numbers on them, should be installed toward the front of the printer.) In addition, the lamps can be accidentally “spiralled”, where the rear contacts are all rotated one position off their correct location. (See Hot Roll Lamps.) **Are the hot roll lamps installed correctly?**	Go to Step 10.	• Reinstall the hot roll lamps correctly.

Table 236. MAP 1010 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Excessively dark print does not fuse well. • Check the reference prints to see what normal darkness should be. **Is the print darkness normal?**	Go to Step 11.	Go to MAP 1013: Characters Too Dark Or Stoke Width Too Wide.
Step 11.	Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Disconnect the connector from J612 on the Fuser Control Card (FSxxx) • Check for a short circuit to ground at each of the following points on the wiring: – P612TC-33 – P612TC-35 – P612TC-37 – P612TC-39 – PJ667-1 – PJ667-3 – PJ668-1 – PJ668-3 **Is there an open circuit to ground?**	Go to Step 12.	• Use the wiring diagrams to repair a short circuit to ground.

Table 236. MAP 1010 (continued)

Step	Questions/Actions	Yes	No
Step 12.	Perform the following steps: • Disconnect connectors PJ667 and PJ668. • Check for continuity between the following pairs of points: – P612TC-33 and P612TC-34 – P612TC-34 and P612TC-35 – P612TC-35 and P612TC-36 – P612TC-36 and P612TC-37 – P612TC-37 and P612TC-38 – P612TC-38 and P612TC-39 – P612TC-39 and P612TC-40 **Is there an open circuit between each of the pairs of points?**	Go to Step 13.	• Repair an adjacent short circuit you found in the above step.

Table 236. MAP 1010 (continued)

Step	Questions/Actions	Yes	No
Step 13.	Check for short circuits in the preheat control by checking the following resistance values: • 0 to 3.32 kohm (±10%) between J612TC-33 and P612TC-33 as the temperature control is rotated from low to high. • 0 to 3.32 kohm (±10%) between J612TC-35 and P612TC-35 as the temperature control is rotated from low to high. • 0 to 1.80 kohm (±10%) between J612TC-37 and P612TC-37 as the temperature control is rotated from low to high. • 0 to 1.80 kohm (±10%) between J612TC-39 and P612TC-39 as the temperature control is rotated from low to high. **Are the resistance values through the preheat control correct?**	• Reconnect connectors PJ667, PJ668, and the connector to J612. Do the following, one at a time, until the problem is corrected: • The problem is most likely the forms or the way the forms are stored. Re-evaluate whether there is a problem with “known” good forms. • Ensure that the customer is storing the forms correctly. Reread the Symptom Explanation to help determine whether you really have a fusing problem. • Verify that the customer is using the correct toner. If correct toner is in question, remove all the toner and developer mix, and install new supplies. @ (continued on next page)	• Install a new preheat control.

Table 236. MAP 1010 (continued)

Step	Questions/Actions	Yes	No
Step 13 (cont.)		• Call your next level of support and discuss the problem before you replace the following low probability causes: – Fuser Control Card (FSxxx) – Preheat Platen (PH601) – Lower Preheat Platen (PH602) – Hot Roll Control Card HR091 – Hot Roll Temperture Control Sensor (L601) – B1J8 Card @	

MAP 1011: Registration Or Skew

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is incorrect registration or skewed print. Vertical registration is defined as print position in the process direction; horizontal registration is defined as print position in the scan direction. Skew is defined by how parallel to the perforation a horizontal line is.	• Vertical registration: – The length value entered is not correct. – The adjust print setting is not correct. – The upper tractor timing is not correct. – The angle of the printhead return mirror is not correct. – The process factory adjust value in configuration is not correct. – The B1J10 Card is defective. If this card is defective or the SW1 adjustment is not correct the tractor motor acceleration will not be correct and vertical registration will vary each time paper motion starts and stops. • Horizontal registration: – The width value entered is not correct. – The adjust print setting is not correct. – The scan factory adjust value in configuration is not correct. – The Beam Detect Card (BDxxx) adjustment is not correct. – The print width adjustment in the printhead is not correct. – The mechanism interface card is defective. A failure in this card can cause compression or expansion of the print, which causes registration problems across the page. • Skew: – Preprinted forms were not printed correctly. – The printhead skew adjustment is not correct.

REFERENCES

- Removals & Adjustments - Transfer Station
- Removals & Adjustments - Single Beam Printhead
- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead

FIX VERIFICATION

- You can check registration with the Primary Print Sample.

  The primary print sample is defined so that the outside edge of the top thick black line is 8.5 mm ± 1.2 mm (0.34 in. ±0.05 in.) from the top of the page. The outside edge of the vertical thick black line is 23.3 ± 1.2 mm (0.92 ±0.05 in.) from the edge of the paper.
- Skew can also be checked with the primary print sample.

  The difference in distance from the top of the page to the leading edge of the thick black line at any two points across the width of the page should be less than 0.2 mm (0.008 in.).

QUICK CHECKS

1. Ensure that the length and width values match the size of paper being used.
2. Ensure that the operator is correctly aligning the paper perforations with the scale on the transfer station.
3. Ensure that the paper is threaded properly.
4. Check the adjust print setting. If the registration problem can be corrected by changing the adjustment settings, explain the operations to the customer.
5. If the problem is skewed print on a preprinted form, measure the horizontal lines on the form to see if the form is skewed.

SERVICE CHECKS

- Check the Registration - Adjust if necessary (See Printhead Links.)
- Check the Print Skew - Adjust if necessary (See Printhead Links.)

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Printhead adjustments	60%	Printhead Links		
B1J11 Card adjustment	25%	B1 Logic Card Links		
Transfer Station adjustment	10%			3160
B1J11 Card	01%	B1 Logic Card Links		
Mechanism Interface Card (MIC)	01%	Control Unit Links		
B1J10 Card	01%	B1 Logic Card Links		
Operator settings	---			
Forms	---			

MAP 1011 BEGINS

Table 237. MAP 1011

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Primary Print Sample for 30 pages. Save a sample of the problem for a reference point. • Do the QUICK CHECKS. **Do you still have a registration or skew problem?**	Go to Step 2.	Finished
Step 2.	**Is the problem "Image Skew"?**	The problem is "Image Skew". • Go to Print Skew and adjust as necessary. (2094)	Go to Step 3.
Step 3.	You have a registration problem. **Is the registration problem in the vertical (process) direction?**	Go to Step 4.	The problem is registration in the horizontal direction. • Go to Registration and adjust as necessary. (2094)
Step 4.	**Is the vertical registration changing?**	Go to Step 5.	• Go to Registration and adjust as necessary. (2094)
Step 5.	**Are you getting SRC 0131 or 0132 (TENSION ARM DOWN) errors?**	• Check for slipping or broken tractor motor drive pulley.	Go to Step 6.

Table 237. MAP 1011 (continued)

Step	Questions/Actions	Yes	No
Step 6.	**Is the registration changing exactly $^{1}/_{6}$ inch during printing?**	• Replace the Mechanism Interface Card (MIC). @	• Check for a loose return mirror.

MAP 1012: Altered Characters Or Images

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the characters or images on the print appear altered. Characters or images may have extra information added, have missing portions, or have altered shape. This includes wavy print (lines, character edges, image edges) in the forms direction. Group G contains samples of altered images. If the defect is similar to a sample other than one in GROUP G, go to the MAP indicated on that sample.	• The Mechanism Interface Card (MIC) is defective. • The PQE Card is defective. • The printhead is not adjusted correctly. • The beam detect card (BDxxx) is defective. • The Mirror Motor (M201) is defective. • The Mirror Motor Driver Board (MDxxx) is defective. • The Printhead Interface Card (VIxxx) is defective. • The stroke width adjustment is not correct. • The AOM skew adjustment is not correct.

REFERENCES

- Print Quality Samples
- Wiring Diagrams -
  WD42 - Laser Modulator and Beam Detect (Single Beam Printhead)
  WD81.1 - PQE (Two Beam Printhead) (1 of 2)
  WD42.4 - Laser Modulator (Four Beam Printhead)
  WD81.3 - PQE (Four Beam Printhead)

FIX VERIFICATION

- Run the Primary Print Sample for at least 30 prints and check the prints carefully for the problem. If the defects the customer has noticed do not appear on the primary print sample, print the customer job where the problem occurred.

QUICK CHECKS

- None

SERVICE CHECKS

- None

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
PQE Card	50%	Control Unit Links		
Mechanism Interface Card (MIC)	35%	Control Unit Links		
Printhead adjustment	05%	Printhead Links		
Stroke width adjustment	01%	Printhead Links		
Beam Detect Card (BDxxx)	01%	Printhead Links		
Mirror Motor Driver Board (MDxxx)	01%	Printhead Links		
Mirror Motor (M201)	01%	Printhead Links		
Printhead Interface Card (VIxxx)	01%	Printhead Links		

MAP 1012 BEGINS

Table 238. MAP 1012

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Primary Print Sample for at least 30 prints and check the prints carefully for the problem. If the defects the customer has noticed do not appear on the primary print sample, print the customer job where the problem occurred. • Ensure that the stroke width adjustment is correct. • Check the printing again. @ **Is the problem corrected?**	Finished	Go to Step 2.
Step 2.	• Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. **Did the test fail?**	Go to MAP D000: Mechanism Interface Card (MIC) Detected.	Go to Step 3.
Step 3.	• Ensure that Beam Power and Beam Detect Mirror adjustments are correct. (2094) • Check the printing again. **Do you still have altered characters?**	Go to Step 4.	Finished

Table 238. MAP 1012 (continued)

Step	Questions/Actions	Yes	No
Step 4.	**Is the problem wavy print?**	• Adjust AOM skew. • Install the following, one at a time, until the problem is corrected: – beam detect card (BDxxx) – Mirror Motor (M201) – Mirror Motor Driver Board (MDxxx) – Mechanism Interface Card (MIC) @	Go to Step 5.
Step 5.	**Is the problem extended lines or bars in the scan direction similar to Sample G3?**	Go to Step 6.	Go to Step 7.
Step 6.	• Check the voltage at the +5 V dc output of the DC 2 Power Supply (2644). • Adjust the voltage to the high side of the specification. **Did this adjustment correct the problem?**	Finished	Install the following, one at a time until the problem is corrected: • Mechanism Interface Card (MIC). • PQE Card @
Step 7.	**Is the problem diagonal bands similar to Sample G4?**	Go to Step 8.	Go to Step 10.

Table 238. MAP 1012 (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Check the connection of the beam detect cable at the Mechanism Interface Card (MIC). • Check the connection of the video cable(s) at the PQE Card. • Check the connection of the video cables on the Printer Interface Card • Check the connection of the video cables on the VIXXX Card in the printhead. • Check the connection of the video cables on the AOM Drivers in the printhead. **Are the video cable(s) securely connected and in good condition?**	Go to Step 9.	• Repair or replace the cables or connectors as needed.
Step 9.	Install the following, one at time, until the problem is corrected: • Printhead Interface Card (VIXXX) • AOM Driver (AM202) (On single beam printheads • AOM Driver (AM203) (On two-beam printheads) • AOM Driver (AM203), AOM Driver (AM204), AOM Driver (AM205), or AOM Driver (AM206) on four- or five-beam printheads • Mechanism Interface Card (MIC) • PQE Card • Video Cables from the PQE Card to the Printer Interface Card • Video Cables from the Printer Interface Card to the VIXXX Card @		

Table 238. MAP 1012 (continued)

Step	Questions/Actions	Yes	No
Step 10.	**Is the problem altered characters similar to Sample G5 and does your printer have a two- or four-beam printhead?**	Sample G5 illustrates beam crossing in a two- or four-beam printhead. • Verify the correct connection of Video Data cables (VDx)	Go to Step 11.
Step 11.	**Is the problem that every other PEL is written on a printer with a two-beam printhead?**	Go to Step 12.	Install the following, one at a time, until the problem is corrected: • Mechanism Interface Card (MIC) • PQE Card @
Step 12.	• Check continuity of the following wires: – PJ136-15 to PJ210-15 – PJ136-3 to PJ210-3 **Do the wires have continuity?**	Replace the following components, one a time, until the problem is corrected: • Toner Control Card PCxxx • Printhead Interface Card VIxxx @	• Repair or replace the broken wire as required.

MAP 1013: Characters Too Dark Or Stoke Width Too Wide

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the characters are two dark or too wide. If there is also a high level of background, go to MAP 1005: Background Or Dirty Prints.	• The print contrast setting on the printer control panel (SW721) is set too dark. • The mag brush bias circuit is defective. • High toner concentration, caused by the following: – The toner control voltage adjustment is not correct. – The Toner Control Card (PCxxx) is defective. – The Toner Control Sensor (L101) is jammed with developer mix. – The toner control shaft is not turning. • The developer mix or toner is defective. • AOM skew adjustment is not correct. • The stroke width adjustment is not correct.

REFERENCES

- Removals & Adjustments -
  Coronas & High Voltage Power Supply
  Developer
- Wiring Diagrams -
  WD40 - High Voltage to Coronas
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
  WD62 - Switches and Sensors (YS011 Card)

FIX VERIFICATION

- Run the Alternate Print Sample.

QUICK CHECKS

- Try a lighter setting on the print contrast control. If this solves the customer's problem, explain the operation of this control to the operator.

SERVICE CHECKS

- **Mag Brush Bias**
- **Stroke width adjustment**

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Print Contrast setting	40%			
Developer Mix	38%			
Stroke Width adjustment	10%	Printhead Links		
Mag Brush Bias voltage adjustment	10%			2330
High Voltage Power Supply	01%	2059	3205	2328
Toner Concentration Control	01%			
Toner Control Card PCxxx	01%	2053	3199	2402
YS011 Card	01%	2116	3363	2627

MAP 1013 BEGINS

Table 239. MAP 1013

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Alternate Print Sample for a full box of forms. If a 234 error occurs, go to MAP 0234: Toner Overfeed Error. Save a sample of the problem as a reference. • Remove the developer cover and check to see if the toner control shaft is turning when the developer is running. Pushing the **Developer Run** pushbutton on the front of the developer runs the developer for about a minute. The toner control shaft is below and to the right of the scavenger roll shaft. If the shaft did not turn, go to MAP 0234: Toner Overfeed Error, Step 4. • Do the QUICK CHECKS. **Is the print still too dark or too wide?**	Go to Step 2.	Finished
Step 2.	• Go to AOM Skew Adjustment and PQE Stroke Width (2094). Perform the adjustment if necessary **Is the print still too dark or too wide?**	Go to Step 3.	Finished

Table 239. MAP 1013 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Print ten copies of the Alternate Print Sample with the print contrast set to the lowest setting (position 1). • Then print ten copies of the alternate print sample with the print contrast set to the highest setting (position 7). **Did the print darkness change after the contrast setting was changed from 1 to 7?**	Go to Step 4.	Do the following, one step at a time, until the problem is corrected: • Check the wiring from the printer control panel (SW721) to the YS011 Card. • Install a new High Voltage Power Supply. • Install a new printer control panel (SW721). • Install a new Toner Control Card (PCxxx). • Install a new YS011 Card. @

Table 239. MAP 1013 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Dump the developer mix and install new, “unused” mix. • Perform the toner control adjustments on the Toner Contro1 Card Pcxxx). Do not reinstall the old developer mix in the printer after the adjustment is complete. If it is impossible to adjust to the correct values, do the following, one at a time, until the adjustment can be made: – Install a new Toner Control Card (PCxxx). – Repair any shorts to ground in the circuit from PJ135-45 to PJ135-46. – Install a new Toner Control Sensor (L101). – Repair any damage or blockage of the Toner Control Sensor (L101) chute and mechanism. • Run the Alternate Print Sample for 200 pages. @ **Is the print still too dark or too wide?**	Go to Step 5.	Finished

Table 239. MAP 1013 (continued)

Step	Questions/Actions	Yes	No
Step 5.	Go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there. • Run the Alternate Print Sample for 200 pages. **Is the print still too dark or too wide?**	Do the following, one at a time, until the problem is corrected: • Verify that the customer is using the correct toner and developer mix. • If correct toner or mix are in question, remove all the questionable supplies and install new supplies. @	Finished

MAP 1014: Background Shadows (Bleeding)

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the trailing edge of images and characters have background, but blank areas do not have any background. Sample C2 is a sample of this problem. If the defect is similar to a sample other than Sample C2, go to the MAP indicated on that sample. If this MAP does not solve the problem, go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there.	• The developer mix is wornout or defective. • The print is too dark. • The mag brush angles are not correct. • The printhead return mirror is dirty. • The transfer station retractor or path modifier adjustment is not correct. • The print is being smeared during postprocessing of the forms.

REFERENCES

- Print Quality Samples
- Removals & Adjustments - Developer

FIX VERIFICATION

- Run the Alternate Print Sample.

QUICK CHECKS

- If the print does not show background shadows when removed from the stacker, check the customer's postprocessing to see if the problem is there.

SERVICE CHECKS

1. Ensure that the mag brush angles are correct.
2. Install new developer mix.
3. Clean any printhead mirrors or lenses that are dirty or have fingerprints on them.
4. Ensure that the retractor and path modifier adjustments are correct.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Mix	55%			
Print too dark	40%			
Mag Brush angle adjustment	01%			2464
Dirty Return Mirror	01%	Printhead Links		
Transfer Station adjustments	01%			3160

MAP 1014 BEGINS

Table 240. MAP 1014

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Alternate Print Sample for at least 30 prints. Save this output as a reference. • Do the QUICK CHECKS. • Check the PM log; do any procedures that are due. **Is the print too dark?**	Go to MAP 1013: Characters Too Dark Or Stoke Width Too Wide.	Do the SERVICE CHECKS one at a time until the problem is fixed.

MAP 1018: Light Print

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the print quality problem is light print. The problem may be uniform over the whole page, isolated to one area of the page, or a gradual change in darkness from the front to the rear of the machine. If the character darkness is acceptable and only the solid area fill or images are too light, go to MAP 1020: Poor Solid Area Fill Or Images. If darkness of the print varies from character to character and the **primary** print sample (or another print sample) shows poor contrast, go to MAP 100A: Voids, Missing Print, Or Poor Contrast. Group I shows examples of light print. If the area of light print is confined to a band or streak, go to MAP 1003: Light Streaks. If this MAP does not solve the problem, go to Print Quality Symptoms Checklist. Check, record, and adjust (as needed) all the items there.	• The print contrast is not set correctly by the operator. • The developer adjustments are not correct. • The paper is defective. • The developer mix is at end of life, or is defective. • The toner control adjustment on the Toner Control Card (PCxxx) is not correct. • The PC drum is filmed, at end of life, or defective. • The mag brush bias is low. • A printhead lens or mirror is dirty. • The printhead adjustments are not correct, resulting in low scanning laser power and poor photoconductor discharge. • The PC drum surface voltage is too low because of a dirty or an incorrectly adjusted Charge Corona. • The Transfer Corona is dirty or not adjusted correctly. • The High Voltage Power Supply is defective. • The transfer station retractor adjustment is not correct. • The drive mechanism for the Toner Control Sensor (L101) is defective. • The Toner Control Card (PCxxx) is defective. • The mag brush may be installed incorrectly. If the punch mark on the front end of the mag brush shafts are installed upside down, the print will be light. • The toner feed mechanism is defective and is not feeding toner at the normal rate. • The toner has caked and is not feeding at the normal rate. (continued on next page)

Symptom Explanation	Conditions That Could Cause This Symptom
	• The toner is defective or is not the correct toner for this printer. • The customer's job has a print demand beyond the toner feed capacity of this printer. Run the primary print sample for 200 pages to see if the print gets darker.

REFERENCES

- Removals & Adjustments -
  Transfer Station
  Drum Drive and Photoconductor (PC)
  Coronas & High Voltage Power Supply
  Developer
- Removals & Adjustments -
  Single Beam Printhead
- Removals & Adjustments -
  Two Beam 240 Printhead
- Removals & Adjustments -
  Two Beam 240/300 Printhead
- Wiring Diagrams - WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
- Print Quality Samples

FIX VERIFICATION

- Run the Primary Print Sample for at least one full box of paper to ensure that the print darkness is stabilized at an acceptable level.

QUICK CHECKS

- Check the contrast control setting on the printer control panel. If changing the control to a darker setting gives acceptable print, explain the function of this control to the operator. If changing the contrast control from **1** to **7** has no effect on the print, use the wiring diagrams to ensure that the control is working and there are no opens in the circuit.
- Check to see if the print is light on other kinds of forms. An 80-g/m² (20-lb.) good-quality paper is best to use as a reference.
- Clean all corona assemblies.

SERVICE CHECKS

- Ensure that the Mag Brush Angles are set correctly.

- Ensure that the Conveyor Roll Angle is set correctly.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer adjustments	25%			2440
Developer Mix	25%			
Toner Control adjustment	25%			2402
Printhead adjustments	20%	Printhead Links		
Toner Control Card PCxxx		2053	3199	2402
Retractor adjustment	---			Detent 3063 Gap 3066
Printhead Lens/Mirror dirty	---	Printhead Links		
Mag Brush Bias voltage	---			2330
Transfer Corona voltage adjustment	---			2339
Stroke Width adjustment	---	Printhead Links		
PC Drum	---	2082	3261	2467
Paper	---			
Toner Control drive mechanism	---	2067	3247	2407
Toner Feed mechanism	---	2067	3257	2419
High Voltage Power Supply	---	2059	3205	2328
Toner	---			

MAP 1018 BEGINS

Table 241. MAP 1018

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		

Table 241. MAP 1018 (continued)

Step	Questions/Actions	Yes	No
Step 1.	If the light print is being caused by a toner feeding problem, then printing a full box of paper should cause a 235 error. • Run the Primary Print Sample for 2000 pages. If a 235 error occurs, go to MAP 0235: Toner Underfeed Error. • Save some of this primary print sample as a reference point. • Remove the developer cover and check to see if the toner control shaft is turning when the developer is running. Pushing the developer run pushbutton on the front of the developer will run the developer for about a minute. The toner control shaft is below and to the right of the scavenger roll shaft. If the shaft did not turn, then go to MAP 0235: Toner Underfeed Error, Step 4. **Hints** If the developer has just been worked on, ensure that the mag brush roll front knobs have been correctly installed. The punch mark on the end of the mag brush roll shafts should be at the top of the slot. The punch mark can be viewed by removing the angle adjustment knob on the front of the mag brush roll shafts. If you have light print on trailing edges only, increase the print contrast on the failing printer. This problem may be seen at print contrast settings between 1 and 4. Setting the contrast to a higher value may eliminate this problem. • Do the QUICK CHECKS. • Do the SERVICE CHECKS. • Run the Primary Print Sample for 200 pages. (continued on next page)		

Table 241. MAP 1018 (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	**Is the print still too light?**	Go to Step 2.	Finished
Step 2.	• Dump the developer mix and install new, “unused” mix. • Perform the toner control adjustments on the PCxxx Card. Do not reinstall the old developer mix in the printer after the adjustment is complete. If it is impossible to adjust to the correct values, do the following, one at a time, until you can make the adjustment: • Install a new Toner Control Card (PCxxx). • Repair any shorts to ground in the circuit from PJ135-45 to PJ135-46. • Install a new Toner Control Sensor (L101). • Repair any damage or blockage of the Toner Control Sensor (L101) chute and mechanism. • Run the Primary Print Sample for 200 pages. @ **Is the print still too light?**	Go to Step 3.	Finished

Table 241. MAP 1018 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check the following adjustments and correct if necessary: – Mag Brush Bias – Transfer Corona Voltage • If the Mag Brush Bias voltage is out of specification, install a new High Voltage Power Supply. • Run the Primary Print Sample for 200 pages. @ **Is the print still too light?**	Go to Step 4.	Finished
Step 4.	• Check the following adjustments and correct if necessary: – Developer to PC Drum – Mag Brush to Doctor Blade Gaps – Mag Brush Roll “C” to Scraper – Retractors to PC Drum • Run the Primary Print Sample for 200 pages. **Is the print still too light?**	Go to Step 5.	Finished

Table 241. MAP 1018 (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Check the laser power adjustment and correct if necessary. • Check for any dirty printhead lenses or mirrors. • If the light print problem varies from the front to the rear of the printer, check the horizontal adjustment of mirror 2. • Run the primary print sample for 200 pages. **Is the print still too light?**	Go to Step 6.	Finished
Step 6.	• Check the PC drum surface voltage and correct if necessary. • Run the Primary Print Sample for 200 pages. **Is the print still too light?**	Go to Step 7.	Finished
Step 7.	• Install a new PC drum. • Reset the PM counter. • Run the Primary Print Sample for 200 pages. Before you replace the PC drum, run and fuse the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run the **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. @ **Is the print still too light?**	• If you did not check the correct installation of the mag brush rolls front knob described in the “Hint” in Step 1, do it now. • Verify that the customer is using the correct toner and developer mix. If correct toner or mix are in question, remove all the questionable supplies and install new supplies. • Perform the PQE Stroke Width adjustment. @ • Call you next level of support if you still have light print.	Finished

MAP 1020: Poor Solid Area Fill Or Images

Symptom Explanation	Conditions That Could Cause This Symptom
Use this MAP if the character darkness is acceptable, but the solid area fill or image quality is poor. If the characters are also light, go to MAP 1018: Light Print. Before changing or replacing anything, review the reference prints in. This printer is not designed to print perfectly black or perfectly uniform solid area fill. If the print quality is generally good, contact marketing support to address marginal solid area fill problems before spending a great deal of time trying to make the solid fill darker or more uniform. Solid area fill and images will tend to be darker on the leading edge and show some reduced darkness in the middle. This effect will become more pronounced as the developer mix ages. Changing the printer memory locations (addresses FF08 and FF09 for all printers except 150 ppm simplex printers, or addresses FF0A and FF0B for 150 ppm simplex printers) from **1400** to **0800** causes the CHANGE DEVELOPER MIX message to appear sooner. For details about changing printer memory, see Printer Diagnostics.	• The developer mix is at end of life, or defective. • The print contrast is not set correctly by the operator. • The toner control adjustment on the Toner Control Card (PCxxx) is not correct. • The developer adjustments are not correct. The following adjustments significantly affect solid area fill: – Mag brush to PC drum spacing – Mag brush angles – Doctor blade to mag brush gaps. • The mag brush bias is low. • The Transfer Corona is dirty or the voltage adjustment is not correct. • The PC drum potential is too low because of a dirty or an incorrectly adjusted Charge Corona. • The transfer station retractor adjustment is not correct. • A printhead lens is dirty. • The printhead adjustments are not correct, resulting in low scanning laser power and poor photoconductor discharge. • The PC drum is filmed, at end of life, or defective. • The paper is defective.

REFERENCES

- Print Quality Samples
- Removals & Adjustments -
  Transfer Station
  Drum Drive and Photoconductor (PC)
  Coronas & High Voltage Power Supply
  Developer
- Removals & Adjustments -
  Single Beam Printhead
- Removals & Adjustments -
  Two Beam 240 Printhead
- Removals & Adjustments -
  Two Beam 240/300 Printhead
- Wiring Diagrams -
  WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards)
  WD62 - Switches and Sensors (YS011 Card)

FIX VERIFICATION

- Run the Alternate Print Sample for at least one full box of paper to ensure that the print darkness is stabilized at an acceptable level.

QUICK CHECKS

- Check the developer mix life by viewing or printing the error log (1565). If the mix life is greater than 800 kft, install new mix. Check the solid area fill after printing a full box of forms.
- Check the contrast control on the printer control panel. If adjusting the control to a darker setting gives acceptable print, explain the function of this control to the operator. If adjusting the contrast control from **1** to **7** has no effect on the print, use the wiring diagrams to ensure that the control is working and there are no opens in the circuit.
- Clean all corona assemblies.

- Check to see if the print is light on other kinds of forms. A 20-lb. good-quality paper is best to use as a reference.

SERVICE CHECKS

- Ensure that the Mag Brush Angles are set correctly.
- Ensure that the Conveyor Roll Angle is set correctly

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Mix	85%			
Developer adjustments	06%			2440
Mag Brush Bias voltage adjustment	04%			2330
Transfer Corona	01%	2123	3337	2320
Charge Corona	01%	2082	3211	2313
Retractor adjustment	01%			(Detent) 3063 (Gap) 3066
Printhead Lens dirty	01%	Printhead Links		
Printhead adjustment	01%	Printhead Links		
PC Drum	01%	2082	3261	2467
Toner Control adjustment	---			2402
Paper	---			

Hint

If you have light print on trailing edges only, increase the print contrast on the failing printer. This problem may be seen at print contrast settings between C1 and C4. Setting the contrast to a higher value may eliminate this problem.

MAP 1020 BEGINS

Table 242. MAP 1020

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Run the Alternate Print Sample for at least 30 prints. Save this output as a reference point. • Do the QUICK CHECKS. • Do the SERVICE CHECKS. • Run the alternate print sample for 200 pages. **Is the print still too light?**	Go to Step 2.	Finished

Table 242. MAP 1020 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• Dump the developer mix and install new, “unused” mix. • Perform the Toner Control adjustments on the PCxxx Card . Do not reinstall the old developer mix in the printer after the adjustment is complete. If it is impossible to adjust to the correct values, do the following, one at a time, until the adjustment can be made: • Install a new Toner Control Card (PCxxx). • Repair any shorts to ground in the circuit from PJ135-45 to PJ135-46. • Install a new Toner Control Sensor (L101). • Repair any damage or blockage of the Toner Control Sensor (L101) chute and mechanism. • Run the Alternate Print Sample for 200 pages. @ **Is the print still too light?**	Go to Step 3.	Finished

Table 242. MAP 1020 (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Check the following adjustments and correct if necessary. – Mag Brush Bias Voltage – Transfer Corona Voltage • If the mag brush bias voltage is out of specification, replace the high voltage power supply. • Run the Alternate Print Sample for 200 pages. **Is the print still too light?**	Go to Step 4.	Finished
Step 4.	• Check the following adjustments and correct if necessary. a. Mag Brush to PC Drum b. Mag Brush to Doctor Blade c. Mag Brush to Scraper d. Retractors to PC Drum • Run the Alternate Print Sample for 200 pages. **Is the print still too light?**	Go to Step 5.	Finished
Step 5.	• Check the laser power adjustment and correct if necessary. • Check for any dirty printhead lenses or mirrors. • Run the Alternate Print Sample for 200 pages. **Is the print still too light?**	Go to Step 6.	Finished

Table 242. MAP 1020 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Check the PC drum surface voltage and correct if necessary. • Run the Alternate Print Sample for 200 pages. **Is the print still too light?**	Go to Step 7.	Finished
Step 7.	**Hints** Before you replace the PC drum, run and fuse the **Print Pack** (1569). Perform the PC Drum Surface Voltage adjustment. After you replace the PC drum, run **Print Pack** and compare the two print samples for background, solid area fill, and stroke width. • Install a new PC drum. • Reset the PM counter. • Run the Alternate Print Sample for 200 pages. @ **Is the print still too light?**	• Read the Symptom Explanation again to help determine whether you really have a problem. • Call your next level support if you think the print is still too light.	Finished

MAP 1021: Bar Code Problems

Symptom Explanation	Conditions That Could Cause This Symptom
The customer has complained about a high scanner reject rate.	• Developer mix is worn out or defective. • Voids in the black bars can be caused by the following: – PC drum – Hot roll – Backup roll – The preheat control is set too high. – Printhead beam power is not correct. • High background between black bars. • Random or repeating black spots or marks. • Stroke width is not correct. • AOM skew is not correct (two- or four-beam printheads) • Paper is defective. • Print may be smeared due to improper handling after printing. • The customer's bar codes may not be designed properly as discussed in the *Forms Design Reference* manual. • Scanner adjustment required. • Mirror Motor is defective. • MDxxx Card is defective.

REFERENCES

- Removals & Adjustments -
  Coronas & High Voltage Power Supply
  Developer
  Cleaner
  Air System
- Removals & Adjustments -
  Single Beam Printhead
- Removals & Adjustments -
  Two Beam 240 Printhead
- Removals & Adjustments -
  Two Beam 240/300 Printhead

FIX VERIFICATION

- Have the customer measure the scanner reject rates.

QUICK CHECKS

- Ensure that the Preheat Control is not set too low or too high.
- Print the customer's bar code application on a good-quality 80 g/m² (20-lb.) paper and check the reject rate. If the bar codes read OK on this paper, contact your marketing support to work with the customer on proper forms selection.
- Perform the PQE Stroke adjustment.
- Check beam offset and adjust if necessary
- Perform the Beam Power Check and adjust if necessary.

SERVICE CHECKS

- See the Print Quality Symptoms Checklist.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer Mix	30%			
PC Drum	20%	2082	3261	2467
Hot Roll	20%	2073	3387	2537
Developer adjustments	10%			2440
Printhead adjustments	10%	Printhead Links		
Forms	10%			
PQE Stroke Width adjustment	10%	Printhead Links		

Hint

If you have light print on trailing edges only of bar codes, increase the print contrast on the failing printer. This problem may be seen at print contrast settings between **1** and **4**. Setting the contrast to a higher value may eliminate this problem.

MAP 1021 BEGINS

When a customer complains about a high scanner reject rate, ask to inspect the rejects to look for a print quality problem that is causing the rejects. If a problem can be seen, go to the MAP that addresses that problem. Problems to look for are:

- Smearing caused by poor fusing. Ensure that the preheat control is not set too low.
- Voids that may be caused by:
  - A damaged PC drum
  - A worn or damaged hot roll
  - A worn or damaged backup roll
  - Forms sticking together in the stacker or postprocessor
  - The preheat control is set too high. This can cause toner-to-toner sticking in the stacker.
- Background shadows (high background between bars)
- Random black spots or marks
- Repeating black spots or marks
- Light solid area fill
- Light print

If there is no obvious print quality problem on the reject samples, run the **Print Pack** (1569). Compare the prints to the print quality samples and the print quality problems described in MAP 1000: Print Quality Start Map. Go to the MAPs that address the problems.

You can ensure that all the adjustments affecting print quality are in specification by using the Print Quality Symptoms Checklist.

If the obvious print quality problems have been corrected and all the items on the are OK, then the rejects must be caused by the forms, the scanner, the bar code design, or the forms processing after printing. You can assist the customer in solving these problems with the following items.

1. Ask the customer the following questions:
   a. What is the width of the narrowest line? It is recommended that the lines be at least 3 pels (0.3 mm or 0.012 in.) wide.
   b. Is the bar code width and length within specification?
   c. Are the forms pressed or rubbed together in postprocessing equipment?

      Postprocessing procedures may need to be modified.
   d. Is the bar code scanner correctly adjusted?
   e. How do the bar codes look that will scan correctly?
2. The problem may be caused by the printing application.
   a. Run plain paper through the machine after every 10 000 feet of labels to clean any adhesive from the PC drum surface.
   b. Rotate the bar codes so that they are printed with their length parallel to the laser scan direction. These bars will be blacker than those whose length is in the process direction. To see this effect, look at the wide horizontal and vertical bars on the Primary Print Sample.

The customer is expected to ensure that the bar code is designed within the bar code specification for width and length of the overall symbol as well as for the individual elements. The customer is also expected to ensure with the scanner representative that the forms material, and the position and distortion of the label are acceptable as it passes under the scanner.

If support from product engineering is required, be sure to have the following information:

1. The answers to all of the above questions.
2. Run the **Print Pack** (1569) at contrast **4**.
3. Actual bar code samples on the forms to be scanned, printed at print contrast **4**, and any other setting that the customer wants to use. Ensure that the samples are well labeled with the date, contrast setting, customer name, and machine serial number.
4. The type of bar code being printed (UPC, Interleaved 2/5, Code 3/9).
5. The width, in pels, of the narrow bar and space, and of the wide bar and space.
6. Your mailing address, telephone number, branch office and territory number. Optional, but useful, information is your VM USERID and node, or your RETAIN queue, especially if you are not in the United States.

Contact your next level support for the mailing address to which your samples should be sent.

MAP 1022: Label Problems

This is a start MAP for print quality problems that occur on labels. Try to recreate the label problem while running paper. If the problem can be recreated with paper, go to the MAP for that symptom.

If the customer has never had satisfactory performance with this label on this printer but printer performance is satisfactory on paper, contact your marketing support to work with the customer on correct selection of labels.

If the customer is experiencing problems with a label that has given satisfactory performance in the past on this printer, suspect that the supplier of labels has changed something. Have the customer contact the label supplier with the details of the current problem before spending a great deal of time trying to find something wrong with the printer. When you are convinced that the labels have not changed and the printer performance with these labels has changed from satisfactory to unsatisfactory, then work on the printer.

The most common customer complaints when running labels are:

- Poor fusing
- Forms sticking together
- Voids or light print
- Paper path errors caused by dry gum labels.

The forms select setting on the printer control panel (SW721) can be used to set the hot roll temperature at 165° for plastic labels or 185° for normal paper operations. If forms sticking together is a problem, the lower temperature on the “Plastic” setting can be used. If poor fusing is a problem, then the paper settings that give 185° should be tried.

Ensure that the Preheat Control is not set too low or too high.

Voids or light print are caused by adhesive collecting on the PC drum or damage to the drum surface by the labels. The transfer station and retractor adjustments should be checked if the drum is being damaged. Labels that damage the drum should not be used. A box of paper should be printed at least every 10 000 feet of label running to “clean-up” adhesive that collects on the drum. Labels that deposit more adhesive than can be cleaned with periodic paper running should not be used.

Correct selection of labels and periodic printing with paper to clean up adhesive is critical to satisfactory performance on this printer. If the customer will not run paper periodically or is using labels that cause frequent repair actions, charge the customer for these calls. It is the customer's responsibility to ensure that labels are within the guidelines in the *Forms Design Reference*

Product Engineering can assist the customer and the label supplier in problem determination. When you request support, be sure to have the following information:

1. Run the **Print Pack** (1569) at contrast **4** on the largest width paper available.
2. The type of label, including:
   - Supplier
   - Adhesives
   - Label material
3. Description of the postprocessing of labels
4. Some printed labels that show the problem
5. A sample of at least 400 pages of labels that have not been printed
6. Your mailing address, telephone number, branch office and territory number. Optional, but useful, information is your RETAIN queue, especially if you are not in the United States.

Contact your next level support for the current mailing address to which your samples should be sent.

REFERENCES

- Removals & Adjustments -
  Drum Drive and Photoconductor (PC)
  Fuser

FIX VERIFICATION

- Be able to meet the customer's label application.

QUICK CHECKS

- None

SERVICE CHECKS

- See Print Quality Symptoms Checklist.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Labels	90%			
Adhesive on PC Drum	10%			
Preheat Control setting	---			
Printer Control Panel (SW721) setting	---			

MAP 2000: Controller Start Map

MAP 2000 BEGINS

Use this MAP as a pointer to other MAPs for specific problems. Table 251 is a list of abbreviations that are used in SRNs.

Table 243. Controller Problems

Condition	Action
The diagnostics stopped with a flashing **888** or a steady number other than **c99** on the 3-digit display.	Go to MAP 2002: Problem Determination Procedure.
The controller stopped with a number on its 3-digit display. The Display/Touch Screen is blank.	Go to MAP 2002: Problem Determination Procedure.
The controller stops with a steady **552** in the second line of the display.	Go to MAP 2002: Problem Determination Procedure.
The controller stops with two or more numbers between **221** and **296** alternating in the 3-digit display.	Go to MAP 2002: Problem Determination Procedure.
Hardware problem recurs intermittently.	Go to MAP 2004: Intermittent Problems.
A service request number (SRN) is known, and you want to determine the correct action.	Go to MAP 2010: Service Request Number (SRN).
The failing function code (FFC) is known, and you want to identify the part to replace.	Go to MAP 2011: Failing Function Code (FFC).
The controller power indicator (green LED) is off, or turns off within 5 seconds after Power On.	Go to MAP 2152: Controller Power Problems.
Normal diagnostics do not solve the problem.	Go to MAP 2154: Minimum Configuration.

MAP 2002: Problem Determination Procedure

MAP 2002 BEGINS

Use this MAP to get a service request number (SRN). Be prepared to record numbers from the controller display and convert them to SRNs, which you can use to analyze problems.

Attention:

Do not stop the printer by turning the RS/6000 Controller power switch to Off. There is a command to shut down the printer that performs all necessary cleanup operations before powering off.

Table 244. MAP 2002

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	**Is the controller a Type 7043 Model 43P series?**	Perform the following step to shut down the printer subsystem: • On the menu bar of the Display/Touch Screen main window, select **Operate**. • On the menu that appears, select **Shutdown**. • When `Shutdown is complete` appears on the Display/Touch Screen main window, press the control unit **Power Off** pushbutton switch on the power control panel. Perform Concurrent Diagnostics. Do not run in Service Mode (see RS/6000 Controller). When one of the conditions in Table 245 occurs, perform the action listed in the table.	Go to Step 2.

Table 244. MAP 2002 (continued)

Step	Questions/Actions	Yes	No
Step 2.	**Is the controller a Type 7025 Model F50?**	Perform the following step to shut down the printer subsystem: • On the menu bar of the Display/Touch Screen main window, select **Operate**. • On the menu that appears, select **Shutdown**. • When `Shutdown is complete` appears on the Display/Touch Screen main window, press the control unit **Power Off** pushbutton switch on the power control panel. Perform Concurrent Diagnostics. Do not run in Service Mode (see RS/6000 Controller). When one of the conditions in Table 246 occurs, perform the action listed in the table.	Go to Step 3.

Table 244. MAP 2002 (continued)

Step	Questions/Actions	Yes	No
Step 3.	Perform the following steps: • 1. Shut down the printer subsystem. **Note:** If the Display/Touch Screen is blank or otherwise inoperative, set the control unit Remote/Local switch to Local and press the **Power Off** switch on the power control panel. Go to item 2 below. – On the menu bar of the Display/Touch Screen main window, select **Operate**. – On the menu that appears, select **Shutdown**. – When `Shutdown is complete` appears on the Display/Touch Screen main window, press the control unit **Power Off** pushbutton switch on the power control panel. • 2. Set the RS/6000 Controller power switch to Off. • 3. Set the RS/6000 Controller mode switch to the **Service** position. • 4. If this is a simplex printer, press the control unit **Power On** pushbutton on the Power Control Panel. If this is a duplex printer, press the Printer 2 control unit **Power On** pushbutton on the Power Control Panel. • 5. Set the RS/6000 Controller power switch to On. • 6. Wait five minutes or until one of the symptoms in Table 247 is observed. • 7. When one of the conditions in Table 247 occurs, perform the action listed there. **Note:** If at any time you have difficulty in accessing components in the controller, place the controller in the service position. See RS/6000 Removal and Replacement Procedures.		
Step 4.	Table 249 interprets the steady numbers that may appear on the controller display while the system runs the diagnostics from the disk for controller types 7009 and 7012. For all other types, refer to Table 248 for specific controller information.		

Table 244. MAP 2002 (continued)

Step	Questions/Actions	Yes	No
Step 5.	A flashing **888** on the controller display indicates that an unrecoverable-error message or a diagnostic message is ready to be read. Do the following: • Use the instructions in RS/6000 Controller to read the message. • Record the following information as required: – Message number – Unrecoverable-error code – Diagnostic message, dump status code, or other information – Message type. **Note:** If an incomplete diagnostic message is displayed, data on the disk may be bad. Install a new disk drive. – Translated location code. **Did you identify an SRN?**	Do the following: • Identify the SRN in the diagnostic message and look up that SRN in MAP 2010: Service Request Number (SRN). • Record the failing function codes (FFCs) and look them up in MAP 2011: Failing Function Code (FFC) to determine what FRUs are involved.	Go to MAP 2154: Minimum Configuration.

Table 245. Disk IPL Symptoms for Model 43P Controllers

Symptom	Cause	Action
The RS/6000 Controller power-on light does not come on, or comes on but does not stay on.	Power problem.	Go to MAP 2152: Controller Power Problems.
The RS/6000 Controller stops with a steady 552 error on the second line of the display.	Possible SCSI hard drive failure	1. Go to the RS/6000 Type 7043 Model 43P Series; Models 140 and 240 Service Guide, SA38-0512, chapter "*Error Code to FRU Index*".
The RS/6000 Controller stops with a steady number on the display.	Hangs on a test.	Go to the RS/6000 Type 7043 43P Series; Models 140 and 240 Service Guide, SA38-0512, chapter "*Error Code to FRU Index*".
The RS/6000 Controller displays an **888** on the panel followed by other error codes.	Logic problem	Go to the RS/6000 *Diagnostics Information for Multiple Bus Systems*, SA38-0509, chapter "Fast Path MAP". Run diagnostics only in "Concurrent Mode" or in "Standalone Mode".
An SRN is displayed when running diagnostics.		Go to the RS/6000 *Diagnostics Information for Multiple Bus Systems*, SA38-0509, chapter "Diagnostic Numbers and Codes".
Any other symptom		Go to the RS/6000 *Type 7043 Model 43P Series; Models 140 and 240 Service Guide*, SA38-0512, chapter "Maintenance Analysis Procedures". Run diagnostics only in "Concurrent Mode" or in "Standalone Mode".

Table 246. Disk IPL Symptoms for Model F50 Controllers

Symptom	Cause	Action
The RS/6000 Controller power-on light does not come on, or comes on but does not stay on.	Power problem.	Go to MAP 2152: Controller Power Problems.
The RS/6000 Controller stops with a steady 552 on the second line of the display.	Possible SCSI hard drive failure	If the Model F50 contains four SCSI hard drives, attempt to isolate the failing hard drive as follows: 1. Turn off the power to the controller and remove all hard drives except the one on the left side. 2. Power on the controller. If the controller still stops at 552, go to the RS/6000 *Type 7025 Model F50 Series; Service Guide*, SA38-0541, chapter “Error Code to FRU Index”. 3. If the controller passes 552 and completes IML, shutdown the controller and reinstall the remaining hard drives one at a time until the 552 appears again. Replace the failing hard drive with a new one. Note that the controller will post a **Master Abort** if at least four hard drives are not in the controller.
The RS/6000 Controller stops with a steady number on the display.	Hangs on a test.	Go to the RS/6000 *Type 7025 Model F50 Series; Service Guide*, SA38-0541, chapter “Error Code to FRU Index”.
The RS/6000 Controller displays an **888** on the panel followed by other error codes.	Logic problem	Go to the RS/6000 *Type 7025 Model F50 Series; Diagnostics Information for Multiple Bus Systems*, SA38-0509, chapter “Fast Path MAP”. Run diagnostics only in “Concurrent Mode” or in “Standalone Mode”.
An SRN is displayed when running diagnostics.		Go to the RS/6000 *Type 7025 Model F50 Series; Diagnostics Information for Multiple Bus Systems*, SA38-0509, chapter “Diagnostic Numbers and Codes”.

Table 246. Disk IPL Symptoms for Model F50 Controllers (continued)

Symptom	Cause	Action
Any other symptom		Go to the RS/6000 *Type 7025 Model F50 Series; Service Guide*, SA38-0541, chapter “Maintenance Analysis Procedures”. Run diagnostics only in “Concurrent Mode” or in “Standalone Mode”.

Table 247. Disk IPL Symptoms For All Controllers Except Model F50 and Model 43P-140

Symptom	Cause	Action
The RS/6000 Controller power-on light does not come on, or comes on but does not stay on.	Power problem.	If the mode switch is not in the Service position, repeat Step 3. Otherwise, go to MAP 2152: Controller Power Problems.
The RS/6000 Controller stops with a steady number on the controller display.	Hangs on a test.	Go to Step 4.
The RS/6000 Controller stops with **888** flashing on the controller display.	Planar failure.	Go to Step 5.
The RS/6000 Controller stops with two or more numbers between **221** and **296** alternating on the controller display.	The diagnostic programs could not load from disk.	• Check the hard drive cabling. • Install a new disk drive. **Attention:** If you have just installed a new disk drive and the same error occurs, the battery may not have been fully discharged. See RS/6000 Removal and Replacement Procedures for the procedure to remove and install a new disk drive.
The controller display is blank and the normal Printer Status window appears on the display/touch screen.	Operator error or bad mode switch.	If the mode switch is not in the Service position, repeat Step 3. If the mode switch is in the Service position, record SRN 111-102 and look up that SRN in MAP 2010: Service Request Number (SRN). Record the failing function codes (FFCs) and look them up in MAP 2011: Failing Function Code (FFC) to determine what FRUs are involved.

Table 247. Disk IPL Symptoms For All Controllers Except Model F50 and Model 43P-140 (continued)

Symptom	Cause	Action
The RS/6000 Controller stops with flashing numbers other than **888** on the controller display.	Microchannel logic problem.	Record SRN 111-105 and look up that SRN in MAP 2010: Service Request Number (SRN). Record the failing function codes (FFCs) and look them up in MAP 2011: Failing Function Code (FFC) to determine what FRUs are involved.

Table 248. Controller Types

Controller Type	Action
Type 7013 Model 591 and Model 595	Follow instructions in Table 249, but refer to **POWERstation and POWERserver: Diagnostics for the Micro Channel Bus Systems**, SA23-2765, for the SRN and FFC numbers. SRN's are located in chapter "*Diagnostic Numbers and Codes*". FFC numbers are located in chapter "*Failing Function Codes (FFC's)*".

Table 249. Steady Numbers on the Controller Display

Number	Action
200	If the mode switch is not in the Service position, repeat Step 3. If the mode switch is in the Service position, record SRN 101-200 and look up that SRN in MAP 2010: Service Request Number (SRN). Record the failing function codes (FFCs) and look them up in MAP 2011: Failing Function Code (FFC) to determine what FRUs are involved.
c31	1. Set the mode switch to the Normal position. 2. Wait one second. 3. Set the mode switch to the Service position. 4. Wait for a different condition, look it up in Table 247, and perform the action listed.
c99	The diagnostics did not find a problem. If there is a problem it may be caused by software or by an intermittent hardware condition. If you think you have an intermittent hardware problem, go to MAP 2004: Intermittent Problems. If the failure is related to an external resource, use the problem determination procedure for that resource.
Any other number	Record SRN 101-nnn (where nnn is the number on the controller display) and look up that SRN in MAP 2010: Service Request Number (SRN). Record the failing function codes (FFCs) and look them up in MAP 2011: Failing Function Code (FFC) to determine what FRUs are involved.

MAP 2004: Intermittent Problems

MAP 2004 BEGINS

Use this MAP to analyze intermittent hardware and software problems. Consider all applicable symptoms before replacing a FRU.

Hardware

Symptom	Check
Unrecoverable error	• Connections on the processor card and planar • Connections on the memory cards and SIMMs • Operating temperature
Controller powers off within a few seconds of powering on	• Fan speed (power supply powers off if a fan is not turning at full speed) • Voltage supplied to the RS/6000 Controller • Power cable and fan connections (internal and external)
Controller powers off after running more than several seconds	• Excessive temperature in the power supply area (power supply contains a temperature sensor) • Fan speed • Heat baffles (control air flow over the memory cards) • Power cable and fan connections (internal and external)
Only internal devices are failing	• Ground connections on disk and diskette drives • Power cable connections to the planar, drives, fans, and battery • Cooling components: fan speed, air flow, vents • Signal cable connections to the drives, power supply, and 3-digit display • Signal cable connections and terminators for SCSI devices • Address jumpers for SCSI devices • Cleanliness of any device that has a cleaning procedure • Static electricity • Voltage supplied to the RS/6000 Controller

Symptom	Check
Only external devices are failing	• Operating temperature • Signal cable connections and terminators for SCSI devices • Address jumpers for SCSI devices • Cleanliness of any device that has a cleaning procedure • Static electricity • Voltage supplied to the device. • Sources of noise near the failing device

Software

Symptom	Check
Unrecoverable error	• Other application programs for similar problem • Other devices for similar problem • Program installation • Recent program modification • Communication line • Static discharge at time of failure
Hardware-caused software error	• Connections on the processor card and planar • Connections on the memory cards and SIMMs • Operating temperature • Connection to the Display/Touch Screen (also mouse, keyboard, and tablet, if any) • Display/Touch Screen operator controls (brightness, contrast, volume)
Anything you suspect is related to software	• RETAIN, for documented problems with the RS/6000 Controller and software

MAP 2010: Service Request Number (SRN)

MAP 2010 BEGINS

Service request numbers (SRNs) are 6-digit numbers that represent a specific failure of a specific RS/6000 Controller function. They are listed in numerical order. You use the SRN, together with the failing function code (FFC), which identifies the failed part or FRU, to analyze and solve a hardware problem.

The columns in the SRN table are:

Column	Explanation
SRN	A 6-digit number that indicates the failure of a RS/6000 Controller function.
Source	The program, procedure, or condition that produces the SRN: **A** A steady number on the 3-digit display. **B** A MAP step. **D** A diagnostic test after isolation testing was completed. **E** A POST failure. **F** A diagnostic test after partial isolation testing. **H** A diagnostic message displayed after a flashing **888**. **J** A built-in ROM diagnostic failure.
FFC	A code that indicates that a RS/6000 Controller function failed. MAP 2011: Failing Function Code (FFC) identifies the FRU that contains the failed function.
Failure Percent	A percentage that indicates the relative probability of occurrence of the failed functions.1
Explanation/Description and Action	A brief description of the failure indicated by the SRN.

How to Use the SRN List

Follow this procedure to interpret an SRN and provide the action needed:

For RISC controller Type 7013 Model 591, Model 595, Type 7025 Model F50, and Type 7043 Model 43P series, refer to Table 250, Chapter " Diagnostic Numbers and Codes", Section "Service Request Number List". For all other controllers, refer to Table 252.

1. Record SRN 101-nnn (where nnn is the number on the 3-digit display).
2. Find the SRN in the table.
3. Record the code for the source of the SRN.
4. Record the failing function codes (FFCs) in the order listed.
5. Read the description of the problem to ensure that your problem is this type. If it is not, consider the source of the SRN and decide whether to analyze this SRN or go to MAP 2154: Minimum Configuration.
6. For all controllers except Type 7013 Model 591/595, Type 7025 Model F50, and Type 7043 Model 43P series,find the failing function code in MAP 2011: Failing Function Code (FFC) and record the part number and description of each FRU.
7. Refer to Table 250 for specific controller information.

Table 250. Controller Types

Controller Type	**Action**
Type 7013 Model 591, Model 595	Refer to **POWERstation and POWERserver:** "Diagnostics Information for Micro Channel Bus Systems", SA23-2765, Chapter *Failing Function Codes (FFC's)*.
Type 7025 Model F50	Refer to **"Diagnostics Information for Multiple Bus Systems"**, SA38-0509, chapter "*Failing Function Codes (FFC's)*".
Type 7043 Model 43P-140	Refer to **"Diagnostics Information for Multiple Bus Systems"**, SA38-0509, chapter "*Failing Function Codes (FFC's)*".

8. Perform the recommended action. If no specific MAP is indicated, the primary support MAP is MAP 2002: Problem Determination Procedure.

   If the action is to replace FRUs, replace them in order of decreasing failure percentage. However:

   - If the most probable failed FRU is the planar, you may want to replace other FRUs first because removal and installation of the planar takes the most
   - If the most probable failed FRU is the disk drive, you may want to replace other FRUs first because the data on the disk is important to the printer. If replacing the disk drive, do not change the jumper positions on the Hard Drive. The Hard Drive is tested and shipped with the correct settings. (Ensure that the jumper positions are set to match the Hard Drive that is being replaced.)

     Note: For RISC Type 7013 Model 591, when replacing the Hard Drives, always replace as a set of four if the microcode level is lower than v9.1, because the microcode is spread across all four drives.

Table 251. Abbreviations Used in the SRN List

Abbrev	Meaning
BCR	Branch-on-condition register
BIDI	Bidirectional bus
BIST	Built-in self-test
CBA	Current buffer address
CRC	Cyclic redundancy check
DMA	Direct memory access
DRAM	Dynamic random access memory
EPOW	Early power-off warning
EPROM	Erasable programmable read-only memory
FFC	Failing Function code
FIFO	First in, first out
FRU	Field replaceable unit
IOCC	I/O channel control
I/O	Input/output
IPL	Initial program load
MAP	Maintenance analysis procedure
MIC	Mechanism interface card
NVRAM	Non-volatile random access memory
OCS	On Card Sequencer
PCA	Parallel channel adapter
POR	Power-on reset

Table 251. Abbreviations Used in the SRN List (continued)

Abbrev	Meaning
POS	Programmable option select
POST	Power-on self-test
ROM	Read-only memory
ROS	Read-only storage
SCSI	Small computer system interface
SIMM	Single inline memory module
SRN	Service request number
SW	Software
TCW	Translation control word
VPD	Vital product data

Table 252. Service Request Numbers for Controller Types 7009 and 7012

SRN	Source	FFC	Failure Percent	Explanation
B08-098	J	B08 852	95 05	Ethernet twisted-pair transceiver failed.
B08-099	J	B08 887	95 05	Ethernet twisted-pair transceiver failed.
B09-098	J	B09 852	95 05	Ethernet thin transceiver failed.
B09-099	J	B09 887	95 05	Ethernet thin transceiver failed.
B38-097	J	B38 214	95 05	IPLROS detected a problem with the memory SIMM pair.
B38-098	J	B38 214	95 05	IPLROS detected a problem with the memory SIMM pair.
B39-097	J	B39 214	95 05	IPLROS detected a problem with the memory SIMM pair.
B39-098	J	B39 214	95 05	IPLROS detected a problem with the memory SIMM pair.
B49-098	J	B88 227	55 45	Automatic solid-state circuit breaker (PTC device) is open. Remove electrical short on SCSI device or cable, or the system planar. Wait at least 3 minutes and then retest.
B49-099	J	227 B08/B09	90 10	Automatic solid-state circuit breaker (PTC device) is open. Remove electrical short on Ethernet device or cable or system planar. Wait at least 3 minutes and then retest.
100-099	J	721 711 868	70 20 10	An unknown device/adapter was not detected. The location code indicates the failing device/adapter.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-100	A	210 223	80 20	Testing stopped when BIST passed control to POST.
101-101	A	210 169 223	60 20 20	Starting BIST from reset button.
101-102	A	223	100	Starting BIST after power on.
101-103	A	210 223	80 20	BIST could not determine the system model number.
101-104	A	210 223	80 20	BIST could not find the CBA.
101-105	A	216 223	55 45	BIST could not read from the OCS EPROM.
101-106	A	210 223	80 20	BIST detected a module failure.
101-111	A	210 223	90 10	BIST detected a module failure.
101-112	A	210 223	90 10	BIST could not log the check-stop results.
101-113	A	210 223	90 10	BIST checkstop count was greater than 1.
101-120	A	223	100	Starting CRC check on 875X EPROM.
101-121 101-122	A	210 223	90 10	BIST detected a bad CRC on the OCS EPROM.
101-123 101-124	A	814	100	BIST detected a bad CRC on the OCS NVRAM.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-125	A	814 152	90 10	BIST detected a bad CRC on the time of day NVRAM.
101-126	A	814	100	BIST detected a bad CRC on the time of day NVRAM.
101-127	A	223	100	BIST detected a bad CRC on the 8752 EPROM.
101-130	A	210 169 223	80 10 10	Starting BIST after the reset button was pressed.
101-140 101-142	A	210 223	70 30	BIST failed.
101-144	A	223 210	70 30	BIST failed.
101-151 101-152 101-153 101-154	A	210 223	90 10	BIST failed.
101-180	A	210 223	60 40	BIST logout failed.
101-185	A	210 D01 223	70 20 10	BIST checkstop.
101-195	A	210	100	BIST logout failed.
101-200	A	168 816	90 10	POST detected the mode switch in the Secure position. Turn the mode switch to the Service position and restart.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-201	A	210	100	POST initialization checkstop. The problem may be damaged data on the disk. Install a new disk drive. If a different problem occurs, correct that problem. If SRN 101-201 is still received, use failing function code 210 and exchange the processor card.
101-20C 101-21C	A	D01 210	90 10	L2 Cache POST failed.
101-211	A	217	100	POST IPL ROM CRC error.
101-212	A	214	100	Memory configuration error or no memory found.
101-213	A	131 214	60 40	POST of the memory failed while looking for 1 MB of good memory. If there is only one memory card, install a new memory card and rerun the diagnostics. If there are two memory cards, install a new processor card and rerun the diagnostics.
101-214	A	816 218	90 10	Power status register test failed.
101-215	A	152 816	60 40	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose cable connectors.
101-216	A	131	100	System hangs while decompressing ROM into memory. If there is only one memory card, install a new memory card and rerun the diagnostics. If there are two memory cards, install a new processor card and rerun the diagnostics.
101-217	A	218	100	System was unable to continue through the boot list.
101-218	A	131	100	POST of the memory failed while looking for 1 MB of good memory. If there is only one memory card, install a new memory card and rerun the diagnostics. If there are two memory cards, install a new processor card and rerun the diagnostics.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-219	A	131	100	POST failed while generating a bit map. If there is only one memory card, install a new memory card and rerun the diagnostics. If there are two memory cards, install a new processor card and rerun the diagnostics.
101-220	A	131	100	POST failed while generating a control block. If there is only one memory card, install a new memory card and rerun the diagnostics. If there are two memory cards, install a new processor card and rerun the diagnostics.
101-221	A			NVRAM was bad during normal IPL. Set the mode switch to the Service position and load the diagnostic programs again.
101-222	A	828 227 210	60 30 10	System hangs while trying to IPL from a SCSI device.
101-223	A	B88 227 210	60 30 10	System hangs while trying to IPL from a SCSI device. Install a new disk drive.
101-225	A	950 227 210	60 30 10	System hangs while trying to IPL from a SCSI device.
101-226	A	887	100	System hangs while attempting to IPL from the Ethernet network.
101-227	A	850	100	System hangs while attempting to IPL from the Token Ring network.
101-228	A	218	100	System was unable to restart from expansion code in the NVRAM.
101-229	A	218	100	System was unable to restart from devices specified in the NVRAM devices boot list.
101-230	A			System hangs while attempting to IPL from ROM scan code. Use MAP 2154: Minimum Configuration.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-231	A	887	100	System hangs while attempting to IPL from the Ethernet network.
101-232	A	828 227 210	60 30 10	System hangs while trying to IPL from a SCSI device.
101-233	A	B88	100	System hangs while trying to IPL from a SCSI device. Use the failing function code listed and MAP 2011: Failing Function Code (FFC). If the SRN repeats, install a new disk drive.
101-235	A	950 227 210	60 30 10	System hangs while trying to IPL from a SCSI device.
101-236	A	887	100	System hangs while attempting to IPL from the Ethernet network.
101-237	A	850	100	System hangs while attempting to IPL from the Token Ring network.
101-238	A	850	100	System hangs while attempting to IPL from the Token Ring network.
101-239	A	218	100	System was unable to restart from a device specified by the user.
101-240	A			System hangs while attempting to IPL from ROM scan code. Use MAP 2154: Minimum Configuration.
101-242	A	828 227 210	60 30 10	System hangs while trying to IPL from a SCSI device.
101-243	A	B88	100	System hangs while trying to IPL from a SCSI device. Use the failing function code listed and MAP 2011: Failing Function Code (FFC). If the SRN repeats, install a new disk drive.
101-245	A	950 227 210	60 30 10	System hangs while trying to IPL from a SCSI device. SRNs 101-245 and 101-255 can occur if diagnostics are being run with damaged disk data. Install a new disk drive.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-246	A	887	100	System hangs while attempting to IPL from the Ethernet network. Note: Ensure that the system is not still trying to IPL from a server over a network. It is not uncommon for the three-digit display to display the value associated with this SRN for longer than 3 minutes.
101-247	A	850	100	System hangs while attempting to IPL from the Token Ring network.
101-248	A	218	100	System was unable to restart from expansion code in the NVRAM.
101-249	A	218	100	System was unable to restart from devices specified in the NVRAM devices boot list.
101-250	A			System hangs while attempting to IPL from ROM scan code. Use MAP 2154: Minimum Configuration.
101-251	A	887	100	System hangs while attempting to IPL from the Ethernet network. Note: Ensure that the system is not still trying to IPL from a server over a network. It is not uncommon for the three-digit display to display the value associated with this SRN for longer than 3 minutes.
101-252	A	828 227 210	60 30 10	System hangs while trying to IPL from diskette.
101-253	A	B88	100	System hangs while trying to IPL from a SCSI device. Use the failing function code listed and MAP 2011: Failing Function Code (FFC). If the SRN repeats, install a new disk drive (be patient).
101-255	A	950 227 210	60 30 10	System hangs while trying to IPL from a SCSI device. SRNs 101-245 and 101-255 can occur if diagnostics are being run with damaged disk data. Install a new disk drive.
101-256	A	887	100	System hangs while attempting to IPL from the Ethernet network. Note: Ensure that the system is not still trying to IPL from a server over a network. It is not uncommon for the three-digit display to display the value associated with this SRN for longer than 3 minutes.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-257	A	850	100	System hangs while attempting to IPL from the Token Ring network. Ensure that the system is not still trying to IPL from a server. It is not uncommon for the 3-digit display to display the value associated with this SRN for longer than 3 minutes.
101-258	A	850	100	System hangs while attempting to IPL from the Token Ring network. Ensure that the system is not still trying to IPL from a server. It is not uncommon for the 3-digit display to display the value associated with this SRN for longer than 3 minutes.
101-261	A	981	100	No power to disk drive, or no signals from disk drive.
101-262	A	984	100	No power to disk drive, or no signals from disk drive.
101-263	A			System hangs while attempting to IPL from ROM scan code. Use MAP 2154: Minimum Configuration.
101-271	A	168	100	POST for the mouse port failed.
101-286	A	850	100	The Token Ring POST is executing.
101-287	A	887	100	The Ethernet POST is executing.
101-288	A			System hangs while executing a card POST. Use MAP 2154: Minimum Configuration.
101-290	A	218 227	90 10	POST of the IOCC failed.
101-291	A	828	100	POST of the standard I/O failed.
101-292	A	B88	100	POST of the SCSI card failed.
101-293	A	950 227	80 20	POST of the direct-attached disk drive failed.
101-294	A	B19	100	TCW memory SIMM failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-296	A			System halted while running a POST of a card installed in an I/O card slot. Use MAP 2154: Minimum Configuration.
101-297	A	217	100	The ROS model and type number do not match the system model and type number. Check for compatibility problems with the processor complex. If you do not find a problem, use MAP 2002: Problem Determination Procedure.
101-298	A			Error during a software IPL. Set the RS/6000 Controller power switch to Off, wait 30 seconds, and then set it to On again.
101-299	A	132	100	Error when control passed to IPL program. Check the IPL medium. If you do not find a problem, try to do an IPL from another device.
101-301	A	210	100	Flash Utility ROM test failed, or checkstop occurred. Check the IPL medium. If you do not find a problem, try to do an IPL from another device.
101-304	A	218 227	90 10	POST of the IOCC failed.
101-305	A	828	100	POST of the standard I/O failed.
101-306	A	828 227 210	60 30 10	System hangs while trying to IPL from diskette.
101-307	A	217	100	ROM model and type number does not match the system model and type number.
101-309	A	132	100	Error when control passed to IPL program.
101-311	A	217	100	POST IPL ROM CRC error.
101-312	A	214	100	Memory configuration error or no memory found.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-313	A	131 214	60 40	POST of the memory failed while looking for good memory.
101-314	A	816 218	90 10	Power status register test failed.
101-315	A	152 816	60 40	Low voltage is being sensed.
101-318 101-319	A	131	100	POST failed while it was generating the memory bit map.
101-322	A	132	100	CRC error on media Flash Image.
101-323 101-324	A	217	100	CRC error on ROM Flash Image.
101-500 to 101-508	A			System hung while configuring the cards. The right-most digit of the SRN identifies the slot of the card. The second digit from the right identifies the planar containing the card slot.
101-521 to 101-538	A			The configuration manager detected an error. The problem may be damaged data on the disk.
101-551 to 101-599	A			System hung while loading the software. This can be caused by a hardware or software problem. The problem may be damaged disk data. Install a new disk drive. If the SRN repeats, go to MAP 2154: Minimum Configuration.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-711 to 101-726	A			System hung while trying to configure an unknown resource. Install a new disk drive. If the SRN repeats, look at the failing function code list (MAP 2011: Failing Function Code (FFC)) and find the FFC that matches the last 3 digits of the SRN. Suspect the device card or device itself. If more than one card or device is installed, isolate the failed resource by removing the cards or devices one at a time and checking whether the system stops with the same value in the 3-digit display.
101-727	A			System hung while trying to configure an asynchronous card. Use MAP 2154: Minimum Configuration. Suspect a problem with one of the asynchronous cards.
101-728 to 101-730	A			System hung while trying to configure an unknown resource. Install a new disk drive. If the SRN repeats, look at the failing function code (FFC) list (MAP 2011: Failing Function Code (FFC)) and find the FFC that matches the last 3 digits of the SRN. Suspect the device card or device itself. If more than one card or device is installed, isolate the failing resource by removing the cards or devices one at a time and checking whether the system stops with the same value in the 3-digit display.
101-811 to 101-858	A			System hung while configuring a resource. The right-most 3 digits of the SRN identify the failing function code for the resource being configured.
101-860 to 101-868	A			System hung while configuring a resource. The right-most three digits of the SRN identify the failing function code for the resource being configured.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
101-869	A	B88 MIC	90 10	Do the following, one step at a time, until the problem is corrected: 1. Ensure that the address jumpers on the MIC cards are in the correct positions: 2. Contact your technical support. The system hung while configuring a SCSI card; you must determine the card type.
101-871 to 101-876	A			System hung while configuring a resource. The right-most 3 digits of the SRN identify the failing function code for the resource being configured.
101-878 to 101-887	A			System hung while configuring a resource. The right-most 3 digits of the SRN identify the failing function code for the resource being configured.
101-888	A	223 152 C23	90 05 05	BIST could not start.
101-889 to 101-948	A			System hung while configuring a resource. The right-most 3 digits of the SRN identify the failing function code for the resource being configured.
101-949	A	189	100	System hung while configuring a direct bus-attached drive. You must determine the type of direct bus-attached drive.
101-950 to 101-999	A			System hung while configuring a resource. The right-most 3 digits of the SRN identify the failing function code for the resource being configured.
101-c32	D			System hung while indicating that a direct attached display was selected as the console. Use MAP 2154: Minimum Configuration. Suspect the graphics card being used for the Display/Touch Screen.
101-FFF	A	210	100	Invalid 3-digit display value.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
103-151	D	151	100	The time-of-day battery failed.
103-202	H			Machine check interrupt. Use MAP 2154: Minimum Configuration.
103-203	H			Data storage interrupt. Use MAP 2154: Minimum Configuration.
103-204	H			Instructional storage interrupt. Use MAP 2154: Minimum Configuration.
103-205	H			External interrupt. Use MAP 2154: Minimum Configuration.
103-206	H			Alignment interrupt. Use MAP 2154: Minimum Configuration.
103-207	H			Program interrupt. Use MAP 2154: Minimum Configuration.
103-208	H			Floating point unavailable. Use MAP 2154: Minimum Configuration.
103-210	H			Supervisor call interrupt. Use MAP 2154: Minimum Configuration.
104-210	H	180	100	POST detected a memory card problem. Use MAP 2154: Minimum Configuration.
105-101 105-102	H	221	100	POST detected a memory SIMM problem.
105-103	H	C40 221	95 05	POST detected a memory SIMM problem.
105-104	H	C41 221	95 05	POST detected a memory SIMM problem.
105-105	H	221	100	POST detected a memory SIMM problem.
105-106	H	C41 221	95 05	POST detected a memory SIMM problem.
106-004	H	177	100	POST detected a memory SIMM problem.
106-008	H	176	100	POST detected a memory SIMM problem.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
106-200	H	131	100	POST detected an invalid memory type. Check the memory for compatible SIMMs and cards. If you do not find a problem, replace the SIMM that is called out by flashing 888.
106-205 106-207	H	182	100	POST detected a memory SIMM problem.
106-209 106-210 106-211	H	172 154 172	100	POST detected a memory SIMM problem.
106-224 106-226 106-240 106-242 106-244 106-246	H	182	100	POST detected a memory SIMM problem.
106-263 or 106-300	H	131	100	POST detected an invalid memory type. Check the memory for compatible SIMMs and cards. If you do not find a problem, replace the SIMM that is called out by flashing 888.
106-301	H	C30	100	POST detected a memory SIMM problem.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
106-305 106-307 106-308 106-309 106-310 106-311 106-324 106-326 106-340 106-342 106-344 106-346	H	182 182 154 182 154 182 182 182 182 182 182 182	100	POST detected a memory SIMM problem.
106-363	H	131	100	POST detected an invalid memory type. Check the memory for compatible SIMMs and cards. If you do not find a problem, replace the SIMM that is called out by flashing 888. (C40 or C41)
106-c0c	H			POST detected an unsynchronized memory problem. Examine the memory card for missing or incorrectly installed memory SIMMs. Also ensure that all SIMMs are of the same type. (C40 or C41)
107-028	H	180	100	POST detected a memory card problem.
107-200	H	131 214	60 40	POST detected an invalid memory type. Check the memory for compatible SIMMs and cards. If you do not find a problem, replace the SIMM that is called out by flashing 888.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
107-205 107-207 107-208 107-209 107-211 107-224 107-225 107-226 107-227 107-240 107-241 107-242 107-243 107-244 107-245 107-246 107-247	H	157 210	90 10	POST detected a memory card problem.
107-263 107-300	H	131 214	60 40	POST detected an invalid memory type. Check the memory for compatible SIMMs and cards. If you do not find a problem, replace the SIMM that is called out by flashing 888.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
107-301 107-305 107-307 107-308 107-309 107-311 107-324 107-325 107-326 107-327 107-340 107-341 107-342 107-343 107-344 107-345 107-346 107-347	H	157 210	90 10	POST detected a memory card problem.
107-363	H	131 214	60 40	POST detected an invalid memory type. Check the memory for compatible SIMMs and cards. If you do not find a problem, replace the SIMM that is called out by flashing 888.
107-c0c	H			POST detected an unsynchronized memory problem. Examine the memory card for missing or incorrectly installed memory SIMMs. Ensure that all SIMMs are of the same type.
109-200	B			System crashed while being run by the customer. Use MAP 2002: Problem Determination Procedure, and get a new SRN.
110-nnn	D	nnn 227	90 10	System halted while diagnostics were executing. nnn corresponds to the last 3 digits of the SRN. If your 110 SRN is not one of the following, use this 110-nnn procedure.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
110-925	D	925 812	90 10	System halted while diagnostics were executing.
110-935	D	935 812	90 10	System halted while diagnostics were executing.
110-974	D	974 B88	90 10	System halted while diagnostics were executing.
111-101	B	133	100	Cannot load the diagnostics programs from the diskettes. Use MAP 2154: Minimum Configuration. This SRN can be caused by a bad diagnostic diskette. Verify that the diskettes are good before proceeding.
111-102	B	169816	60 40	Cannot detect the mode switch in the Service position.
111-103	B	B88 721	50 50	The customer was unable to load diagnostics from disk. Use MAP 2002: Problem Determination Procedure, and get a new SRN.
111-104				The customer did not wish to run diagnostics from diskettes but does have a problem. Use MAP 2002: Problem Determination Procedure, and get a new SRN.
111-105	B	227	100	Characters other than 888 are flashing in the 3-digit display.
111-106	B	221 210	80 20	System unable to IPL.
111-113	B			Problem with power to the resource.
111-116	B			Problem with alternating numbers in the 3-digit display.
111-117	B			Problem with the system being inactive.
111-121	B			Display problem.
111-122	B			System problem.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
111-152	B	152	100	Power-on light does not come on. Use MAP 2152: Controller Power Problems.
111-259	B	826	100	Cannot display readable information on a terminal. (CE tool)
111-872 111-874 111-877 111-878	B	227	100	Cannot display readable information on the display.
120-0xx	H	210 223	80 20	BIST detected an error.
125-701	H	B87	100	Starting BIST from reset.
125-730	H	B87	100	Starting BIST after pressing the reset button.
125-801	H	B87	100	Starting BIST from reset.
125-830	H	B87	100	Starting BIST after pressing the reset button.
125-901	H	D09 B87	80 20	Starting BIST from reset.
125-902	H	D09	100	Starting BIST after power on.
125-903	H	D09	100	BIST could not determine the system model number.
125-904	H	D09	100	BIST could not find the CBA.
125-905	H	D09	100	BIST could not read from the OCS EPROM.
125-906 125-911	H	D09	100	BIST detected a module failure.
125-912	H	D09	100	BIST could not log checkstop results.
125-913	H	D09	100	BIST checkstop count is greater than 1.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
125-920	H	D09	100	Starting CRC check on 875X EPROM.
125-921 125-922	H	D09	100	BIST detected a bad CRC on the OCS EPROM.
125-927	H	D09	100	BIST detected a bad CRC on the 8752 EPROM.
125-930	H	D09 B87	80 20	Starting BIST after pressing the reset button.
125-940 125-942 125-944 125-951 125-953 125-954	H	D09	100	The BIST failed.
125-980	H	D09 B87	80 20	The BIST logout failed.
125-985	H	D09 B87	80 20	BIST checkstop occurred.
125-987	H	D09 B87	80 20	DD level not detected in logout data.
125-995	H	D09 B87	80 20	The BIST logout failed.
127-500	H	B90	100	Testing stopped when BIST passed control to POST.
127-501	H	B90 B87	80 20	Starting BIST from reset.
127-502	H	B90	100	Starting BIST after power on.
127-503	H	B90	100	BIST could not determine the system model number.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
127-504	H	B90	100	BIST could not find the CBA.
127-505	H	B90	100	BIST could not read from the OCS EPROM.
127-506 127-511	H	B90	100	BIST detected a module failure.
127-512	H	B90	100	BIST could not log checkstop results.
127-513	H	B90	100	BIST checkstop count is greater than 1.
127-520	H	B90	100	Starting CRC check on 875X EPROM.
127-521 127-522	H	B90	100	BIST detected a bad CRC on the OCS EPROM.
127-527	H	B90	100	BIST detected a bad CRC on the 8752 EPROM.
127-530	H	B87	100	Starting BIST after pressing the reset button.
127-540 127-542 127-544 127-551 127-553 127-554	H	B90	100	BIST failed.
127-580	H	B90	100	BIST logout failed.
127-585	H	B90	100	BIST checkstop occurred.
127-587	H	B90	100	DD level not detected in logout data.
127-595	H	B90	100	BIST logout failed.
127-701	H	B87	100	Starting BIST from reset.
127-730	H	B87	100	Starting BIST after pressing the reset button.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
128-260	H	152	100	EPOW connector indicating that it may not be connected.
128-523 128-524	H	221	100	BIST detected a bad CRC on the OCS.
128-525	H	221 152	80 20	BIST detected a bad CRC on the time-of-day NVRAM.
128-526	H	221	100	BIST detected a bad CRC on the time-of-day NVRAM.
128-560	H	221	100	EPOW connector indicating that it may not be connected.
128-564 to 128-567 128-568 128-569	H	221 210	80 20	Error reading NVRAM.
128-623 128-624	H	221	100	BIST detected a bad CRC on the OCS.
128-625	H	221 152	80 20	BIST detected a bad CRC on the time-of-day NVRAM.
128-626	H	221	100	BIST detected a bad CRC on the time-of-day NVRAM.
128-660	H	221	100	EPOW connector indicating that it may not be connected.
128-664 to 128-667 128-668 128-669	H	221 210	80 20	Error reading NVRAM.
128-723 128-724	H	221	100	BIST detected a bad CRC on the OCS.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
128-725	H	221 152 166	80 15 5	BIST detected a bad CRC on the time-of-day NVRAM.
128-726	H	221	100	BIST detected a bad CRC on the time-of-day NVRAM.
128-764 to 128-767 128-768 128-769	H	221 210	80 20	Error reading NVRAM.
128-823 0128-824	H	221	100	BIST detected a bad CRC on the OCS.
128-825	H	221 152	80 20	BIST detected a bad CRC on the time-of-day NVRAM.
128-826	H	221	100	BIST detected a bad CRC on the time-of-day NVRAM.
128-860	H	B87	100	The EPOW connector is indicated as not connected. Ensure that the connector is securely connected before replacing parts.
128-864 to 128-867 128-868 128-869	H	221 210	80 20	Error reading NVRAM.
143-715 143-815	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
144-50c	H	210	100	Cache error.
144-515 145-715	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
145-794	H	B19	100	TCW memory SIMM failure.
145-815	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
145-894	H	B19	100	TCW memory SIMM failure.
145-911	H	D09	100	TCW memory SIMM failure.
145-912	H	D09	100	Memory configuration error or no memory found.
145-914	H	D09	100	The power status register failed.
145-915	H	152 D09	60 40	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
145-990	H	D09	100	POST of the IOCC failed.
145-994	H	B19	100	TCW memory SIMM failure.
145-997	H	D09	100	ROS model and type number do not match the system model and type number.
146-394	H	B19	100	TCW memory SIMM failure.
146-315 146-415	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
146-494	H	B19	100	TCW memory SIMM failure.
146-615	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
146-694	H	B19	100	TCW memory SIMM failure.
146-715	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
146-794	H	B19	100	TCW memory SIMM failure.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
147-015	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
147-094	H	B19	100	TCW memory SIMM failure.
147-115	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
147-194	H	B19	100	TCW memory SIMM failure.
147-215	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
147-294	H	B19	100	TCW memory SIMM failure.
147-514	H	B87 B90	90 10	Power status register failed.
147-515	H	152 B90	60 40	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
147-590	H	B90 B87	90 10	POST of the IOCC failed.
147-594	H	B19	100	TCW memory SIMM failure.
147-597	H	B90	100	ROS model and type number do not match the system model and type number.
147-614	H	B87	100	Power status register failed.
147-615	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
147-690	H	B87	100	POST of the IOCC failed.
147-694	H	B19	100	TCW memory SIMM failure.
147-714	H	B87	100	Power status register failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
147-715	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
147-790	H	B87	100	POST of the IOCC failed.
147-794	H	B19	100	TCW memory SIMM failure.
148-015	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
148-094	H	B19	100	TCW memory SIMM failure.
148-115	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
148-194	H	B19	100	TCW memory SIMM failure.
148-215	H	152	100	Low voltage condition was sensed. Check the voltage at the customer's outlet. Check for loose connectors.
148-294	H	B19	100	TCW memory SIMM failure.
201-nnn	H	210	100	Checkstop during ROS IPL. nnn is the 3-digit code displayed when the error occurred.
202-201	B	210	100	Machine check during IPL ROM test.
202-211	H	210	100	Machine check during ROS CRC test.
202-212	H	210	100	Machine check during CPU tests.
202-213 202-218 202-219 202-220	H	131 214	70 30	Machine check during memory tests or memory initialization.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
202-221 to 202-298	H	131 214	70 30	Machine check during memory tests or memory initialization.
202-299	H	132 210	60 40	Machine check when control is passed to the IPL program. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
202-301 to 202-303	H	210	100	Machine check during Flash Utility ROM test.
202-304	H	218 221 131	70 20 10	Machine check during IOCC POST.
202-305	H	221 218 131	70 20 10	Machine check during built-in diskette adapter POST.
202-306	H	132 131 214	50 30 20	Machine check during built-in diskette adapter POST.
202-307	H	210	100	Machine check during Flash Utility ROM test.
202-308	H	218 221 131	70 20 10	Machine check during IOCC POST.
202-309	H	132 131 214	50 30 20	Machine check when control is passed to loaded code.
202-311	H	210	100	Machine check during Flash Utility ROM test.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
202-312 202-313	H	214 131	80 20	Machine check when configuring memory.
202-314 202-315	H	816 131	80 20	Machine check when testing the power status register.
202-318 202-319	H	214 131	80 20	Machine check when testing for good memory.
202-322 202-325	H	214 131	80 20	Machine check when updating flash ROM.
203-20 203-21c	H	210	100	Data storage interrupt during Cache POST.
203-100	H	227 210s	60 40	Unexpected data storage interrupt during IPL tests.
203-201	B	210	100	Unexpected data storage interrupt during IPL ROM test.
203-211	H	210	100	Unexpected data storage interrupt during ROS CRC test.
203-212	H	210	100	Unexpected data storage interrupt during CPU tests.
203-213 203-214	H	210	90	Unexpected data storage interrupt during ROM IPL.
203-215 203-216 203-217	H	227 210	60 40	Unexpected data storage interrupt during IPL tests.
203-218 203-219 203-220 203-221	H	210	100	Unexpected data storage interrupt during ROM IPL.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
203-222	H	828 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from diskette.
203-223	H	227 210	80 20	Unexpected data storage interrupt during ROM IPL while trying to load from a SCSI device. Replace the SCSI card that is used for the IPL.
203-224	H	227 210	80 20	Unexpected data storage interrupt during IPL tests while trying to load from a SCSI device. Replace the SCSI card that is used for the IPL.
203-225	H	949 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from a direct-attached fixed disk. Replace the disk that is used for the IPL.
203-226	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from an Ethernet network.
203-227	H	850 227 210	50 30 20	Unexpected data storage interrupt during IPL tests while trying to load from a Token Ring network.
203-228	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from expansion code.
203-229	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from any device.
203-230	H			Unexpected data storage interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
203-231	H	868 227 210	50 30 20	Unexpected data storage interrupt during IPL tests while trying to load from a SCSI device.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
203-232	H	828 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from diskette.
203-233	H	B88 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from a SCSI device. Replace the SCSI card that is used for the IPL.
203-234	H	B88 227 210	60 30 10	Unexpected data storage interrupt during IPL tests while trying to load from a SCSI device. Replace the disk that is used for the IPL.
203-235	H	949 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from a direct-attached fixed disk. Replace the disk that is used for the IPL.
203-236	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from an Ethernet network.
203-237 203-238	H	850 227 210	50 30 20	Unexpected data storage interrupt during IPL tests while trying to load from a Token Ring network.
203-239	H	210 227	60 40	Unexpected data storage interrupt during IPL tests.
203-240	H			Unexpected data storage interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
203-242	H	828 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from diskette.
203-243	H	B88 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from a SCSI device. Replace the SCSI card that is used for the IPL.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
203-244	H	B88 227 210	60 30 10	Unexpected data storage interrupt during IPL tests while trying to load from a SCSI device.
203-245	H	949 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from a direct-attached fixed disk. Replace the disk that is used for the IPL.
203-246	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from an Ethernet network.
203-247	H	850 227 210	50 30 20	Unexpected data storage interrupt during IPL tests while trying to load from a Token Ring network.
203-248	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from expansion code.
203-249	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from any device.
203-250	H			Unexpected data storage interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
203-251	H	227 210	70 30	Unexpected data storage interrupt during IPL tests while trying to load from an Ethernet network.
203-252	H	828 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from diskette.
203-253	H	B88 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from a SCSI device. Replace the SCSI card that is used for the IPL.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
203-254	H	B88 227 210	60 30 10	Unexpected data storage interrupt during IPL while trying to load from a SCSI device. Replace the SCSI card that is used for the IPL.
203-255	H	949 227 210	60 30 10	Unexpected data storage interrupt during ROM IPL while trying to load from a direct-attached fixed disk. Replace the disk that is used for the IPL.
203-256	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from an Ethernet network.
203-257 203-258	H	850 227 210	50 30 20	Unexpected data storage interrupt during IPL tests while trying to load from a Token Ring network.
203-260 203-261 203-262	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from any device.
203-263	H			Unexpected data storage interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
203-271 203-272	H	227 210	60 40	Unexpected data storage interrupt during IPL tests of the mouse or tablet POST.
203-281	H	227 210	70 30	Unexpected data storage interrupt during IPL tests of the keyboard POST.
203-282	H	227 210	60 40	Unexpected data storage interrupt during IPL tests of the parallel port POST.
203-283	H	227 210	60 40	Unexpected data storage interrupt during IPL tests of the serial port POST.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
203-286	H	850 227 210	50 30 20	Unexpected data storage interrupt during IPL tests of the Token Ring card.
203-287	H	887 227 210	50 30 20	Unexpected data storage interrupt during IPL tests of the Ethernet card.
203-288	H			Unexpected data storage interrupt during IPL tests while polling all cards. Use MAP 2154: Minimum Configuration.
203-289	H	871 227 210	50 30 20	Unexpected data storage interrupt during IPL tests of the graphics card.
203-290	H	227 210	80 20	Unexpected data storage interrupt during I/O support POST.
203-291	H	828 227 210	60 30 10	Unexpected data storage interrupt during standard I/O planar POST.
203-292	H	B88 227 210	50 30 20	Unexpected data storage interrupt during IPL tests of the SCSI POST. Replace the SCSI card that is used for the IPL.
203-293	H	949/950 227 210	60 30 10	Unexpected data storage interrupt during disk drive POST. Replace the disk drive. You must determine if the drive is a SCSI type (FFC 950) or a direct-attach drive type (FFC 949).
203-295	H	874	100	Unexpected data storage interrupt during IPL-tests of the Graphics.
203-296	H			Unexpected data storage interrupt during IPL-tests while polling all adapters.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
203-297	H	210	100	ROS model and type number does not match the system model and type number.
203-298	H			Error during software IPL.
203-299	H	132 210	60 40	Unexpected data storage interrupt when control is passed to the IPL program. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
203-301 to 203-303	H	210	100	Data Storage interrupt during Flash Utility ROM test.
203-304	H	218 221	70 30	Data Storage interrupt during IOCC POST.
203-305	H	812 221	70 30	Data Storage Interrupt during built-in diskette adapter POST.
203-306	H	812 210	60 40	Data Storage Interrupt during built-in diskette adapter POST.
203-307	H	210	100	Data Storage Interrupt during Flash Utility ROM test.
203-308	H	w	70 20 10	Data Storage Interrupt during IOCC POST.
203-309	H	132 131 214	50 30 20	Data Storage Interrupt when control is passed to loaded code.
203-311	H	210	100	Data Storage Interrupt during Flash ROM test.
203-312 203-313	H	214 131	80 20	Data Storage Interrupt when configuring memory.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
203-314 203-315	H	816 218	80 20	Data Storage Interrupt when testing the power status register.
203-318 203-319	H	214 131	80 20	Data Storage Interrupt when testing for good memory.
203-322 203-325	H	214	100	Data Storage Interrupt when updating flash ROM.
204-200 to 204-298	H	210	90	Unexpected instruction storage interrupt during ROS IPL.
204-299	H	132 210	60 40	Unexpected instruction storage interrupt when control is ???
204-301 to 204-325	H	210	100	Instruction Storage Interrupt during Flash Update Utility.
205-201	B	210	100	Unexpected external interrupt during IPL ROM check.
205-20c 205-21c	B	210	100	Unexpected external interrupt during Cache POST.
205-211	H	210	100	Unexpected external interrupt during ROS CRC check.
205-212	H	210	100	Unexpected external interrupt during CPU tests.
205-213	H	210	90	Unexpected external interrupt during ROM IPL. On systems with minimum memory, SRN 205-213 may be caused by a defective memory SIMM or a defective memory card. The memory SIMM can be checked by swapping it with another memory SIMM on the card.
205-215	H	227 210	60 40	Unexpected external interrupt during IPL tests.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
205-216 205-217	H	210 31	60 40	Unexpected external interrupt during IPL tests.
205-218 205-219 205-220 205-221	H	210	90	Unexpected external interrupt during ROM IPL. On systems with minimum memory, SRN 205-218 may be caused by a defective memory SIMM or a defective memory card. The memory SIMM can be checked by swapping it with another memory SIMM on the card.
205-222	H	828 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from diskette.
205-223	H	B88 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from a SCSI device. Exchange the SCSI card for the IPL device.
205-224	H	B88 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a SCSI device.
205-225	H	227 210	80 20	Unexpected external interrupt during ROM IPL while trying to load from a direct-attached disk drive. Exchange the direct-attached disk drive being used as an IPL device.
205-226	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from an Ethernet network.
205-227	H	850 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a Token Ring network.
205-228	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from expansion code.
205-229	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from any device.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
205-230	H			Unexpected external interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
205-231	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from an Ethernet network.
205-232	H	828 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from diskette.
205-233	H	B88 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from a SCSI device. Exchange the SCSI card for the IPL device.
205-234	H	B88 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a SCSI device. Replace the disk that is used for the IPL.
205-235	H	227 210	80 20	Unexpected external interrupt during ROM IPL while trying to load from a direct-attached disk drive. Exchange the direct-attached disk drive being used as an IPL device.
205-236	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from an Ethernet network.
205-237 205-238	H	850 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a Token Ring network.
205-239	H	210 227	60 40	Unexpected external interrupt during IPL tests.
205-240	H			Unexpected external interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
205-242	H	828 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from diskette.
205-243	H	B88 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from a SCSI device. Exchange the SCSI card for the IPL device.
205-244	H	B88 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a SCSI device.
205-245	H	227 210	80 20	Unexpected external interrupt during ROM IPL while trying to load from a direct-attached disk drive. Exchange the direct-attached disk drive being used as an IPL device.
205-246	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from an Ethernet network.
205-247	H	850 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a Token Ring network.
205-248	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from expansion code.
205-249	H		60 40	Unexpected external interrupt during IPL tests while trying to load from any device.
205-250	H			Unexpected external interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
205-251	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from an Ethernet network.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
205-252	H	828 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from diskette.
205-253	H	B88 227 210	60 30 10	Unexpected external interrupt during ROM IPL while trying to load from a SCSI device.
205-254	H	B88 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a SCSI device. Replace the disk that is used for IPL.
205-255	H	227 210	80 20	Unexpected external interrupt during ROM IPL while trying to load from a direct-attached disk drive. Exchange the direct-attached disk drive being used as an IPL device.
205-256	H	227 210	60 40	Unexpected external interrupt during IPL tests while trying to load from an Ethernet network.
205-257 205-258	H	850 227 210	50 30 20	Unexpected external interrupt during IPL tests while trying to load from a Token Ring network.
205-260 205-261 205-262	H	227 210	60 40	Unexpected data storage interrupt during IPL tests while trying to load from any device.
205-263	H			Unexpected external interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
205-271 205-272	H	227 210	60 40	Unexpected data storage interrupt during IPL tests of the mouse or tablet POST.
205-281	H	227 210	70 30	Unexpected data storage interrupt during IPL tests of the keyboard POST.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
205-282	H	227 210	60 40	Unexpected data storage interrupt during IPL tests of the parallel port POST.
205-283	H	227 210	60 40	Unexpected data storage interrupt during IPL tests of the serial port POST.
205-284	H	227 210	70 30	Unexpected data storage interrupt during IPL tests of the POWER Gt1 card.
205-285	H	227 210	70 30	Unexpected data storage interrupt during IPL tests of the POWER Gt3 card.
205-286	H	850 227 210	50 30 20	Unexpected data storage interrupt during IPL tests of the Token Ring card.
205-287	H	227 210	70 30	Unexpected data storage interrupt during IPL tests of the Ethernet card.
205-288	H			Unexpected external interrupt during IPL tests while trying to load from ROM scan. Use MAP 2154: Minimum Configuration.
205-289	H	227 210	70 0	Unexpected data storage interrupt during IPL tests of the graphics card.
205-290	H	227 210	80 20	Unexpected external interrupt during I/O support POST.
205-291	H	828 227 210	60 30 10	Unexpected external interrupt during standard I/O planar POST.
205-292	H	B88 227 210	50 30 20	Unexpected data storage interrupt during IPL tests of the SCSI POST. Replace the SCSI card that is used for the IPL.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
205-293	H	950 227 210	60 30 10	Unexpected external interrupt during disk drive POST. Exchange the disk drive.
205-295	H	874	100	Unexpected external interrupt during IPL-tests of Graphics Display card.
205-299	H	132 210	60 40	Unexpected external interrupt when control is passed to the IPL program. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
205-301 to 205-303	H	210	100	External interrupt during Flash Utility ROM test.
205-304	H	218 221	70 30	External interrupt during IOCC POST.
205-305	H	812 221	70 30	External Interrupt during built-in diskette adapter POST.
205-306	H	812 210	60 40	External Interrupt during built-in diskette adapter POST.
205-307	H	210	100	External Interrupt during Flash Utility ROM test.
205-308	H	218 221 131	70 20 10	External Interrupt during IOCC POST.
205-309	H	132 131 214	50 30 20	External Interrupt when control is passed to loaded code.
205-311	H	210	100	External Interrupt during Flash ROM test.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
205-312 205-313	H	214 131	80 20	External Interrupt when configuring memory.
205-314 205-315	H	816 218	80 20	External Interrupt when testing the power status register.
205-318 205-319	H	214 131	80 20	External Interrupt when testing for good memory.
205-322 to 205-325	H	214	100	External Interrupt when updating flash ROM.
v206-200 to 206-298	H	210	90	Unexpected alignment interrupt during ROS IPL.
206-299	H	132 210	60 40	Unexpected alignment interrupt when control is passed to the IPL code. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
206-301 to 206-325	H	210	100	Unexpected alignment interrupt during Flash Update Utility.
207-200 to 207-298	H	210	90	Unexpected program exception interrupt during ROS IPL.
207-299	H	132 210	60 40	Unexpected program exception interrupt when control is passed to IPL program. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
207-301 to 207-325	H	210	100	Program Exception during Flash Update Utility.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
208-200 to 208-298	H	210	90	Unexpected floating-point unavailable exception during ROS IPL.
208-299	H	132 210	60 40	Unexpected floating-point unavailable exception when control is passed to IPL program. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
208-301 to 208-325	H	210	100	Floating Point Exception during Flash Update Utility.
209-200 to 209-298	H	210	90	Unexpected supervisor call during ROS IPL.
209-299	H	132 210	60 40	Unexpected supervisor call when control is passed to the IPL program. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
209-301 to 209-325	H	210	100	Supervisor Exception during Flash Update Utility.
210-200 to 210-298	H	210	90	Unexpected supervisor call during ROS IPL.
210-299	H	132 210	60 40	Unexpected supervisor call when control is passed to the IPL program. Be sure there is a valid IPL program on the IPL device. If there is, exchange the medium or the device.
210-301 to 210-325	H	210	100	Supervisor Exception during Flash Update Utility.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
721-102	D	721	100	An unrecoverable medium error.
721-104	D	721	100	Motor failed to restart.
721-105	D	721	100	Drive did not become ready.
721-106	D	721	100	Electronics card test failed.
721-108	D	721	100	Bus test failed.
721-110	D	721	100	Media format failed.
721-112	D	721	100	Diagnostic test failed.
721-114	D	721	100	Unrecoverable hardware error.
721-116	D			Protocol error. Check the levels of the device, card, diagnostic software, and application software to be sure they are all compatible. If you do not find a problem, call your next level support.
721-117	D	721	100	Write-protect error occurred.
721-118	D	721 B88	85 15	SCSI command time-out.
721-120	D	721	100	SCSI busy or command error.
721-122	D	721	100	SCSI reservation conflict error.
721-124	D	721	100	SCSI check condition error.
721-126	D	721 B88	60 40	Software error caused by a hardware failure.
721-132	D	721	100	Disk drive hardware error.
721-135	D	721 B88 software	80 10 10	Device failed to configure.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
722-nnn	D	722	100	Unknown disk drive failure.
724-nnn	D	724	100	Unknown tape drive failure.
803-nnn	D	Use the nnn number		Error occurred while running the diagnostics. Install a new disk drive. If the SRN repeats, suspect a software problem. **Note:** If your 803 SRN is not one of the following, use this 803-nnn procedure.
803-869	D	B88 software	90 10	An error occurred while running the diagnostics. Install a new disk drive. If the SRN repeats, suspect a software problem.
804-nnn	H	Use the nnn number		An unexpected halt occurred while running the diagnostics.
811-102	G	D02	100	Error log analysis indicates L2 Cache error.
811-888	E	812	100	Standard I/O planar test failed.
811-999	E	227	100	I/O planar test failed.
812-157	E	157	100	8 MB, 16 MB, 32 MB, or 64 MB S3 memory card test failed.
812-172	E	172	100	4 MB S3 memory SIMM test failed.
812-182	E	182	100	8 MB S3 memory SIMM test failed.
812-240	E	157 182	60 40	64 MB S3 memory card test and two 8 MB S3 memory SIMM tests failed.
812-245	E	157 182	70 30	64 MB S3 memory card test and three 8 MB S3 memory SIMM tests failed.
812-250	E	157 172	60 40	32 MB S3 memory card test and two 4 MB S3 memory SIMM tests failed.
812-255	E	157 172	70 30	32 MB S3 memory card test and three 4 MB S3 memory SIMM tests failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
812-908	E	B39	100	Memory SIMM failure.
812-910	E	C31	100	Memory test failed.
814-099	J	812	100	NVRAM test failed.
814-112	D	814	100	NVRAM test failed.
814-113	D	227	100	VPD test failed.
815-100	D	815	100	Floating-point processor test failed.
816-140	D	165 816 227	50 45 05	3-digit display test failed.
816-185	D	169 168 227	65 30 05	Mode switch test failed.
817-123	D	817	100	I/O planar time-of-day clock test failed.
817-210	D	817	100	Time-of-day clock is at POR.
817-212	D	151 816	90 10	Battery power is low.
817-213	D	817	100	Real-time clock is not running.
817-214	D	227	100	EPOW connector test failed.
817-216	D	227	100	Register test on the second I/O planar failed.
818-355	G	C42 C37	99 01	Memory test failed.
818-990	D	B19 210	90 10	Defective TCW SIMM for optional I/O planar.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
818-991	D	227 210	90 10	Option I/O planar test failed.
821-111	D	821	100	Unexpected results from the test.
821-220	D	B10 821	90 10	Keyboard adapter fuse failed.
821-221	D	821	100	Keyboard adapter test failed.
821-230	D	821 227	9010	Software error caused by hardware failure.
821-310	D	821	100	Keyboard card register test failed.
821-311	D	821	100	Keyboard card logic error.
821-312	D	821	100	Keyboard card transmit error.
821-313	D	821	100	Keyboard card receive error.
821-330	D	821	100	Keyboard card speaker controller failed.
821-331	D	821	100	Device cannot be configured.
821-332	D	821 software	80 20	Cannot open device.
821-921	D	821	100	Keyboard card control logic failed.
821-922	D	821	100	Keyboard card control logic failed.
821-923	D	821	100	Keyboard card control logic failed.
823-111	D	823	100	Unexpected results from the test.
823-112	D	823	100	Status register test failed.
823-113	D	B10 823	90 10	Mouse card fuse failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
823-121	D	823	100	Unexpected result from the test.
823-122	D	823	100	Internal wrap test failed.
823-130	D	823 227	90 10	Software error caused by hardware failure.
823-131	D	823	100	Unable to put mouse card into non-block mode.
823-132	D	823	100	Unable to put mouse card into block mode.
823-133	D	823	100	Device cannot be configured.
823-134	D	823 software	80 20	Cannot open device.
823-220	D	B10 823	90 10	Mouse card fuse failed.
824-220	D	B10 824	90 10	Tablet card fuse failed.
824-331	D	824 227	90 10	Unexpected error occurred.
824-332	D	824 227	90 10	The enable/disable device test failed. Ensure that the wrap plug was not attached when the test was run. If the wrap plug was attached, remove it and rerun the test.
824-333	D	824	100	Internal wrap test failed.
824-334	D	B10 824	90 10	Tablet adapter fuse failed.
824-441	D	824	100	Unexpected error occurred.
824-442	D	824	100	Wrap test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
824-450	D	824 227	90 10	Software error caused by hardware failure.
824-511	D	824	100	Unexpected error occurred.
824-512	D	824	100	Tablet adapter reset test failed.
824-522	D	B10 824	90 10	Card fuse failure.
824-523	D	824	100	Device cannot be configured.
824-524	D	824 software	80 20	Cannot open device.
826-111	D	826 227	90 10	Could not run the test because the device driver detected a hardware error.
826-112	D	826 227	90 10	Unable to determine the type of card from the VPD.
826-113	D	826	100	VPD verification test failed.
826-114	D	826	100	Register verification test failed.
826-121	D	826 227	90 10	Could not do the test because the device driver detected a hardware error.
826-122	D	826 227	9010	Data-wrap communication test failed.
826-123	D	826 227	90 10	Modem control line test failed.
826-131	D	826	100	Could not do the test because the device driver detected a hardware error.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
826-132	D	826 227	90 10	Data wrap communication test failed.
826-133	D	826	100	Modem control line test failed.
826-161	D	252	100	Could not do the test because the device driver detected a hardware error.
826-162	D	252	100	Data wrap communication test failed.
826-163	D	252	100	Modem control line test failed.
826-271	D	826	100	Could not do the test because the device driver detected a hardware error.
826-272	D	826	100	Data wrap communication test failed.
826-273	D	826	100	Modem control line test failed.
826-281	D	826	100	Could not do the test because the device driver detected a hardware error.
826-282	D	826	100	Data wrap communication test failed.
826-283	D	826	100	Modem control line test failed.
826-321	D	826	100	Could not do the test because the device driver detected a hardware error.
826-322	D	826	100	Data wrap communication test failed.
826-323	D	826	100	Modem control line test failed.
826-331	D	826	100	Could not do the test because the device driver detected a hardware error.
826-332	D	826	100	Data wrap communication test failed.
826-333	D	826	100	Modem control line test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
826-371	D	826	100	Could not do the test because the device driver detected a hardware error.
826-372	D	826	100	Data wrap communication test failed.
826-373	D	826	100	Modem control line test failed.
827-112	D	827 227	95 05	Parallel port data register write/read test failed.
827-121	D	827	100	Could not do the test because the device driver detected a hardware error.
827-122	D	827	100	Parallel port data register write/read test failed.
827-123	D	827	100	Parallel port control register write/read test failed.
827-124	D	827	100	Parallel port data register read test failed.
827-125 827-126	D	827	100	Parallel port control register read test failed.
827-131	D	827	100	Could not do the test because the device driver detected a hardware error.
827-132	D	827	100	Control port register direction bit (write) test with BIDI enabled failed.
827-133	D	827	100	Control port register direction bit (read) test with BIDI enabled failed.
827-141	D	827	100	Could not do the test because the device driver detected a hardware error.
827-142	D	827	100	Parallel port control register write/read test with BIDI enabled failed.
827-151	D	827 227	94 06	Could not do the test because the device driver detected a hardware error.
827-152	D	827	100	Parallel port status register read test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
827-161	D	827	100	Could not do the test because the device driver detected a hardware error.
827-162	D	827 227	90 10	Parallel port interrupt test failed.
827-163	D	827 227	90 10	
828-097	J	935 828	70 30	Diskette drive not found.
828-098	J	935 828	95 05	Diskette test failed.
828-099	J	828 935	90 10	Diskette test failed.
828-501	D	828	100	The diskette card test failed.
831-099	J	831	100	Serial port 2 test failed.
831-111	D	831 227	90 10	Could not do the test because the device driver detected a hardware error.
831-112	D	831 227	90 10	Unable to determine the type of card from the VPD.
831-113	D	831	100	VPD verification test failed.
831-114	D	831	100	Register verification test failed.
831-121	D	831 227	90 10	Could not do the test because the device driver detected a hardware error.
831-122	D	831 227	90 10	Data wrap communication test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
831-123	D	831 227	90 10	Modem control line test failed.
831-131	D	831	100	Could not do the test because the device driver detected a hardware error.
831-132	D	831 227	90 10	Data wrap communication test failed.
831-133	D	831	100	Modem control line test failed.
831-161	D	252	100	Could not do the test because the device driver detected a hardware error.
831-162	D	252	100	Data wrap communication test failed.
831-163	D	252	100	Modem control line test failed.
831-164	D	227 252	90 10	Could not do the test because the device driver detected a hardware error.
831-165	D	227 252	90 10	Data wrap communication test failed.
831-166	D	227 252	90 10	Modem control line test failed.
831-271	D	831	100	Could not do the test because the device driver detected a hardware error.
831-272	D	831	100	Data wrap communication test failed.
831-273	D	831	100	Modem control line test failed.
831-281	D	831	100	Could not do the test because the device driver detected a hardware error.
831-282	D	831	100	Data wrap communication test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
831-283	D	831	100	Modem control line test failed.
831-321	D	831	100	Could not do the test because the device driver detected a hardware error.
831-322	D	831	100	Data wrap communication test failed.
831-323	D	831	100	Modem control line test failed.
831-331	D	831	100	Could not do the test because the device driver detected a hardware error.
831-332	D	831	100	Data wrap communication test failed.
831-333	D	831	100	Modem control line test failed.
831-371	D	831	100	Could not do the test because the device driver detected a hardware error.
831-372	D	831	100	Data wrap communication test failed.
831-373	D	831	100	Modem control line test failed.
831-381	D	831	100	Could not do the test because the device driver detected a hardware error.
831-382	D	831	100	Data wrap communication test failed.
831-383	D	831	100	Modem control line test failed.
850-098 850-099	J	850 256 227 240	70 10 10 10	The open test failed.
850-710	D	850	100	Card open test failed at ring speed 4 MB.
850-711	D	850 227	70 30	Card open test failed at ring speed 4 MB.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
850-712	D	850	100	Card open test failed at ring speed 4 MB.
850-713	D	850	100	Card open test failed at ring speed 4 MB.
850-714	F	240 850 256	65 25 10	Card open test failed at ring speed 4 MB.
850-715	D	850 256	90 10	Card open test failed at ring speed 4 MB.
850-716	F	240 850	75 25	Card open test failed at ring speed 4 MB.
850-717	D	850	100	Card open test failed at ring speed 4 MB.
850-720	D	850	100	Wrap data test failed at ring speed 4 MB.
850-721	D	850	100	Wrap data test failed at ring speed 4 MB.
850-722	D	850	100	Wrap data test failed at ring speed 4 MB.
850-770	D	850 227	95 05	Unable to set ring speed to 4 MB.
850-810	D	850	100	Card open test failed at ring speed 16 MB.
850-811	D	850 227	70 30	Card open test failed at ring speed 16 MB.
850-812	D	850	100	Card open test failed at ring speed 16 MB.
850-813	D	850	100	Card open test failed at ring speed 16 MB.
850-814	F	240 850 256	65 25 10	Card open test failed at ring speed 16 MB.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
850-815	D	850 256	90 10	Card open test failed at ring speed 16 MB.
850-816	F	240 850	75 25	Card open test failed at ring speed 16 MB.
850-817	D	850	100	Card open test failed at ring speed 16 MB.
850-820	D	850	100	Wrap data test failed at ring speed 16 MB.
850-821	D	850	100	Wrap data test failed at ring speed 16 MB.
850-822	D	850	100	Wrap data test failed at ring speed 16 MB.
850-880	D	850	100	Unable to set ring speed to 16 MB.
850-900	D	850 227	60 40	Software error caused by hardware failure.
850-905	D	850 227 software	80 10 10	The device failed to configure.
850-906	D	850 227	80 20	Device failed to configure.
850-910	D	850	100	Unidentified error occurred.
850-920	D			The operating system IPL procedure has determined that the location (slot) of certain Token Ring cards relative to the location of graphic accelerator cards presents a risk of undetected data loss under rare circumstances. This problem can occur with the following Token Ring cards: 74F4134, 53F6052, 53F6046, 53F6064 and 39F7824.
852-096	J	852 227	95 05	The Ethernet GA test wrap failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
852-097	J	852 227	95 05	The Ethernet external wrap test failed.
852-099	J	852 227	95 05	The Ethernet parameter test failed.
852-101	D	852	100	POS register test failed.
852-110	D	852 227	70 30	POS register test failed.
852-117	D	852 Software	80 20	Device configuration test failed.
852-120	D	852 227	95 05	The hard reset test failed.
852-124	D	852 Software	80 20	Error log analysis indicates a hardware problem.
852-130	D	852	100	The shared memory test failed.
852-140	D	852	100	The I/O registers test failed.
852-150	D	852	100	The vital product data test failed.
852-160	D	852 227	95 05	The internal loopback test failed.
852-170	D	852	100	The external loopback (DIX connector) test failed.
852-180	D	852	100	The external loopback (BNC connector) test failed.
852-202	D	852	100	The vital product data test failed.
852-203	D	852	100	The I/O register test failed.
852-304	D	852	100	The LAN co-processor 82596 internal test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
852-305	D	852	100	The internal loopback test failed.
852-306	D	852	100	The internal loopback test failed.
852-307	D	852	100	The external loopback test failed.
852-319	D	852 Software	80 20	The device driver indicates a hardware failure.
852-402	D	B09 852	80 20	10base-2 transceiver test failed.
852-403	D	B08 852	80 20	10base-T transceiver test failed.
852-900	D	852 227	60 40	A software error was caused by a hardware failure.
852-901	G	852	100	Analysis of the error log indicates a problem with the hardware.
852-902	G	852 227	60 40	Analysis of the error log indicates a problem with the hardware.
852-903	G	852 227	90 10	Analysis of the error log indicates a problem with the hardware.
852-904	G	852 241	90 10	Analysis of the error log indicates a problem with the hardware.
852-905	D	852 227 Software	80 10 10	The device driver indicates a hardware failure.
852-906	D	852 227	80 20	The device failed to configure.
852-907	D	B08	100	The transceiver test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
852-908	D	B09	100	The transceiver test failed.
862-101	D	862	100	POST failed.
862-102	D	862 227	95 05	POS register test failed.
862-103	D	862	100	PCA card-to-RS/6000 Controller test failed.
862-104	D	862	100	PCA 80186 microprocessor test failed.
862-105	D	862	100	DRAM test failed.
862-106	D	862	100	Static shared RAM test failed.
862-107	D	862	100	VPD verification test failed.
862-109	D	862	100	Internal wrap test failed. Check the wrap plug.
862-110	D	862	100	Parallel channel card wrap test failed.
862-112	D	862	100	PCA hardware register test failed.
862-114	D	862	100	Diagnostic microcode download failed—hardware error.
862-115	D	B05 B04	85 15	Parallel channel cable tailgate wrap test failed. Check the wrap plug.
862-117	D	862	100	Hardware FIFO test from the 80186 to the host failed.
862-118	D	862	100	Hardware FIFO test from the micro channel interface to the 80186 failed.
862-121	D	862	100	Base address switching test failed.
862-123	D	862	100	Static RAM test failed.
862-124	D	862	100	DMA test failed.
862-125	D	862	100	Interrupt test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
862-500	D	862 227	90 10	Cannot open device.
862-600	D	862 227 Software	80 10 10	Cannot configure device.
865-101	D	865	100	Unexpected test results.
865-110	D	B47 865	75 25	Memory failure.
865-115 865-120	D	B47 865	95 25	Processor test failure.
865-125	D	865	100	Micro channel interface failure.
865-130	D	865 227	90 10	DMA test failure.
865-135	D	865	100	Controller test failure.
865-140	D	865 227	90 10	Processor storage test failure.
865-145	D	865	100	Processor storage test failure.
865-150	D	865	100	Memory controller test failure.
865-153	D	865 B47	75 25	Micro channel interface controller wrap test failed.
865-155	D	865	100	On-chip monitor testing of micro channel interface controller failed.
865-160	D	865 B47	75 25	Micro channel DMA test failed.
865-165	D	865	100	VPD CRC did not match.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
865-200	D	B47	100	The optical power measurement test failed.
865-500	D	865 Software	90 10	Device cannot be configured.
865-501	D	865	100	Cannot open device.
865-505	D	865	100	Card failed to configure.
865-506	D	865	100	Card failed to configure.
865-507	D	B47	100	The adapter failed to configure.
865-508	D	865 B47	50 50	Card failed to configure.
868-097	J	868 227	95 05	SCSI adapter test failed.
868-098	J	868 227	80 20	SCSI adapter not found.
868-099	J	868 227	90 10	SCSI adapter test failed.
868-110	D	868 227	80 20	Card diagnostic subcommand test failed.
868-130	D	279	100	Card fuse test failed.
868-140	D	868	100	Wrap test failed.
868-150	D	868	100	BCR write/read test failed.
868-160	D	868	100	POS register write/read test failed.
868-170	D	868	100	Internal/external reset test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
868-180	D	279 868	55 45	Card command timed out. Check the fuse before replacing the card.
868-190	D	868 227	60 40	Software error caused by hardware failure.
868-200	D	868	100	ROM CRC error.
868-201	D	868	100	Card RAM error.
868-202 868-203 868-204 868-205	D	868	100	Control logic failed.
868-206	D	868	100	Diagnostics completed with a previous error.
868-211	D	279 868 Software	50 45 05	Device failed to configure.
887-096	J	887 227	95 05	Ethernet GA wrap test failed.
887-097	J	887 227	95 05	Ethernet external wrap failed.
887-098	J	887 227	95 05	Ethernet fuse test failed.
887-099	J	887 227	95 05	Ethernet parameter test failed.
887-101	D	887	100	POS register test failed.
887-102	D	887	100	I/O register test failed.
887-103	D	887	100	Local RAM test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
887-104	D	887	100	Vital Product Data (VPD) failed.
887-105	D	887	100	LAN co-processor internal tests failed.
887-106	D	887 B06	90 10	Internal loopback test failed.
887-107 887-108	D	B06 887	80 20	External loopback test failed.
887-109	D	887	100	External loopback parity test failed.
887-110	D	887	100	External loopback fairness test failed.
887-111	D	887	100	External loopback fairness and parity test failed.
887-112	D	B11 887	90 10	External loopback (twisted pair) test failed.
887-113	D	887	100	External loopback (twisted pair) parity test failed.
887-114	D	887	100	External loopback (twisted pair) fairness test failed.
887-115	D	887	100	External loopback (twisted pair) fairness and parity test failed.
887-117	D	887 Software	80 20	Device configuration fails.
887-118 887-120	D	887 B06/B11	80 20	Device driver indicated a hardware problem.
887-123	D	887 B11	90 10	Internal loopback test failed.
887-125	D	B11	100	Fuse test failed.
887-202 887-203	D	887	100	Vital product data test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
887-304	D	887	100	Co-processor internal test failed.
887-305 887-306	D	887	100	Internal loopback test failed.
887-307	D	887	100	External loopback test failed.
887-319	D	887 Software	80 20	Device driver indicates a hardware failure.
887-401	D	887	100	Circuit breaker for Ethernet test failed.
887-402	D	B09 887	80 20	Ethernet 10 Base-2 transceiver test failed.
887-403	D	B08 887	80 20	Ethernet 10 Base-T transceiver test failed.
887-405	F	Ethernet network 887	55 45	Rerun diagnostics in advanced mode for accurate problem determination.
889-097	J	889 227	95 05	SCSI adapter test failed.
889-098	J	889 227	80 20	SCSI adapter was not found.
889-099	J	889 227	90 10	SCSI adapter test failed.
889-110	D	889 227	80 20	Card diagnostic subcommand test failed.
889-130	D	279	100	Card fuse test failed.
889-131	D	889	100	The thermal device did not reset.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
889-140	D	889	100	Wrap test failed.
889-150	D	889	100	BCR
889-160	D	889	100	POS register write/read test failed.
889-170	D	889	100	Internal/external reset test failed.
889-180	D	279 B88	55 45	Card command timed out. Check the fuse before replacing.
889-190	D	889 227	60 40	Software error caused by hardware failure.
889-200	D	889	100	ROM CRC error.
889-201	D	889	100	Card RAM error.
889-202 889-203 889-204 889-205	D	889	100	Control logic failed.
889-206	D	889	100	Diagnostics completed with a previous error.
889-211	D	SCSI bus 889	80 20	Controller failed to configure.
890-087	J	C26 227	95 05	The SCSI adapter test failed.
890-088	J	C26 227	95 05	The SCSI adapter test failed.
890-089	J	C26 227	95 05	The SCSI adapter test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
890-097	J	890 227	95 05	The SCSI adapter test failed.
890-098	J	890 227	80 20	The SCSI adapter was not found.
890-099	J	890 227	90 10	The SCSI adapter test failed.
890-101	D	890	100	The SCSI adapter test failed.
890-102	D	890	100	The command interface register test failed.
890-103	D	890	100	The immediate pacing command test failed.
890-104	D	890	100	The subsystem control block test failed.
890-105	D	890	100	The system address line test failed.
890-106	D	890		The internal SCSI bus terminal power failed.
890-107	D	890		The internal SCSI bus terminal power failed.
890-108	D	890		Internal SCSI bus error.
890-109	D	890		External SCSI bus error.
890-110	D	890 227	95 05	The system address line failed.
890-150	G	890	100	The system address line failed.
890-155	G	890 227	95 05	The error log analysis indicates the adapter information timed out.
890-160	G	890 Cable/ Terminator	95 05	Error log analysis indicates adapter reset failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
890-165	G	890 227	90 10	Error log analysis indicates adapter DMA failed.
890-170	G	890	100	Error log analysis indicates adapter microcode is defective.
890-175	G	890		Error log analysis indicates internal SCSI bus terminal power failure.
890-180	G	890		Error log analysis indicates external SCSI bus terminal power failure.
890-185	G	890		Error log analysis indicates internal SCSI bus error.
890-190	G	890		Error log analysis indicates external SCSI bus error.
890-195	G	890	100	Error log analysis indicates hardware failure.
890-201	D	C26	100	The reset test failed.
890-202	D	C26	100	The command interface register test failed.
890-203	D	C26	100	The immediate pacing command test failed.
890-204	D	C26	100	The subsystem control block test failed.
890-205	D	C26	100	The system address line test failed.
890-206	D	C26		The internal SCSI bus terminal power failed.
890-207	D	C26		The external SCSI bus terminal power failed.
890-208	D	C26		Internal SCSI bus error.
890-209	D	C26		External SCSI bus error.
890-210	D	C26 227	95 05	The system address line test failed.
890-250	G	C26	100	The error log analysis indicates the microcode is defective.
890-255	G	C26 227	95 05	The error log analysis indicates that the get adapter information has timed out.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
890-260	G	C26 Cable/ Terminator	95 05	The error log analysis indicates that the adapter reset failed.
890-265	G	C26 227	90 10	The error log analysis indicates that the adapter DMA failed.
890-270	G	C26 227	100	The error log analysis indicates the adapter microcode is defective.
890-275	G	C26		The error log analysis indicates internal SCSI bus terminal power failure.
890-280	G	C26		The error log analysis indicates external SCSI bus terminal power failure.
890-285	G	C26		The error log analysis indicates internal SCSI bus error.
890-290	G	C26		The error log analysis indicates external SCSI bus error.
890-295	G	C26	100	The error log indicates a hardware failure.
901-099	J	901 221	90 10	IPLROS detected a problem with the SCSI disk drive.
925-111	D	925 823	80 20	Unexpected device error occurred.
925-112	D	925 823	80 20	Device disable test failed.
925-113	D	925	100	Could not reset the device.
925-114	D	925 823	80 20	Read status command failed.
925-115	D	925	100	Device test failed.
925-116	D	925	100	Unknown Mouse type.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
925-117	D	925 823	80 20	Mouse wrap mode failed.
925-118	D	925 823	8020	Error setting mouse parameters.
925-121 925-131 925-141 925-151 925-161 925-171	D	925	100	The device test failed.
925-200	D	925 823	80 20	Software error was caused by a hardware error.
935-101	D	935 828	80 20	Diskette drive select test failed.
935-102	D	935 828	80 20	Diskette drive deselect test failed.
935-103	D	935 828	75 25	Diskette drive recalibrate test failed.
935-104	D	935 828	75 25	Diskette change test failed.
935-105	D	935 828	75 25	Diskette write-protect test failed.
935-106	D	935 828	75 25	Diskette format test failed.
935-107	D	935 828	75 25	Diskette drive step test failed.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
935-108	D	935	100	Diskette read test failed.
935-109	D	935 828	80 20	Diskette write test failed.
935-110	D	935 828	95 05	Diskette write/read/compare test failed.
935-111	D	935	100	Diskette downward compatibility test failed.
935-113	D	935	100	Diskette drive speed test failed.
935-114	D	935	100	Diskette drive head settle time test failed.
935-115	D	935 828	80 20	Diskette drive recalibrate test failed.
935-116	D	935 828	80 20	Diskette change test failed.
935-117	D	935 828	80 20	Diskette write protect test failed.
935-118	D	935 828	80 20	Diskette format test failed.
935-124	D	935 Software	80 20	Unable to configure the device.
940-097	J	C31 214	95 05	IPLROS detected a problem with the memory SIMM pair. If replacing the pair does not fix the problem, replace the next SIMM pair before replacing the planar.
940-098	J	C31 214	95 05	IPLROS detected a problem with the memory SIMM pair. If replacing the pair does not fix the problem, replace the next SIMM pair before replacing the planar.
940-135	E	C40	100	4MB SIMM

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
940-155	E	C42	100	The memory test failed.
940-355	E	C37 C42	60 40	The memory test failed.
940-455	E	C37 C42	70 30	The memory test failed.
940-604	E	D04	100	POST indicates a L2 Cache error.
950-915	C	974 B88	90 10	Device does not respond.
950-968	C	968 B88	90 10	Device does not respond.
950-974 950-987	C	974 B88	90 10	Device does not respond.
968-098	J	968	100	Disk drive indicates an error.
968-099	J	968 B88	90 10	Disk drive not found.
968-102	D	968	100	Unrecoverable media error.
968-104	D	968	100	The diskette drive motor failed to restart.
968-105	D	968	100	The diskette drive did not become ready.
968-106	D	968	100	The electronics card test failed.
968-108	D	968	100	The bus test failed.
968-110	D	968	100	The media format failed.
968-112	D	968	100	The diagnostic test failed.
968-114	D	968	100	Unrecoverable hardware error.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
968-116	D			A protocol error occurred.
968-117	D	968	100	A write protect error occurred.
968-118	D	968 B88	80 20	A SCSI command time-out.
968-120	D	968	100	A SCSI busy or command error.
968-122	D	968	100	A SCSI reservation conflict error occurred.
968-124	D	968	100	A SCSI check condition error occurred.
968-126	D	968 B88	60 40	A software error was caused by a hardware error.
968-128	G	968	100	The error log analysis indicates a hardware failure.
968-130	G	968 B88	60 40	The error log analysis indicates a hardware failure.
968-132	D	968	100	A disk drive hardware error occurred.
968-134	D	968 Software	80 20	The adapter failed to configure.
968-135	D	968 B88 Software	80 10 10	The device failed to configure.
968-136	D	968	100	The certify operation failed.
974-111	D	974 B88	90 10	Unable to reserve device.
974-112	D	974 B88	90 10	Unable to do configuration.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
974-113	D	974 B88	90 10	Unable to open the device driver.
974-121	D	974	100	The CD-ROM drive indicates an error.
974-122	D	974	100	The CD-ROM drive indicates an error.
974-123	D	974	100	The CD-ROM drive indicates an error.
974-125	D	974 B88	90 10	The CD-ROM drive indicates an error.
974-126	D	974	100	The CD-ROM drive indicates an error.
974-127	D	974	100	The CD-ROM drive indicates an error.
974-128	D	974	100	The CD-ROM drive indicates an error.
974-129	D	974	100	The CD-ROM drive indicates an error.
974-150	D	Media 974	070 30	A media error was detected.
974-151	D	974 D88	90 10	A command time-out was detected.
974-152	D	974	100	A command reservation conflict was detected.
974-162	D	974	100	The CD-ROM drive indicates an error.
974-171	D	974	100	Unable to reserve the device.
974-172	D	974	100	Unable to do configuration.
974-173	D	974	100	Unable to open device driver.
974-175	D	974	100	The DC-ROM drive indicates an error.
974-198	D	974 B88	90 10	Undefined error detected.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
974-199	D	974	100	Undefined error detected.
974-211	D	974	100	The LED test failed.
974-281	D	974	100	No tone during audio test.
974-301	G	974	100	Errors found during ELA.
974-302	G	974 B88	90 10	Error log analysis indicates hardware failure.
981-102	D	981	100	Unrecoverable media error.
981-104	D	981	100	Motor failed to restart.
981-105	D	981	100	Disk drive did not become ready.
981-106	D	981	100	Electronics card failure.
981-108	D	981	100	Bus failure.
981-110	D	981	100	Media format failed.
981-112	D	981	100	Diagnostic test failed.
981-114	D	981	100	Unrecoverable hardware error.
981-116	D			Protocol error. Check the levels of the device, card, diagnostic software, and application software and ensure that they are all compatible. If you do not find a problem, call your next level support.
981-117	D	981	100	Write protect error.
981-118	D	981 B88	80 20	SCSI command timeout.
981-120	D	981	100	SCSI busy/command error.
981-122	D	981	100	SCSI reservation conflict error.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
981-124	D	981	100	SCSI check condition error.
981-126	D	981 B88	60 40	Software error caused by hardware failure.
981-132	D	981	100	Disk drive hardware error.
981-134	D	B88 Software	80 20	Card failed to configure.
981-136	D	981	100	Certify operation failed.
984-102	D	984	100	An unrecoverable media error.
984-104	D	984	100	The motor failed to restart.
984-105	D	984	100	The drive did not come ready.
984-106	D	984	100	The electronics card test failed.
984-108	D	984	100	The bus test failed.
984-110	D	984	100	The media format failed.
984-112	D	984	100	The diagnostic test failed.
984-114	D	984	100	An unrecoverable hardware error occurred.
984-116	D			A protocol error occurred.
984-117	D	984	100	A write protect error occurred.
984-118	D	984 B88	80 20	A SCSI command time-out.
984-120	D	984	100	A SCSI busy or command error.
984-122	D	984	100	A SCSI reservation conflict error.
984-124	D	984	100	A SCSI check condition error.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
984-126	D	984 B88	100	A software error was caused by a hardware failure.
984-128	G	984	100	The error log analysis indicates a hardware failure.
984-130	G	984 B88	60 40	The error log analysis indicates a hardware failure.
984-132	D	984	100	A disk drive hardware error occurred.
984-134	D	B88 Software	80 20	The adapter failed to configure.
984-135	D	984 B88 Software	80 10 10	A SCSI busy or command error.
984-136	D	984	100	The certify operation failed.
986-102	D	986	100	An unrecoverable media error.
986-104	D	986	100	The motor failed to restart.
986-105	D	986	100	The drive did not become ready.
986-106	D	986	100	The electronics card test failed.
986-108	D	986	100	The bus test failed.
986-110	D	986	100	The media format failed.
986-112	D	986	100	The diagnostic test failed.
986-114	D	986	100	An unrecoverable hardware error occurred.
986-116	D			A protocol error occurred.
986-117	D	986	100	An write protect error occurred.

Table 252. Service Request Numbers for Controller Types 7009 and 7012 (continued)

SRN	Source	FFC	Failure Percent	Explanation
986-118	D	986 B88	80 20	A SCSI command time-out.
986-120	D	986	100	A SCSI busy or command error.
986-122	D	986	100	A SCSI reservation conflict error.
986-124	D	986	100	A SCSI check condition error.
986-126	D	986 B88	60 40	A software error was caused by a hardware failure.
986-128	G	986	100	The error log analysis indicates a hardware failure.
986-130	G	986 B88	60 40	The error log analysis indicates a hardware failure.
986-132	D	986	100	A disk drive hardware error occurred.
986-134	D	B88 Software	80 20	The adapter failed to configure.
986-136	D	986 C11	80 20	The certify operation failed.

MAP 2011: Failing Function Code (FFC)

MAP 2011 BEGINS

Failing function codes (FFCs) are numbers that appear on the 3-digit display to indicate that a RS/6000 Controller function failed. They are listed in numerical order in Table 254 with a short description of the problem and the number of the part to repair or replace.

Refer to Table 253 for specific controller information.

Table 253. Controller Types

Controller Type	Action
Type 7013 Model 591, Model 595	Refer to **POWERstation and POWERserver: Diagnostics Information for Micro Channel Bus Systems**, SA23-2765, Chapter "*Failing Function Codes (FFCs)*".
Type 7025 Model F50	Refer to **Diagnostics Information for Multiple Bus Systems**, SA38-0509, chapter "*Failing Function Codes (FFCs)*".
Type 7043 Model 43P-140	Refer to **Diagnostics Information for Multiple Bus Systems**, SA38-0509, chapter "*Failing Function Codes (FFCs)*".

Attention:

When replacing the Hard Drives on controller Type 7013 Model 591, always replace as a set of four, if the microcode level is lower than v9.1, since the microcode is spread among all four drives. Also, DO NOT change the jumper positions on the Hard Drive. The Hard Drive is tested and shipped with the correct settings.

Note: Some cards have fuses. Always check the fuse before replacing the card.

Table 254. Failing Function Codes for Controller Types 7009 and 7012

FFC	Part No.	Explanation
131		Unidentified memory error (see C37, C40, or C41)
132		Program just loaded may be damaged.
133		Micro-channel bus problem. See MAP 2154: Minimum Configuration.

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
151	33F8354 23F0168	Battery, time-of-day logic, and NVRAM. (Type 7009) Battery, time-of-day logic, and NVRAM. (Type 7012) (Reset the time and date after replacing the battery.)
152	65G8077 91F0844 52G4764	Power supply (Type 7009-C10/C20) Power supply (Type 7012-370) Power supply (Type 7012-390)
154	43G1796	16 MB SIMM (Type 7012)
157	65G1803	S4.5 base memory card (Type 7012-370/390)
165	65G7994 00G2230	Operator panel assembly (Type 7009-C10/C20) 3-digit display (Type 7012)
166	65G7989 40F9979 00G2981	Fan, front (Type 7009-C10/C20) Fan, rear (Type 7012-370) Fan, front (Type 7012)
168	65G7994 00G1924	Keylock, Operator Panel assembly (Type 7009-C10/C20) Mode switch assembly, nonlock (Type 7012)
169	65G7916 40H5693 00G2793 52G4325	Processor card (Type 7009-C10) Processor card (Type 7009-C20) System Planar (Type 7012-370) System Planar (Type 7012-390)
170	65G7989 40F9979 00G2981	Fan, front (Type 7009-C10/C20) Fan, rear (Type 7012-370) Fan, front (Type 7012)
172	70F9973	4 MB SIMM (Type 7012)
176	70F9973	4 MB SIMM (Type 7012)
177	70F9976	8 MB SIMM (Type 7012)
180		Memory combination. See C37, C40, & C41.

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
181	65G8006 40F9925 51G9521	Cable, diskette drive (Type 7009-C10/C20) Cable, diskette drive (Type 7012-370) Cable, diskette drive (Type 7012-390)
182	70F9976	8 MB SIMM (Type 7012)
189	00G2721	Card, SCSI bus extension (Type 7012-370)
190	65G8077 43G0779 52G4850	Cable, internal SCSI disk drive (Type 7009-C10/C20) Cable, internal SCSI disk drive (Type 7012-370) Cable, internal SCSI disk drive (Type 7012-390)
210	65G7916 40H5693 51G9441 88G4006	Fixed-point problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) Processor card (Type 7012-370) Processor card (Type 7012-390)
214	65G7916 40H5693 51G9441 88G4006	Memory control unit problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) Processor card (Type 7012-370) Processor card (Type 7012-390)
216	65G7916 40H5693 51G9441 88G4006	OCS ROM problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) Processor card (Type 7012-370) Processor card (Type 7012-390)
217	65G7916 40H5693 51G9441 88G4006	ROM problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) Processor card (Type 7012-370) Processor card (Type 7012-390)

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
218	65G7916 40H5693 51G9441 88G4006	IOCC problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) Processor card (Type 7012-370) Processor card (Type 7012-390)
219	65G1803 70F9973 70F9976 43G1796 51G8553 51G8554 8184379	Common memory logic problem: Base memory card (Type 7012) 4 MB SIMM (Type 7012) 8 MB SIMM (Type 7012) 16 MB SIMM (Type 7012) 4 MB SIMM (Type 7009) 8 MB SIMM (Type 7009) 16 MB SIMM (Type 7009)
221	65G7904 00G2793 52G4325	I/O control logic problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390)
223	65G7916 40H5693 51G9441 88G4006	OCS problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) Processor card (Type 7012-370) Processor card (Type 7012-390)
226	65G7904 00G2793 52G4325	System status logic problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390)
227	65G7904 00G2793 52G4325	Micro-channel logic problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390)

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
232	00G0972	Terminator, SCSI card edge (Type 7012)
233	15F6743	Terminator, SCSI controller, external
234	00G0968	Terminator, external SCSI device
240		Token Ring network problem
241		Ethernet network problem
256	6339098	Cable, Token Ring, 10 ft
276	31F4482	Cable, SCSI controller
277	65G8077 43G0779 52G4850	Cable, internal SCSI disk drive (Type 7009-C10/C20) Cable, internal SCSI disk drive (Type 7012-370) Cable, internal SCSI disk drive (Type 7012-390)
279	1383417	Fuse, SCSI bus extension card
280		Check power from display, and serial attachment power and signal cable.
711		Unknown card
721		Unknown SCSI device
722		Unknown disk drive
723		Unknown CD-ROM drive
725		Unknown display card type
730		Unknown diskette drive
811		Direct-attach bus

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
812	65G7904 00G2793 52G4325 88G3623 32G0176	Common built-in card problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
814	65G7916 40H5693 00G2793 52G4325	NVRAM problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) System Planar (Type 7012-370) System Planar (Type 7012-390)
815	65G7916 40H5693 51G9441 88G4006	Floating-point problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) Processor card (Type 7012-370) Processor card (Type 7012-390)
816	65G7916 40H5693 00G2793 52H4325	Controller panel logic problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) System Planar (Type 7012-370) System Planar (Type 7012-390)
817	65G7916 40H5693 00G2793 52G4325	Time-of-day logic problem: Processor card (Type 7009-C10) Processor card (Type 7009-C20) System Planar (Type 7012-370) System Planar (Type 7012-390)

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
821	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in keyboard card problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
823	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in mouse card problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
824	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in tablet card problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
825	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in speaker card problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
826	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in serial port S1 problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
827	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in parallel port problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
828	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in diskette card problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
831	65G7904 00G2793 52G4325 88G3623 32G0176	Built-in serial port S2 problem: I/O Planar (Type 7009-C10/C20) System Planar (Type 7012-370) System Planar (Type 7012-390) Serial hard card (Type 7012-390) Serial flex cable (Type 7012-370)
850	00G2652 93F1277	Token Ring network card (Type 7009) Token Ring network card (Type 7012)
852	43G0382 00G3369	Ethernet LAN riser (Type 7012) Ethernet LAN card (Type 7009)
862	31G9211	Block multiplexer channel card
865	33G3609	Serial channel card, ESCON
868	65G7904 00G2793 52G4325 00G2721	I/O Planar (integrated SCSI card) (Type 7009-C10/C20) Planar (integrated SCSI card) (Type 7012-370) Planar (integrated SCSI card) (Type 7012-390) Card, SCSI bus extension

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
887	00G2793 52G4325	Planar, integrated Ethernet logic (7012-370) Planar, integrated Ethernet logic (7012-390)
889	43G0176	SCSI-2 differential I/O controller card
890	65G7315 52G4034	SCSI-2 differential fast/wide or single-ended Fast/wide adapter/A
891		Vendor SCSI card
892		Vendor display card
893		Vendor LAN card
901		Vendor SCSI device
902		Vendor display
905		Other vendor device
925	51G9652	3-Button mouse
935	00G3352 88G4768	2.88MB 3.5-in. diskette (Type 7009-C10/C20) 1.44MB 3.5-in. diskette drive (Type 7012)
949		Unknown direct-attached disk drive failed
950		Unknown SCSI device missing
968	55F9909 (Note 1)	1GB single-ended disk drive assembly, half height (Type 7012-390, Type 7009-C10/C20) Single-ended frame electronics
981	(Note 1)	Hard drive assembly **Note:** Exchange the complete drive assembly whenever possible. Exchange the logic card only when the data on the disk must be saved.
984	(Note 1)	1GB disk drive (one-inch height) (Type 7012-390, Type 7009-C10/C20)
987	65G7563	CD-ROM-2 drive (Type B bezel) (Type 7012-390, Type 7009-C10/C20)

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
B04	92F6697	Cable, Y, block multiplexer channel card
B05	25F9401	Channel tailgate
B06	43G0382 00G1295	Ethernet thick/thin riser card (Type 7012) Fuse, thick/thin riser card (Type 7012)
B08	02G7431	Ethernet 10 Base twisted-pair transceiver
B09	02G7437	Ethernet/ISO 8802/3 transceiver
B10	81F8129	Fuse, planar
B11	00G1295 43G0382	Fuse, thick/thin riser card (Type 7012-370) Fuse, thick/thin riser card (Type 7012-390)
B19	90X8624 11H3462 88G4006	TCW Memory SIMM (on Processor card) (Type 7012-370) TCW Memory SIMM (on Processor card) (Type 7012-390) Processor card (Type 7012-390)
B39	51G8554	8 MB SIMM (Type 7009-C10/C20)
B56	32G1866	S3.3 base memory card
B57	43G1796	16MB SIMM (Type 7012)
B87	00G2793	System Planar (Type 7012-370)
B88		Generic SCSI I/O controller **Note:** The FRUs represented by this generic FFC can be the same as those for either **868** or **889**. Refer to those FFCs.
B90	51G9441	Processor card (Type 7012-370)
C23	51G9441	Processor card (Type 7012-370)
C26	65G7315	SCSI-2 differential fast/wide adapter/A
C31	8184379	16 MB SIMM (Type 7009-C10/C20)
C37	65G1803	S4.5 base memory card

Table 254. Failing Function Codes for Controller Types 7009 and 7012 (continued)

FFC	Part No.	Explanation
C40	70F9973	4 MB SIMM (Type 7012)
C41	70F9976	8 MB SIMM (Type 7012)
C70	65G7916 40H5693	Processor Card (Type 7009-C10) Processor Card (Type 7009-C20)
C74	65G7942	MCA I/O Riser Card (Type 7009-C10/C20)
C78	88G4006	Processor card (Type 7012-390)
C81	52G4325	System Planar (Type 7012-390)
C84	65G7904	I/O planar (Type 7009-C10/C20)
D01	65G7929 0934173	1.0 MB L2 cache card (Type 7009-C10/C20) 0.5 MB L2 cache (Type 7012-390)
D04	65G7929	1.0 MB cache SIMM (Type 7009-C10/C20)
D09	51G9441	Processor Card (Type 7012-370)
Note: 1. See the Parts Catalog; Part Numbers vary according to both the type/model of the controller used and the end using simplex/duplex system model number.		

MAP 2152: Controller Power Problems

MAP 2152 BEGINS

Before you use this MAP, determine which controller is in the control unit.

See the Control Unit for removal and replacement procedures.

If the controller type is listed in Table 255, refer to the specific controller information.

Table 255. Controller Types

Controller Type	**Action**
Type 7013 Model 591, Model 595	Refer to **7013 500 Series: Installation and Service Guide**, SA23-2622, Chapter "*MAP 1520: 7013 Power MAP*".
Type 7025 Model F50	Refer to **RS/6000 7025 F50 Series: Service Guide**, SA38-0541, chapter "*MAP 1520: Power*".
Type 7043 Model 43P-140	Check to see if the voltage switch is set to 230 V on the controller. If the switch is not set to 230 V, do the following: 1. Install a new Controller Power Supply 2. Set the switch to 230 V and mount the holding bracket that holds the switch in the 230 V position. (If there is no holding bracket for the switch, place a piece of tape over it so the switch can not be moved, or until another bracket can be installed.) Refer to **RS/6000 7043 43P Series: Models 140 and 240 Service Guide**, SA38-0512, chapter "*MAP 1520: Power*".

Table 256. MAP 2152

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	• Set the RS/6000 Controller power switch to Off. The printer may have one of three types of controllers. **Is the controller a Type 7009?**	Go to Step 2.	Go to Step 3.
Step 2.	**Is the voltage switch set to 230 V?**	Go to Step 3.	• Install a new Controller Power Supply. • Set the switch to 230 V and mount the holding bracket that holds the switch in the 230 V position. (If there is no holding bracket for the switch, place a piece of tape over it so the switch can not be moved and until another bracket can be installed.)
Step 3.	**Is the power cord properly connected at both ends?**	Go to Step 4.	• Connect the power cord.

Table 256. MAP 2152 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Perform the following steps: • Ensure the RS/6000 Controller power switch is Off. • Disconnect the power cord from the rear of the RS/6000 Controller. • Power on the control unit. **Is the voltage 230 V ac at the RS/6000 Controller plug?**	Go to Step 6.	Go to Step 5.
Step 5.	Perform the following steps: • Power off the control unit. • Check the plug (PJA06) at the ac control box for a pushed pin. (WD22.1 - Control Unit AC Control Box (Duplex)) • Check the power cord for continuity. **Is the voltage 230 V ac at the ac control box connector?**	• Install a new controller power cable.	Go to MAP 0500: Power Control – Simplex Printing System.

Table 256. MAP 2152 (continued)

Step	Questions/Actions	Yes	No
Step 6.	Perform the following steps: • Power off the control unit. • Remove the cover of the RS/6000 Controller. • Disconnect the power cable from the hard disk drive. • Reconnect the power cord. • Power on the control unit. • Set the RS/6000 Controller power switch to On. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on?**	Go to Step 7.	Go to Step 8.
Step 7.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Set the RS/6000 Controller power switch to On. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on?**	• Install a new Hard Disk Drive assembly.	Go to Step 12.
Step 8.	**Did the power indicator LED come on and go off?**	Go to Step 9.	Go to Step 10.

Table 256. MAP 2152 (continued)

Step	Questions/Actions	Yes	No
Step 9.	**Note:** If the fans have only 2 wires, the power supply does not sense their rotation and can come on without the fans running. • Check the front and rear fans for rotation during the power-up process. • Test each fan, one at a time, by connecting a new fan and setting the RS/6000 Controller power switch to On to see if the power-on light stays on. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on when a new fan is connected?**	• Install a new fan.	After you have tested both fans, install the following new parts, one at a time, until the problem is gone: • Power Supply • Planar (provides power connector for the rear fan).
Step 10.	**Does the Controller have a CD-ROM Drive?**	Go to Step 11.	• Install a new Power Supply.
Step 11.	The problem could be the Power Supply or the CD-ROM Drive. • Power off the Control Unit . • Reconnect all the power cables removed in Step 6. • Disconnect the power cable to the CD-ROM. • Power on the Control Unit. **Does the power indicator LED come on and stay on?**	• Install a new CD-ROM Drive. **Note:** The CD-ROM is not necessary to run the printer. Keep the CD-ROM Drive disconnected from power until you can replace the drive.	• Install a new Power Supply.

Table 256. MAP 2152 (continued)

Step	Questions/Actions	Yes	No
Step 12.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Reconnect the power cable to the hard disk drive assembly. • Disconnect the short ribbon cable from the diskette drive. • Set the RS/6000 Controller power switch to On. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on?**	• Install a new Diskette Drive.	Go to Step 13.
Step 13.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Record the locations of the processor card, attachment cards, the riser card, the memory cards , the SIMMs , and the L2 cache feature card (if present). **Note:** The attachment and riser cards may have a FRU on them or a cable plugged into their rear bracket. • Disconnect any attached cable and remove one of the cards. • Set the RS/6000 Controller power switch to On. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on?**	Go to Step 16.	If you have not removed all cards, repeat this step. If you have removed all cards, continue with Step 14.

Table 256. MAP 2152 (continued)

Step	Questions/Actions	Yes	No
Step 14.	Perform the following steps:: • Set the RS/6000 Controller power switch to Off. • Unplug one cable from the back of the RS/6000 Controller, such as the serial port cable. • Set the RS/6000 Controller power switch to On. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on?**	Repair or replace the last cable or its device that you removed.	Repeat this step until you have removed all the cables. Then go to Step 15.
Step 15.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Disconnect one of the following: – 3-digit display cable – Mode switch cable – Any other cable (except power) attached to the planar. • Set the RS/6000 Controller power switch to On. **Did the power indicator LED come on and stay on?**	• Repair or replace the last FRU that you removed.	• Repeat this step until you have located the failed part or you have disconnected all the cables. • If you have tested all parts and have disconnected all planar cables without finding the problem, replace the planar, fans, or power supply.
Step 16.	• Look at the last (failed) card that you removed. **Are any FRUs attached to the card?**	Go to Step 17.	Go to Step 18.

Table 256. MAP 2152 (continued)

Step	Questions/Actions	Yes	No
Step 17.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Remove any FRUs from the failed card. • Reinstall the failed card but do not reattach the cable. • Set the RS/6000 Controller power switch to On. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on?**	One of the FRUs that you removed has failed. • Reinstall the FRUs, one at a time, until you identify the failed FRU; then install a new one.	• Replace the card.
Step 18.	**Was a cable plugged into the rear of the card?**	Go to Step 19.	• Replace the card.
Step 19.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Reinstall the failed card but do not reattach the cable. • Set the RS/6000 Controller power switch to On. Wait 10 seconds before you answer the following question. **Did the power indicator LED come on and stay on?**	• Repair or replace the cable or its attached device.	• Replace the card.

MAP 2154: Minimum Configuration

This MAP helps you analyze bus failures that cause the RS/6000 Controller to fail in a way that cannot be isolated by normal diagnostics.

The MAP steps instruct you to reduce the RS/6000 Controller to one or more minimum configurations. If a minimum configuration operates correctly, you add FRUs until the failed one is identified. If a minimum configuration does not operate correctly, you remove FRUs until the failed one is identified.

The minimum configurations are:

1. Planar, processor card, mode switch, reset button, and controller display. If this configuration is working correctly, **213** is displayed on the controller display. Any other value indicates a problem with one of the FRUs in this configuration.
2. Planar, processor card, mode switch, reset button, controller display, and memory card(s). If this configuration is working correctly, **262** appears on the controller display. Any other value indicates a problem with one of the FRUs in this configuration.
3. Planar, processor card, mode switch, reset button, controller display, memory cards, and disk drive. If this configuration is working correctly, the diagnostics are loaded and **c99** appears on the controller display. Any other value indicates a problem with one of the FRUs in this configuration.

MAP 2154 BEGINS

Before you use this MAP, determine which Controller is in the control unit. Refer to the Chapter 6. Parts Catalog.

Attention: Do not stop the printer by turning the RS/6000 Controller power switch to Off. Use the Display Touch Screen to perform the **Shutdown** procedure. This performs all necessary cleanup operations before powering off.

See RS/6000 Removal and Replacement Procedures for removal and replacement procedures.

Note: Always wait at least 2 minutes to be sure the controller display has reached its final value. Any time **c31** appears on the display, turn the mode switch to the Normal position and then back to the Service position.

Table 257. MAP 2154

Step	Questions/Actions	Yes	No
	CAUTION: **<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.**		
Step 1.	Perform the following steps: (To begin with minimum configuration 2) • Shut down the printer. **Note:** If the display is flashing **888**, go to step 2. – On the menu bar of the display/touch screen main window, select **Operate**. – On the menu that appears, select **Shutdown**. – When `Shutdown is complete` appears on the display main window, set the control unit to Local and press the control unit **Power Off** switch on the power control panel. • Set the RS/6000 Controller power switch to Off. • Turn the RS/6000 Controller mode switch, if present, to the Service position. • Remove the adapter cards from the controllers as follows: – For controller Type 7012-370, 7012-390, or Type 7009-C10/C20, remove the adapter cards from slots 1 through 4. Also remove the Ethernet riser card from controller Type 7012-370, or 7012-390. – For controller Type 7013-595, remove the adapter cards from slots 1/4, 0/1, 0/2, 0/3, and 0/4. – For controller Type 7025-F50, remove the adapter cards from slots 1, 3, 6, 8, and 9. – For controller Type 7043–43P-140, remove all of the adapter cards. Record the locations of the cards and of any cables attached to the cards. (continued on next page)		

Table 257. MAP 2154 (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	Refer to the following table for specific controller information. If your controller is not listed in the table, continue at Step 5. **Controller Type** — **Action** **Type 7013 Model 591, Model 595** — Refer to **7013 500 Series: Installation and Service Guide**, SA23-2622, Chapter "*MAP 1540: 7013 System Unit-Minimum Configuration*". **Type 7025 Model F50** — Refer to **RS/6000 7025 F50 Series: Service Guide**, SA38-0541, chapter "*MAP 1540: Minimum Configuration*". **Type 7043 Model 43P-140** — Refer to **RS/6000 43P Series: Models 140 and 240 Service Guide**, SA38-0512, chapter "*MAP 1540: Minimum Configuration*". • Follow procedures for minimum configuration. • Disconnect the long ribbon cable from the hard disk drive assembly. • Disconnect the short ribbon cable from the diskette drive. • If the controller has a CD-ROM Drive, disconnect the CD-ROM Drive from the long ribbon cable. • Press the control unit **Power On** switch. • Set the RS/6000 Controller power switch to On.		
Step 2.	**Is 262 showing on the controller display?**	Go to Step 4.	Go to Step 3.

Table 257. MAP 2154 (continued)

Step	Questions/Actions	Yes	No
Step 3.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • If the Controller is a Type 7012-370 or 7012-390, remove the memory card(s) and record its/their location(s) (minimum configuration 1). • If the Controller is a Type 7009-C10/C20, remove the SIMMs and record their locations. • Set the RS/6000 Controller power switch to On. **Is 213 showing on the controller display?**	One of the FRUs remaining in the RS/6000 Controller is defective. Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Install the following new parts, one at a time, until the problem is corrected: – L2 Cache (Controller type 7009-C10/C20 only) – Processor card – Planar – Power supply. • Test each new FRU by setting the RS/6000 Controller power switch to On and checking results before installing the next one. The RS/6000 Controller is working correctly if it stops with **213** on the controller display; when it does, the last FRU you removed is the failed one. Go to Step 4.	• Set the RS/6000 Controller power switch to Off. • If the Controller is a Type 7012-370 or 7012-390, install new memory cards. • If the Controller is a Type 7009-C10/C20, install a new SIMM. Power off the controller and replace one of the SIMMs. If the controller display stops at 213 after powering on the controller, the defective SIMM is the last one that was replaced. (Repeat this step for every SIMM in the controller.) Go to Step 4.

Table 257. MAP 2154 (continued)

Step	Questions/Actions	Yes	No
Step 4.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Reconnect the long ribbon cable to the hard disk drive assembly. • Reconnect the diskette drive to the short ribbon cable. • If the controller has a CD-ROM Drive, reconnect the CD-ROM Drive to the long ribbon cable. • Set the RS/6000 Controller power switch to On. If **c31** is on the controller display, set the mode switch to Normal and then back to Service. **Did any number other than 888 appear on the controller display?**	Go to Step 7.	Go to Step 5.
Step 5.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Disconnect the short ribbon cable from the diskette drive. • If the controller has a CD-ROM Drive, disconnect the CD-ROM Drive from the long ribbon cable. • Set the RS/6000 Controller power switch to On. If **c31** is on the controller display, set the mode switch to Normal and back to Service. **Did any number other than 888 appear on the controller display?**	Go to Step 6.	• Set the RS/6000 Controller power switch to Off. • Install a new hard disk drive assembly. Go to Step 7.

Table 257. MAP 2154 (continued)

Step	Questions/Actions	Yes	No
Step 6.	• Set the RS/6000 Controller power switch to Off. • Reconnect the Diskette Drive cable. • Set the RS/6000 Controller power switch to On. **Did any number other than 888 appear on the controller display?**	• Set the RS/6000 Controller power switch to Off. • If the controller has a CD-ROM Drive, install a new CD-ROM Drive assembly. Go to Step 7.	• Set the RS/6000 Controller power switch to Off. • Install a new diskette drive assembly. Go to Step 7.
Step 7.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Reinstall the SCSI card. • Reinstall the display card. • Set the RS/6000 Controller power switch to On. If **c31** is on the controller display, set the mode switch to Normal and then back to Service. **Did any number other than 888 appear on the controller display?**	Go to Step 9.	Go to Step 8.
Step 8.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Remove the display card. • Set the RS/6000 Controller power switch to On. If **c31** is on the controller display, set the mode switch to Normal and then back to Service. **Did any number other than 888 appear on the controller display?**	• Set the RS/6000 Controller power switch to Off. • Install a new display card. Go to Step 9.	• Set the RS/6000 Controller power switch to Off. • Install a new SCSI card. Go to Step 9.

Table 257. MAP 2154 (continued)

Step	Questions/Actions	Yes	No
Step 9.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Reinstall Host attachment card 1. • Reinstall Host attachment card 2. • Set the RS/6000 Controller power switch to On. If **c31** is on the controller display, set the mode switch to Normal and then back to Service. The following assumes that attachment cards 1 and 2 work similarly to the SCSI and display cards. **Did any number other than 888 appear on the controller display?**	Go to Step 11.	Go to Step 10.
Step 10.	Perform the following steps: • Set the RS/6000 Controller power switch to Off. • Remove Host attachment card 2. • Set the RS/6000 Controller power switch to On. If **c31** is on the controller display, set the mode switch to Normal and then back to Service. **Is flashing 888 on the controller display?**	• Set the RS/6000 Controller power switch to Off. • Install a new Host attachment card 1. Go to Step 11.	• Set the RS/6000 Controller power switch to Off. • Install a new Host attachment card 2. Go to Step 11.

Table 257. MAP 2154 (continued)

Step	Questions/Actions	Yes	No
Step 11.	• If the controller is type 7009-C10/C20, go to Step 12. • If the controller is a 7012-370 or 7012-390, perform the following steps: – Set the RS/6000 Controller power switch to Off. – Reinstall the Ethernet riser card. – Reconnect serial ports flex cable P16 to the planar. – Set the RS/6000 Controller power switch to On. If **c31** is on the controller display, set the mode switch to Normal and then back to Service. **Is c99 showing on the controller display?**	Go to Step 12.	• Set the RS/6000 Controller power switch to Off. • Install a new Ethernet riser card. Go to Step 12.
Step 12.	• Install all external cables disconnected in Step 1. • If all FRUs have been tested and there is still a problem, call your next level support.		

MAP A000: Host Attachment Detected Errors

MAP A000 BEGINS

Find the SRC in Table 258 and perform the action indicated.

Table 258. Attachment System Reference Codes (SRCs)

SRC	Description	Action
	ESCON Serial Channel	
A000	Program error	1. Restart the RS/6000 Controller. 2. If error repeats, call your next level support.
A001	Functional error	Run card and wrap diagnostics.
A010	Card diagnostics failed; link A	1. Check RS/6000 Controller configuration. 2. Restart the RS/6000 Controller. 3. If error repeats, replace the ESCON card.
A018	Wrap diagnostics failed; link A	1. Ensure that the wrap plug is installed on A. 2. Check RS/6000 Controller configuration. 3. Restart the RS/6000 Controller. 4. If error repeats, replace the ESCON card.
A020	Card diagnostics failed; link B	1. Check RS/6000 Controller configuration. 2. Restart the RS/6000 Controller. 3. If error repeats, replace the ESCON card.
A028	Wrap diagnostics failed; link B	1. Ensure that the wrap plug is installed on B. 2. Check RS/6000 Controller configuration. 3. Restart the RS/6000 Controller. 4. If error repeats, replace the ESCON card.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A030	AIX system call failed	Call your next level support.
A040	Bad RS/6000 Controller configuration values	
A041	General load failure	
A042	No ESCON configuration file	
A050	Data overrun; link A	Check host configuration.
A051	Data overrun; link B	
A052	Lost connection; link A	Restart host.
A053	Lost connection; link B	
A054	Bus out check; link A	Check cabling.
A055	Bus out check; link B	
A056	Online failed; link A	Run diagnostics.
A057	Online failed; link B	
A058	Spurious interrupt; link A	
A059	Spurious interrupt; link B	
A05A	Unknown CCW; link A	Restart the RS/6000 Controller.
A05B	Unknown CCW; link B	
A05C	Forced offline; link A	Re-enable the link.
A05D	Forced offline; link B	
A05E	Link failure; link A	Run card and wrap diagnostics
A05F	Link failure; link B	Run card and wrap diagnostics

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A060	Bit error rate exceeded (log only); link A	1. Run card and wrap diagnostics. Install a new ESCON card if necessary. 2. Ensure the ESCON cables are not too long. 3. The cables are the responsibility of the customer. However, if you find it necessary to check the cables between the host/director, do the following: a. Clean the ends of the ESCON cables. (Use cleaning kit P/N 5453521). b. Multimode link (MM) is used between the printer and the host/director. Check the cable with a light power meter P/N 12G8814, optical source P/N 02G6154, and OMC tool P/N 73F4034. Refer to the manual “Maintenance Information for Enterprise Systems Connections Link”, form number SY27-2597. If you find a problem, inform the customer that a new cable is required.
A061	Bit error rate exceeded (log only); link B	
Parallel Channel		
A201	Data streaming overrun	Check host configuration and RS/6000 Controller configuration.
A203	Online failure	Run diagnostics.
A205	Bus out parity checks	Check cabling.
A206	Functional failed	Run diagnostics.
A209	Card diagnostics failed; interface A	Replace PCA card for channel A.
A210	Card diagnostics failed; interface B	Replace PCA card for channel B.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A211	Wrap diagnostics failed; interface A	1. Ensure that the wrap blocks are installed on A. 2. Check RS/6000 Controller configuration. 3. Restart the RS/6000 Controller. 4. If error repeats, replace the attachment card/cable.
A212	Wrap diagnostics failed; interface B	1. Ensure that the wrap blocks are installed on B. 2. Check RS/6000 Controller configuration. 3. Restart the RS/6000 Controller. 4. If error repeats, replace the attachment card/cable.
A213	Controller configuration failure	Check the configuration data.
A214	AIX system call failure	Call your next level support.
A215	PCA card operation failure	Turn link back online and retry.
A216	PCA card internal error	
A217	Bad file; cannot open	Check configuration.
A218	Program error	Call your next level support.
A220	Bad command for this state	Shut down and retry the operation. If the SRC repeats, call your next level support.
A221	Incomplete sense data received	Retry the operation. If the SRC repeats, call your next level support.
A222	Data received after the acknowledgement request	

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
	TCP/IP	
A400	Token Ring diagnostics timeout	The diagnostic was cancelled because it did not complete within 8 minutes. Token ring diagnostics may generate this error even when there is no hardware failure. 1. Shutdown the printer. 2. Ensure that the token ring cable is an IBM cable or equivalent with built-in wrap capability and is connected or disconnected as directed in the diagnostic you are running. 3. Reseat the Token Ring adapter card. 4. Power on and retry the diagnostic. 5. If you can not enable the token ring adapter or the customer communications still fail, try replacing the following hardware, one at a time, until the problem is corrected: a. Install a new token ring adapter card. b. Install a new token ring cable. c. Install a new system planar. 6. Call your next level support.
A401	Token Ring basic test failed	1. Shutdown the printer. 2. Do the following, one step at a time, until the problem is corrected: a. Install a new token ring adapter card. b. Install a new system planar.
A402	Token Ring wrap test failed	The wrap tests do not work for this RISC system as configured. Follow the procedures for SRC A400 for this RISC system.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A403	Ethernet diagnostics timeout	The diagnostic was cancelled because it did not complete within 8 minutes. 1. Ensure that the correct IBM transceiver is used. 2. Ensure that the cables, transceiver, and wrap plug, are connected or disconnected as directed in the diagnostic you are running. 3. If the connections are correct, do the following one at a time until the problem is corrected: For an RS/6000-Type 7012 Model 370/390 controller: a. Install a new riser card. b. Install a new system planar. For an RS/6000-Type 7009 Model C10/C20 controller: a. Install a new adapter card. 4. If you are unable to enable ethernet or the customer communications still fail, call your next level support.
A404	Ethernet basic test failed	Do the following, one step at a time, until the problem is corrected: For an RS/6000-Type 7012 Model 370/390 controller: 1. Install a new riser card. 2. Install a new system planar. For an RS/6000-Type 7009 Model C10/C20 controller: 1. Install a new adapter card.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A405	Ethernet port wrap test failed	1. Ensure that the correct wrap connector is being used and that it is connected correctly. 2. If the error repeats, do the following one step at a time until the problem is corrected: For an RS/6000-Type 7012 Model 370/390 controller: a. Install a new riser card. b. Install a new system planar. For an RS/6000-Type 7009 Model C10/C20 controller: a. Install a new adapter card.
A406	Ethernet 10Base2 wrap test failed	1. Ensure that the correct wrap connector is being used and that it is connected correctly. 2. Ensure that the jumpers are in the lower (thin) position on the riser card if the thin coax port is being used. 3. If the error repeats, do the following one step at a time until the problem is corrected: For an RS/6000—Type 7012 Model 370 Controller: a. Install a new riser card. b. Install a new system planar. For an RS/6000—Type 7009 Model C10 Controller: a. Install a new adapter card.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A407	Ethernet 10BaseT transceiver test failed	1. Ensure that an IBM 10BaseT transceiver is being used and that it is connected correctly and that the test switch on the transceiver is in the Off position. 2. If the transceiver is correct, remove the 10BaseT transceiver and run the Ethernet card wrap diagnostic. • If no error occurs, install a new 10BaseT transceiver. • If an error occurs, follow the action for the new error.
A40D	FDDI diagnostics timeout	The diagnostic was cancelled because it did not complete within eight minutes. FDDI diagnostics may generate this error even when there is no hardware failure. 1. Shutdown the printer. 2. Ensure that the cables, transceiver, and wrap plug are connected or disconnected as directed in the diagnostic you are running. 3. Reseat the FDDI adapter card. 4. Power on and retry the diagnostic. 5. If hardware is available, do the following, one step at a time, until the problem is corrected: a. Install a new FDDI adapter card. b. Install a new FDDI cable. c. Install a new system planar. 6. Call your next level support.
A40E	FDDI basic test failed	1. Shutdown the printer. 2. Do the following, one step at a time, until the problem is corrected: a. Install a new FDDI adapter card. b. Install a new system planar.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A40F	FDDI wrap test failed	The wrap tests do not work for this RISC system as configured. Follow the procedures for SRC A40D for this RISC system.
A410	Ethernet diagnostic/hardware setting mismatch	This SRC should only appear if the controller is an RS/6000—Type 7012 Model 370 Controller. • Ensure that the jumpers are in the upper (thick) position on the riser card if you are running the 10BaseT transceiver test or the Ethernet Port Wrap test.
A440	PSF protocol error	1. Repeat and capture attachment trace if possible. 2. Call your next level support.
A441	ASA protocol error	
A442	Internal error	
Ethernet TCP/IP		
A450	Local software	1. Repeat and capture attachment trace if possible. 2. Call your next level support.
A451	Remote software	
A452	Network software	1. Report network problems to site system/LAN administrator. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A453	Unknown software	1. Repeat and capture attachment trace if possible. 2. Call your next level support.
A454	Local hardware	1. Perform hardware diagnostics on local attachment hardware. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A455	Remote hardware	1. Perform hardware diagnostics on remote hardware attachment. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A456	Network hardware	1. Report network problems to site system/LAN administrator. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A457	Unknown hardware	1. Perform hardware diagnostics on local attachment hardware. 2. Perform hardware diagnostics on remote hardware attachment. 3. Report network problems to site system/LAN administrator. 4. Repeat and capture attachment trace if possible. 5. Call your next level support.
A458	Local unknown	1. Perform hardware diagnostics on local attachment hardware. 2. Perform hardware diagnostics on remote hardware attachment. 3. Report network problems to site system/LAN administrator. 4. Check the ethernet configuration. 5. If necessary, reconfigure and restart printer. 6. Repeat and capture attachment trace if possible. 7. Call your next level support.
A459	Remote unknown	
A45A	Network unknown	
A45B	General runtime error	
A45C	Invalid configuration during enable	1. Check the ethernet configuration items. 2. If necessary, reconfigure and restart printer. 3. Report network problems to site system/LAN administrator. 4. Repeat and print the internal control unit trace. 5. Call your next level support.
A45D	Invalid configuation while running	
Token Ring TCP/IP		
A460	Local software	1. Repeat and capture attachment trace if possible. 2. Call your next level support.
A461	Remote software	

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A462	Network software	1. Report network problems to site system/LAN administrator. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A463	Unknown software	1. Repeat and capture attachment trace if possible. 2. Call your next level support.
A464	Local hardware	1. Perform hardware diagnostics on local attachment hardware. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A465	Remote hardware	1. Perform hardware diagnostics on remote hardware attachment. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A466	Network hardware	1. Report network problems to site system/LAN administrator. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A467	Unknown hardware	1. Perform hardware diagnostics on local attachment hardware. 2. Perform hardware diagnostics on remote hardware attachment. 3. Report network problems to site system/LAN administrator. 4. Repeat and capture attachment trace if possible. 5. Call your next level support.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A468	Local unknown	1. Perform hardware diagnostics on local attachment hardware. 2. Perform hardware diagnostics on remote hardware attachment. 3. Report network problems to site system/LAN administrator. 4. Check the token ring configuration items. 5. If necessary, reconfigure and restart printer. 6. Repeat and capture attachment trace if possible. 7. Call your next level support.
A469	Remote unknown	
A46A	Network unknown	
A46B	General runtine error	
A46C	Invalid configuration during enable	1. Check the token ring configuration items. 2. If necessary, reconfigure and restart printer. 3. Report network problems to site system/LAN administrator. 4. Repeat and print the internal control unit trace. 5. Call your next level support.
A46D	Invalid configuration while running	

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
	FDDI TCP/IP	
A470	Local software	1. Repeat and capture attachment trace if possible. 2. Call your next level support.
A471	Remote software	
A472	Network software	1. Report network problems to site system/LAN administrator. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A473	Unknown software	1. Repeat and capture attachment trace if possible. 2. Call your next level support.
A474	Local hardware	1. Perform hardware diagnostics on local attachment hardware. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A475	Remote hardware	1. Perform hardware diagnostics on remote hardware attachment. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A476	Network hardware	1. Report network problems to site system/LAN administrator. 2. Repeat and capture attachment trace if possible. 3. Call your next level support.
A477	Unknown hardware	1. Perform hardware diagnostics on local attachment hardware. 2. Perform hardware diagnostics on remote hardware attachment. 3. Report network problems to site system/LAN administrator. 4. Repeat and capture attachment trace if possible. 5. Call your next level support.

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
A478	Local unknown	1. Perform hardware diagnostics on local attachment hardware. 2. Perform hardware diagnostics on remote hardware attachment. 3. Report network problems to site system/LAN administrator. 4. Check the FDDI configuration items. 5. If necessary, reconfigure and restart printer. 6. Repeat and capture attachment trace if possible. 7. Call your next level support.
A479	Remote unknown	
A47A	FDDI TCP/IP: Network unknown	
A47B	FDDI TCP/IP: General run time error	
A47C	FDDI TCP/IP: Invalid configuration during enable	1. Check the FDDI configuration itetms. 2. If necessary, reconfigure and restart printer. 3. Report network problems to site system/LAN administrator. 4. Repeat and print the internal control unit trace. 5. Call your next level support.
A47D	FDDI TCP/IP: Invalid configuration while running	

Table 258. Attachment System Reference Codes (SRCs) (continued)

SRC	Description	Action
Internal Print Driver		
A501	Invalid internal event	1. Run trace. 2. Call your next level support.
A502	Error opening or reading file	1. Run disk diagnostics. 2. Run trace. 3. Call your next level support.
A503	Unexpected acknowledgment received	1. Run trace. 2. Call your next level support.
A504	Host recovery bit set	
A505	Invalid request from attachment subsystem application	
Attachment Subsystem Application		
AF00	Cannot open attachment driver	1. Check whether attachment is valid for printer type. 2. Run diagnostics on attachment.
AF01	Cannot create a file	1. POR (see Power-On Reset). Or run the RS/6000 Controller diagnostics to check disk. 2. Run trace. 3. Call your next level support.
AF02	Cannot open a file	
AF11	Attachment card not found since last shutdown	1. Ensure that the card is installed. 2. If found, install a new attachment card. 3. If not found, install an attachment card as needed.

MAP B000: Printer Detected Errors

MAP B000 BEGINS

SRCs B000 through BA02 are not displayed, but are logged. They record certain operator actions that may be important in identifying a microcode problem.

Find the SRC in Table 259 and perform the action indicated.

Table 259. Printer System Reference Codes (SRCs)

SRC	Description	Action
B000	Printer has been powered on or controller has been restarted.	No action required (not a hardware failure). This SRC is logged for information only.
B001	Communication link to a host (attachment) has been enabled.	
B002	Communication link to a host (attachment) has been disabled or reset by the host.	
B003	Printer attributes have been changed.	
B004	MICR (magnetic ink character reader) postprocessor has been enabled.	
B005	MICR postprocessor has been disabled.	
B006	Burster-trimmer-stacker state has changed (postprocessor enabled or disabled).	
B007	Medium modifier has been enabled or disabled by the postprocessor.	
B008	Stacker has been enabled or disabled.	

Table 259. Printer System Reference Codes (SRCs) (continued)

SRC	Description	Action
B009	Print position adjustment has been changed. Pages not yet committed will be discarded and the job will be resent by the host.	No action required (not a hardware failure). This SRC is logged for information only.
B00A	Job has been canceled. Pages not yet committed will be discarded and the job will be canceled by the host.	
B00C	Printer has been made Not Ready.	
B00D	Operator has overridden jam recovery.	
B00E	Jam recovery has been suppressed. This is typically due to a “direct attached” application or for printing a sensitive job such as checks with MICR printing.	No action required (not a hardware failure). This SRC is logged for information only. Job repositioning must be done by the operator.
B010	Attachment has been suspended. This is done prior to running diagnostics or internal print.	No action required (not a hardware failure). This SRC is logged for information only.
B011	Attachment has been released from suspension. This is done prior to running diagnostics or internal print.	
B012	Paper path has been rethreaded. Pages not yet to the jam recovery point will be discarded and reprinted by the host.	
BA00	Hard program check, type 1.	No action required (not a hardware failure). This SRC is logged for information only. If the customer is having problems with hard program checks, call your next level support and report the sense data from the log.
BA01	Hard program check, type 2.	
BA02	Hard program check, type 3.	

Table 259. Printer System Reference Codes (SRCs) (continued)

SRC	Description	Action
BC01	Invalid paper size.	1. Ensure that the configuration form size is valid. 2. Shut down the system and power off. 3. Power on and retry. 4. If the problem continues, call your next level support.
BC02	Invalid print head resolution.	1. Shut down the system and power off. 2. Power on and retry. 3. If the problem continues, call your next level support.
BC03	Invalid forms source.	
BC04	Invalid maximum forms size.	1. Shut down the system and power off. 2. Power on and retry. 3. If the problem continues, call your next level support.
BC05	Memory size has changed.	The detected memory size does not match the configuration memory size. Each time you enter the Service Action screen the configuration memory size is updated to match the current detected memory value. 1. Select the Service Action screen, log on and observe the displayed memory size. 2. Compare the displayed memory value with the actual memory that is installed in the controller. 3. If the displayed memory value is correct, clear the error by pressing Check/Reset while logged into Service Mode. 4. If the displayed memory value does not match the actual value, go to MAP 2000: Controller Start Map to diagnose the Controller problem.
BF01	File read error (hard disk).	1. Perform the RS/6000 Controller problem determination procedure in MAP 2002: Problem Determination Procedure.
BF02	File write error (hard disk).	
BF03	Hard disk backup to diskette failure.	

MAP C000: AFCCU Detected Errors

MAP C000 BEGINS

Find the SRC in Table 260 and perform the action indicated.

Table 260. AFCCU Detected System Reference Codes (SRCs)

SRC	Description	Action
C000	Display/Touch Screen error	Check for a 3-digit number displayed on the front of the RS/6000 Controller. • If a number is displayed, go to MAP 2002: Problem Determination Procedure to look for a problem with the RS/6000 Controller. If there appears to be a problem with the serial port, disconnect the touch screen connector at the back of the RS/6000 Controller and try the problem determination procedure again. **Notes:** 1. Ensure that the Display/Touch Screen is plugged into serial port **2** on Type 7012 Model 370/390 controllers. 2. Ensure that you are using the Y-cable adapter plugged into slot **3** of Type 7009 Model C10/C20 controllers and that the Display/Touch Screen is plugged into the high order connector number on the Y-cable. – If a serial port problem is indicated again, install a new planar board in the RS/6000 Controller. – If no error is indicated, reconnect the touch panel connector and try again. If the problem occurs again, install a new Display/touch screen. • If no number is displayed on the controller, contact your technical support before installing a new Display/Touch Screen.

Table 260. AFCCU Detected System Reference Codes (SRCs) (continued)

SRC	Description	Action
C001	Operator panel error	The Operator panel was not available when the AFCCU attempted to display a message on it. Check for a 3-digit number displayed on the front of the RS/6000 Controller. • If a number is displayed, go to MAP 2002: Problem Determination Procedure to look for a problem with the RS/6000 Controller. • If no number is displayed on the controller, do the following: 1. Perform the MIC isolation wrap test. Install a new Mechanism Interface Card (MIC) if the test fails. 2. If the test completes successfully, install a new Operator Panel. 3. If the problem continues, install a new Buffer Card.
C002	Microcode update diskette error	An error was detected after the initial diskette check was successful. 1. POR the machine (see Power-On Reset). 2. Perform the microcode update procedure again. 3. If the problem continues, call your next level support.

Table 260. AFCCU Detected System Reference Codes (SRCs) (continued)

SRC	Description	Action
C003	Microcode update failed	An error was detected when moving files to storage (after diskettes were successfully read). Check for a 3-digit number displayed on the front of the RS/6000 Controller. • If a number is displayed, go to MAP 2002: Problem Determination Procedure to look for a problem with the RS/6000 Controller. • If no number is displayed on the controller, do the following: 1. POR the machine (see Power-On Reset). 2. If the error reoccurs, perform the microcode update procedure again. 3. If the problem continues, call your next level support.
C004	Microcode update failed	
C005	X Window event	No action is required (not a failure). This SRC is logged for information only.

MAP D000: Mechanism Interface Card (MIC) Detected

MAP D000 BEGINS

Find the SRC in Table 261 and perform the action indicated.

Table 261. Mechanism System Reference Codes (SRCs)

SRC	Description	Action
D080	Mechanism Interface Card (MIC) abort	1. Observe the MIC LED display. Record the numbers displayed between the **(-)** displays. 2. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. • If an error occurs, install a new MIC. • If no error occurs, reconnect the MIC. if the error is displayed again, call your next level support. You will be asked for the numbers you recorded from the LED display.
D081	MIC permanent error	
D082	MIC error during internal diagnostic tests	1. Observe the MIC LED display. Record the numbers displayed between the **(-)** displays. 2. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. • If an error occurs, install a new MIC. • If no error occurs, reconnect the MIC. If the D082 error is displayed again, call your next level support. You will be asked for the numbers you recorded from the LED display.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D083	MIC failure during initial power on EPROM diagnostics	1. Observe the MIC LED display. Record the numbers displayed between the **(-)** displays. 2. Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. • If an error occurs, install a new MIC. • If no error occurs, reconnect the MIC. If the D083 error is displayed again, call your next level support. You will be asked for the numbers you recorded from the LED display.
D084	MIC microcode error	The MIC is powered by the printer to which it is attached. To reset the MIC, power the printer off, and then on again. If the problem recurs, call your next level support.
D090	MIC failure during attention light test	Go to MAP 0321: Operator Alert Light Problem.
D091	MIC failure during printer ACTIVATE test	Go to MAP 0600: Printer Interface Map.
D092	MIC failure during printer interface test	
D093	MIC failure during alarm test	Go to MAP 0322: Operator Alert Alarm Problem.
D095	MIC failure during intelligent interface wrap test	Go to MAP 0820: Intelligent Pre/Processing Interfaces.
D096	MIC failure during coupled interface wrap test	Go to MAP 0810: Coupled Pre/Processing Interfaces.
D097	MIC failure during pre/post run motor test	
D098	MIC failure during pre/post offset test	
D099	MIC failure during printer DORMANT test	Go to MAP 0600: Printer Interface Map.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D201	Fuser warming timeout	No action required. This SRC is only an event marker for the error log to assist in microcode problems.
D202	Pre/post PAUSE active for more than 100 seconds	
D203	Pre/post STOP line became active	No action required. This SRC is only an event marker for the error log to assist in microcode problems. If this signal should not have become active, go to MAP 0800: Pre/Postprocessing Interface Start Map.
D204	Pre/post NOT READY line became active	
D205	PAGE COMPLETE timeout	No action required. This SRC is only an event marker for the error log to assist in microcode problems.
D206	START selected before forms threaded/aligned	

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D208	Communication with the MIC has failed.	If this problem is intermittant, it is likely a noise problem. Ensure the SCSI cables are not coiled or routed near an AC power source. Perform a shutdown and power off of the printer system. Wait 2 minutes before you power the printer system back on. The printer may have been powered off and then powered back on with less than a 2 minute delay. The user must wait at least 2 minutes before powering a printer back on to avoid this error. This problem may be caused by a power control failure, a MIC or SCSI failure, or a microcode problem. 1. If the printer was powered off, but the control unit was not, you must perform a**Restart** after the printer is powered back on. 2. Ensure the SCSI card is installed in slot 1 of the controller. • If this is a DR1/DR2 with a Type 7013 Model 591 controller, the SCSI cards are in slots **6** and **8**. • If this is a IRx with a Type 7025 Model F50 controller, the SCSI cards in slots **1** and **9**. 3. Check and reseat both ends of the SCSI cables. 4. Check the jumper position on the MIC.. 5. Check all the connectors on the Mechanism Interface Card (MIC) for bent or broken pins. (continued on next page)

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D208 (cont.)		6. If this is a four-beam printhead, check continuity between connectors PJH02 and PJMJ10. 7. If the printer appears to have a power problem, go to MAP 0500: Power Control – Simplex Printing System or MAP 0501: Power Control – Duplex Printing System. 8. If the printer powers up okay, perform the Mechanism Interface Card (MIC) Isolation Wrap Test. • If an error occurs, install a new MIC. • If no error occurs, there may be a problem with the following: a. Connector PJ510 b. SCSI cable (damaged connector pins, loose connection or not plugged in straight, terminator missing) c. The differential SCSI adapter in the microchannel slots in the RS/6000 Controller. 9. Call your next level support.
D20A	Pre/postprocessor BUSY signal was active more than the amount of time defined in the pre/postprocessor configuration value.	If this signal should not have become active, go to MAP 0800: Pre/Postprocessing Interface Start Map. Otherwise, no action required. This SRC is only an event marker for the error log to assist in microcode problems.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D20B	Incorrect printer speed	Do the following, one step at a time, until the problem is corrected. 1. Check to ensure that the Speed Select Switches on both printers are set to the same speed for printers with the Speed Select Feature installed. 2. Check and reseat the following connectors: • PJ481 on the B1 Board • PJ515 on the SQ081/SQ082 Card • PJ516 on the SQ081/SQ082 Card **Notes:** a. Connector PJ516 must be plugged into the SQ081/SQ082 Card for printers that are running at 150 PPM or that have the Speed-Select Switch feature installed. b. Connector PJ516 must be disconnected for printers that are running at 229 PPM. • PJ205 on the printer/control unit interface • PP5 in the control unit • Ensure that there is continuity between connectors PJ205-7 and PJ205-8 if running in duplex mode at 150 PPM. 3. Install a new SQ081/SQ082 Card. 4. Install a new B1J9 Card. 5. Install a new B1J10 Card.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D20C	Forms length mismatch	Do the following, one step at a time, until the problem is corrected: 1. Ensure that the form size (in Define Forms procedure of the Operator's Guide) matches the form that is installed, and the form length set at the stacker. 2. Go to MAP 0176: Stacker Forms Length Sensor. If you do not find the problem with MAP 0176: Stacker Forms Length Sensor, continue with the following step. 3. If the lengths in the form size setting, the form, and the stacker length are the same and you find no hardware problem, call your next level support.
D20D	Forms width mismatch	1. Ensure that the form size (in Define Forms procedure of the Operator's Guide) matches the form that is installed. 2. Go to MAP 0117: Forms Width Sensor. If you do not find the problem with MAP 0117: Forms Width Sensor, continue with the following step. 3. If the widths in the form size and the form are the same and you find no hardware problem, call your next level support.
D20E	Pre/postprocessor power is off	Do the following: • Check the pre/postprocessor for errors. • Change the pre/postprocessor device busy timer configuration value if necessary. (Refer to the *Operator's Guide*) • If the error still occurs, call your next level support.
D20F	Undefined character received by intelligent interface Error messages may be printed at the end of the job.	This error is usually a host application problem. If the application owner and system programmer cannot identify an application problem, go to MAP 0820: Intelligent Pre/Processing Interfaces.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D210	Illegal position received by intelligent interface Error messages may be printed at the end of the job.	Do the following: 1. Ensure that the form size required by the application is loaded in the printer and postprocessor. 2. This error is usually a host application problem. If the application owner and system programmer cannot identify an application problem, go to MAP 0820: Intelligent Pre/Processing Interfaces.
D211	Illegal medium modification received by intelligent interface Error messages may be printed at the end of the job.	Intelligent postprocessor devices support a set of medium modifications. The application sent a medium modification ID in the Select Medium Modification (SMM) command that is not supported by this device. If the application owner and system programmer cannot identify an application problem, go to MAP 0820: Intelligent Pre/Processing Interfaces.
D212	MICR data received while MICR option disabled	Do the following: 1. Ensure that the postprocessor is fully enabled. Some postprocessors will feed paper, but the MICR application can be disabled through a key, switch, or other means. (See the operator manual for the postprocessor.) 2. Ensure that the postprocessor is configured correctly and enabled. See “Configuring Pre/Postprocessing Devices/Interfaces” in the Operator’s Guide. 3. Go to MAP 0820: Intelligent Pre/Processing Interfaces.
D213	Availability of intelligent postprocessor has changed	The availability of medium modifications on the intelligent postprocessor has changed. (Examples of possible medium modifications are perforations and separation cuts.) Do the following: 1. Check the pre/postprocessor for errors. 2. If the error still occurs, call your next level support.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D214	Intelligent postprocessor forms jam.	Do the following: • Clear all jams and ensure that the forms match the current forms setting in the postprocessor. • If the error still occurs, go to MAP 0820: Intelligent Pre/Processing Interfaces.
D215	MIC to intelligent interface communications failure	Do the following: 1. Ensure that the postprocessor is powered on, online, and ready. 2. If a Troy postprocessor is being used, ensure that its “Distance to Postprocessor” value in the Pre/Postprocessing Configuration is set to 99 inches or less. Any value greater than 99 is not valid for a Troy postprocessor. 3. Go to MAP 0820: Intelligent Pre/Processing Interfaces.
D216	Intelligent interface response timeout	Go to MAP 0820: Intelligent Pre/Processing Interfaces.
D217	Command rejected by intelligent interface	
D218	Intelligent interface responded, but is not in configuration	Do the following: 1. Ensure that the intelligent interface is configured correctly. 2. If you find no problem, go to MAP 0820: Intelligent Pre/Processing Interfaces.
D219	Intelligent interface type not recognized	If this type of intelligent interface is supported by the 3900, go to MAP 0820: Intelligent Pre/Processing Interfaces. If the device is not supported, the device must be disconnected and disabled before the printer will operate.
D21A	Intelligent postprocessor restarted	No action required (not a hardware failure). This SRC is displayed and logged for information only.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D21B	Intelligent postprocessor failed to clear buffer	Go to MAP 0820: Intelligent Pre/Processing Interfaces.
D21C	PAGE COMPLETE not sent by intelligent interface	
D21E	Side 2 verify has stopped checking pages.	A critical software check has been activated. Call your next level of support.
D702	Out of data while printing	Go to MAP 0600: Printer Interface Map.
D703	Printer unable to do requested command	Go to MAP 0600: Printer Interface Map.
D705	Printhead overrun while printing	
D706	Beam detect not received	Single Beam Printheads - Go to MAP D706: Beam Detect Missing (For Single-Beam Printhead)Multi-Beam Printheads go to MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads).
D707	Loss of printer DVS (vertical sync) pulse	Go to MAP 0600: Printer Interface Map.
D70B	Printhead underrun	
D70C	Print buffers out of sequence	• Perform the Mechanism Interface Card (MIC) Isolation Wrap Test. – If the errror still occurs, install a new MIC. – If no error occurs, reset the Controller. – If D70C reoccurs, contact your next level support.
D70D	DVS (vertical sync) pulse frequency is incorrect. • Low laser power • Noise on the printer interface cable	Single Beam Printheads - Go to MAP D706: Beam Detect Missing (For Single-Beam Printhead)Multi-Beam Printheads go to MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads). If laser power is adequate, go to MAP 0600: Printer Interface Map.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D70E	MIC parity error	There may be noise on the printer interface cable. Go to MAP 0600: Printer Interface Map.
D70F	MIC print quality enhancement (PQE) error	There may be noise on the printer interface cable. Install new parts, one at a time, until the problem is fixed. 1. PQE Card 2. Mechanism Interface Card (MIC)
D713	Operator panel failed	Go to MAP 0300: Operator Panel Start Map.
D714	MIC timer 2 failed	Restart the system from the operator menu. If the problem continues, install a new MIC.
D715	Parity error between MIC and PQE card	Restart the system from the operator menu. If the problem continues, install new parts, one at a time, until the problem is fixed. 1. PQE Card 2. Mechanism Interface Card (MIC)
D716	PQE card failed to initialize	Restart the system from the operator menu. For all other printers, if the problem continues, install a new PQE Card.
D717	Early ACK received from intelligent interface	Go to MAP 0820: Intelligent Pre/Processing Interfaces.
D718	MIC failed to send frame to intelligent interface	
D719	Response timeout on intelligent interface	Record the sense information for this error from the error log. Go to MAP 0820: Intelligent Pre/Processing Interfaces.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D71A	Noise detected on pre/post port 1	Go to MAP 0800: Pre/Postprocessing Interface Start Map.
D71B	Noise detected on pre/post port 2	
D71C	Noise detected on pre/post port 3	
D71D	6 PPI sync pulse from printer is missing	
D71E	Scan line error while printing	For a printer with a two-beam or four-beam printhead, the error could be caused by one of the beams not being detected at the BD card. Perform the following: 1. Beam Detect Mirror Check (2094) 2. Beam Power Check (2094) Another likely cause of this failure on all printers is electrical noise. Check the following: 1. Coronas 2. Corona high voltage cables 3. High Voltage Power Supply 4. Developer bias cable 5. Arcing of the developer bias to ground in or on the developer. 6. Static discharge If all sources of electrical noise have been eliminated and the problem still occurs, replace the Mechanism Interface Card (MIC).

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D71F	Side 1/side 2 mismatch	Side 1 and side 2 of the forms are misaligned by at least one full page. 1. Perform the thread/align forms procedure. 2. Verify the print quality of the verification marks. Check for light or smeared print. Fix any print quality problems. 3. Do the following, one at a time, until the problem is fixed. a. Clean the Side 1/Side 2 Verification Sensor. b. Install a new Side1/Side 2 Verification Sensor Card. c. Install a new Mechanism Interface Card (MIC).
D720	Verification mark position incorrect	Do the following, one at a time, until the problem is fixed. 1. Examine the forms being used. Pre-printed marks within the carrier strip will cause this error. Also some colored forms may cause the error. The duplex verification feature can be disabled so that these types of forms can be used in the printer. See “Configuring Pre/Post Devices/Interfaces” in the Operator’s Guide. 2. Perform the Side1/Side 2 Verification Sensor Card adjustment. See Side 1/Side 2 Verification Sensor Card. 3. Verify the print quality of the verification marks. Check for light or smeared print. Fix any print quality problems. 4. Check the forms alignment on printer 1 and printer 2. The perforation must be aligned correctly. See “Checking Forms Alignment” in the *Operator’s Guide*. 5. Perform the Upper and Lower tractor timing adjustments.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D721	Hardware Error: verification sensor error	• If the Side 1/Side 2 Verification function is not installed in the printer, ensure that **Enabled** is set to **No** for the **Side2Verify** selection of the **Configure Pre/Postprocessors** window. If D721 occurs again, call your next level support. • If the Side 1/Side 2 Verification function is installed, perform the following: – If the error occurs before any pages are printed, do the following, one at a time, until the problem is fixed. 1. Install a new Side1/Side 2 Verification Sensor Card. 2. Install a new Side 1/Side 2 Verification Control Card 3. Inspect all Side 1/Side 2 Verification Cables for damage. Repair if necessary. 4. Install a new Mechanism Interface Card (MIC). – If the error occurs after at least five pages are printed, do the following, one at a time, until the problem is fixed: 1. Clean the Side 1/Side 2 Verification Sensor. 2. Check the print contrast setting. 3. Check for light, smeared, or missing verification marks. 4. Check the forms alignment on printer 1 and printer 2. The perforation must be aligned correctly. See “Checking Forms Alignment” in the Operator’s Guide. 5. Perform the adjustment procedure in Side 1/Side 2 Verification Sensor Card. 6. Perform the upper and lower tractor timing adjustments.

Table 261. Mechanism System Reference Codes (SRCs) (continued)

SRC	Description	Action
D723	MIC memory error	Reseat the memory cards on the MIC. If the errror still occurs, install a new MIC memory card one at a time until the problem is fixed.
D724	Side 2 verify has been disabled.	No action is required (not a hardware error). The error is posted if working side 2 verify hardware is detected, but has not been enabled by the operator. To prevent the error, ensure that **Enabled** is set to **Yes** for the **Side2Verify** selection of the **Configure Pre/Postprocessors** window. If Side 1/Side 2 verification hardware is not installed in the printer, install a new Mechanism Interface Card (MIC).
D725	Side 2 verify diagnostic mode running.	No action required (not a hardware error). The SRC is logged when side 2 verify has been disabled to run CE diagnostics.
D726	Side 2 verify diagnostic mode stopped.	

MAP D706: Beam Detect Missing (For Single-Beam Printhead)

Symptom Explanation	Conditions That Could Cause This Symptom
The MIC (Mechanism Interface Card) has not detected the start-of-scan signal from the Beam Detect Card (BDxxx).	• The Beam Detect Sensor does not have enough laser beam power. • The laser beam is misaligned at the Beam Detect Sensor. • There is a failure in the control unit or in the connections to the printhead.

REFERENCES

- Removals & Adjustments - Single Beam Printhead
- Circuit Diagrams - CD123 - Beam Detect (BD121) — (Single Beam)
- Wiring Diagrams -
  WD38 - Printer DC Power Distribution (Printers without M610)
  WD42 - Laser Modulator and Beam Detect (Single Beam Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).
  An error is indicated by SRC D706.

QUICK CHECKS

If the printer is newly installed and has never printed:

- Ensure that the coaxial cables to the Mechanism Interface Card (MIC) are correctly connected (not reversed and firmly seated) at both ends.
- One or more of the mirrors may have moved in shipment. Do not loosen the laser or the laser support bracket. Adjust only Mirror 1, Mirror 2, or the Beam Detect Mirror if it is necessary to change the beam position. You will be guided by this MAP.

If the problem occurs after the printhead or printer was serviced:

- Ensure that the coaxial cables to the Mechanism Interface Card (MIC) are correctly connected (not reversed and firmly seated) at both ends.
- Ensure that the printhead cover is in place, and that the Laser Safety Filter operating tab on the inside of the inner printhead cover was inserted into the Safety Filter slot.
- Ensure that the Laser Shutter is in the open position. It may have been pushed closed if someone was recently working on the printhead or a laser was installed.

SERVICE CHECKS

- Run Adjustment Routine C0. If both LEDs on the Beam Detect Card (BDxxx) are on, the printhead is not causing the D706 error.
- Use the Mechanism Interface Card (MIC) Isolation Wrap Test to confirm a problem in the DBD and CVD coaxial cables.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Laser Unit adjustment	40%	Printhead Links		
AO Modulator (AM201) adjustment	20%	Printhead Links		
AO Modulator (AM201)	%	Printhead Links		
AOM Driver (AM202)	%	Printhead Links		
Beam Detect Mirror adjustment	20%	Printhead Links		
Mechanism Interface Card (MIC)	%	Control Unit Links		
PQE Card	%	Control Unit Links		
Toner Control Card PCxxx	%	2053	3199	2402
Printhead Interface Card (VIxxx)	%	Printhead Links		
Printer Coax BD Cable	01%	Printer Interface Links		

MAP D706 BEGINS

Table 262. MAP D706

Step	Questions/Actions	Yes	No
	DANGER **<19> Abnormally high laser power may be present.** **Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.**		
	DANGER **<2> Laser radiation is present when the printer is powered-on.** **Avoid direct exposure to the laser beam.** **Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.** **Do not push the laser filter slide while the printer is powered-on.**		

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 1.	**Important** Follow the correct shutdown and power-off procedures for the 3900 and attached devices. You must power-off the control unit after an SRC D706. This is to ensure that the control unit will no longer be driving the AO Modulator (and Primary Beam) after the error. In other words, the laser beam may be "locked on" until you power-off the control unit. The laser beam will be off, as normal, when you power-on again. **Does the printer you are working on have a single-beam printhead?**	Go to Step 2.	Go to the appropriate MAP.

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 2.	• SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Printhead covers. • Ensure that the safety filter is in the correct position. • Cover the Return Mirror with paper to protect the PC Drum. • Ensure that the Laser Shutter is in the open position. • Place the Diagnostic Function Switch in position **3**. • Power on the printer. • Run Adjustment Routine C0 to turn on the scanning, primary (printing) beam. • Press **ENTER** as necessary to turn on the Mirror Motor (M201) (you will be able to hear it). Check for the scan line on the Return Mirror. • Observe LEDs on the Beam Detect Card (BD121). **Are the LEDs on?**	Go to Step 3.	Go to Step 5.

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 3.	The C0 test indicates that there should be enough power to avoid the D706 error. The problem is probably in the control unit or the connections to the printhead. **Important** Even though the current Printhead adjustment will not cause the D706 error, there may not be enough power to avoid print quality problems. If you were sent here by a print quality MAP, perform Beam Power Check. • If this is a new installation or the control unit has been recently attached, check the following coaxial connectors at the printer interface plate: – PJ203 on the printer connector labeled DBD. – PJ204 on the printer connector labeled CVD. **Are the connectors correctly installed?**	Go to Step 4.	• Install the connectors correctly.

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Run the Mechanism Interface Card (MIC) Isolation Wrap Test. **Did the test fail?**	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – Connector pin PJ203-1 and the coaxial connector PJU7 on the MIC (Mechanism Interface Card) – Connector pin PJ204-1 and the coaxial connector PJU1 on the MIC (Mechanism Interface Card) • Install a new MIC (Mechanism Interface Card). • Repair a short circuit to ground in the wiring network described by the following points: – PJ204-1 – Coaxial connector PJU1 on the MIC (Mechanism Interface Card) @ (continued on next page)	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – Connector pin P211-1 and PJ203-1 – Connector pin P206-1 and PJ204-1 • Repair a short circuit to ground in the wiring network described by the following points: – PJ204-1 – PJ206-1 • Repair a short circuit to ground in the wiring network described by the following points: – PJ203-1 – PJ211-1 • Install a new Beam Detect Card (BD121). • Install a new PQE Card. @

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 4 (cont.)		• Repair a short circuit to ground in the wiring network described by the following points: – PJ203-1 – Coaxial connector PJU7 on the MIC (Mechanism Interface Card) @	
Step 5.	The problem is within the printhead, its wiring, or electronics. The control unit is not causing the problem. **Hint** If the printer has recently been installed or moved, the problem is probably caused by movement of Mirror 1, Mirror 2, or the Beam Detect Mirror. One or all of these parts may have moved. This MAP fixes a printhead with multiple problems. **Is there any beam present at the Beam Detect Card (BD121)?**	Go to Step 6.	Go to Step 10.
Step 6.	**Is the beam centered on the Beam Detect Card (BD121) sensor?**	Go to Step 9.	Go to Step 7.

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 7.	**Is the beam displaced in the vertical direction only?**	Go to Step 8.	Go to Step 11.
Step 8.	• Perform the Vertical Adjustment procedure until the beam is centered on the sensor. • Observe the LEDs on the Beam Detect Card (BD121). **Are the LEDs on?**	Although it is possible that only the Beam Detect Mirror adjustment was incorrect, it is possible that another part, such as the Laser, Mirror 1, or Mirror 2, may be out of adjustment. • Perform Beam Power Check. If you find any problems, it may be necessary to perform the entire printhead adjustment sequence, beginning with Zero Beam Alignment Check. **Important** If the printer was newly installed or moved and has never printed, Mirror 1 may have moved. Do not loosen the Laser or the Laser Support Bracket to adjust the Zero Beam Alignment with a new or moved printer. Adjust only Mirror 1.	Go to Step 9.

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 9.	• Perform Beam Power Check. **Is the beam power correct?**	Do the following, one step at a time, until the problem is corrected: • Perform Beam Detect Mirror Check. • Install a new Beam Detect Card (BD121). • Repair an open circuit between one of the following pairs of connectors: – PJ136-27 and PJ212-15 – PJ136-28 and PJ212-16 – PJ136-29 and PJ212-17 – PJ136-30 and PJ212-18 – PJ136-31 and PJ212-19 – PJ136-32 and PJ212-20 – The following must both be open: - PJ1003-70 and PJ464-70 - PJ1003-72 and PJ464-72 @ (continued on next page)	Go to Step 11.
Step 9 (cont.)		• The following must both be open: – PJ1003-69 and PJ464-69 – PJ1003-71 and PJ464-71	

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 10.	Perform the following steps: • Insert a piece of white paper in the beam path between the AO Modulator (AM201) and the safety filter. • Look for the beam on the paper. • Remove the paper. **Could the laser beam be seen on the paper?**	Go to Step 11.	There is no laser beam. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Check the position of the Laser Shutter. It may be shutting off the beam. • Check that the safety filter moves freely and that it is not blocking the beam. • Ensure that the foam between the laser assembly and the printhead is not blocking the beam. • See Zero Beam Alignment Check. The Laser may be installed at an angle that does not permit the beam to enter the printhead. Adjust the Laser position if it is installed at an angle. When you can see the laser beam on the paper, go to Step 11.

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 11.	**Hint** If you always seem to have more than one beam on (that is, you cannot turn the primary beam off), fully power-off using the correct shutdown procedures and power back on again. This is to reset the control unit that may be driving the AO Modulator. Read the formation in the following box. **Important** If the printer was newly installed or moved and has never printed, Mirror 1 may have moved. Do not loosen the Laser or the Laser Support Bracket to adjust the Zero Beam Alignment with a new or moved printer. Adjust only Mirror 1. • Perform Zero Beam Alignment Check and Beam Pattern Check. **Could you make the adjustments correctly?**	Go to Step 12.	There is a failure in the AO Modulator (AM201) or AOM Driver (AM202) circuit. • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Adjust the potentiometer on the AOM Driver (AM202) fully clockwise to ensure maximum power. • Repair an open circuit between one of the following pairs of connectors: – PJ216-1 and PJ472-3 – PJ216-2 and PJ472-8 – PJ215-1 and PJ213-1 – PJ215-2 and PJ213-2 – PJ214-1 and PJ207-1 – PJ214-2 and PJ207-2 @ (continued on next page)

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 11 (cont.)			• Install the new parts listed below, one at a time, until the problem is corrected: – AO Modulator (AM201) – Printhead Interface Card (VI111) – AOM Driver (AM202) – PCxxx Card When you have made the repair, go to Step 12.
Step 12.	**Hint** When only one beam is on at the aperture - that is the zero beam. Go to Printhead Checks and Adjustments and perform Aperture Adjustment through . • Observe the LEDs on the Beam Detect Card (BD121). **Are the LEDs both on?**	Go to Step 13.	Do the following, one step at a time, until the problem is corrected: • See Beam Detect Mirror Check. Ensure that all of the checks (cables, alignment, etc.) have been made. • Install a new Beam Detect Card (BD121). • Install a new Toner Control Card PCxxx. @ (continued on next page)

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 12 (cont.)			• Repair an open circuit between one of the following pairs of connectors: – PJ136-27 and PJ212-15 – PJ136-28 and PJ212-16 – PJ136-29 and PJ212-17 – PJ136-30 and PJ212-18 – PJ136-31 and PJ212-19 – PJ136-32 and PJ212-20 – The following must both be open: - PJ1003-70 and PJ464-70 - PJ1003-72 and PJ464-72 – The following must both be open: - PJ1003-69 and PJ464-69 - PJ1003-71 and PJ464-71 @

Table 262. MAP D706 (continued)

Step	Questions/Actions	Yes	No
Step 13.	Enough primary beam power is present to light the LEDs and to discharge the photoconductor drum. Perform the following steps: • Remove any paper and tape from inside the printhead. • Install the Inner Printhead cover. • Run **primary** print sample. **Does the D706 error still occur?**	Go to Step 14.	The problem is fixed. **Note:** Perform the print Registration checks if any adjustments have been made in the printhead.
Step 14.	The tab on the inner Printhead cover moves the safety filter into the operating position when the cover is in place. **Is the tab in place on the inner Printhead cover?**	A problem may remain in the control unit or the connections to the control unit. **Note:** You need to perform the print Registration checks if any adjustments have been made in the printhead . Return to Step 3.	• Repair the inner Printhead cover as necessary.

MAP D706A: Beam Detect Missing (Two, Four, or Five-Beam Printheads)

Symptom Explanation	Conditions That Could Cause This Symptom
The MIC (Mechanism Interface Card) has not detected the start-of-scan signal from the Beam Detect Card (BDxxx).	• The Beam Detect Sensor does not have enough laser beam power. • The laser beam is misaligned at the Beam Detect Sensor. • There is a failure in the control unit or in the connections to the printhead.

REFERENCES

- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams -
  CD124 - Beam Detect (BD131, BD132, BD141) — (Two, Four, or Five Beam)
- Wiring Diagrams -
  WD38 - Printer DC Power Distribution (Printers without M610)
  WD42.3 - Beam Detect (Multi Beam Printhead)
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).
  An error is indicated by SRC D706.

QUICK CHECKS

If the printer is newly installed and has never printed:

- For the two-beam printhead, ensure that the coaxial cables to the Mechanism Interface Card (MIC) are correctly connected (not reversed and firmly seated) at both ends.
- For the four-beam and five-beam printhead, ensure that the coaxial cables to the PQE Card are correctly connected (not reversed and firmly seated) at both ends.
- One or more of the mirrors may have moved in shipment. Do not loosen the laser or the laser support bracket. Adjust only Mirror 1, Mirror 2, or the Beam Detect Mirror if it is necessary to change the beam position. You will be guided by this MAP.

If the problem occurs after the printhead or printer was serviced:

- For the two-beam printhead, ensure that the coaxial cables to the Mechanism Interface Card (MIC) are correctly connected (not reversed and firmly seated) at both ends.
- For the four-beam and five-beam printhead, ensure that the coaxial cables to the PQE Card are correctly connected (not reversed and firmly seated) at both ends.
- Ensure that the coaxial cables between the printhead and the Printer Interface Card (IFxxx), are correctly connected (not reversed and firmly seated) at both ends.
- Ensure that the printhead cover is in place, and that the Laser Safety Filter operating tab on the inside of the inner printhead cover was inserted into the Safety Filter slot.
- Ensure that the Laser Shutter is in the open position. It may have been pushed closed if someone was recently working on the printhead or a laser was installed.

SERVICE CHECKS

- Run Adjustment Routine C0.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Laser Unit adjustment	40%	Printhead Links		
AO Modulator (AM201) adjustment	20%	Printhead Links		
AO Modulator (AM201)	%	Printhead Links		
AOM Drivers (AM20x)	%	Printhead Links		
Beam Detect Mirror adjustment	20%	Printhead Links		
Mechanism Interface Card (MIC)	%	Control Unit Links		
PQE Card	%	Control Unit Links		
Toner Control Card PCxxx	%	2053	3199	2402
Printhead Interface Card (VIxxx)	%	Printhead Links		
Printer Coax BD Cable	01			

MAP D706A BEGINS

Table 263. MAP D706A

Step	Questions/Actions	Yes	No
	DANGER **<19> Abnormally high laser power may be present.** **Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.**		
	DANGER **<2> Laser radiation is present when the printer is powered-on.** **Avoid direct exposure to the laser beam.** **Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.** **Do not push the laser filter slide while the printer is powered-on.**		

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 1.	**Important** You must power-off the control unit after a SRC D706. This is to ensure that the control unit will no longer be driving the AO Modulator (and Primary Beam) after the error. In other words, the laser beam may be “locked on” until you power off the control unit. The laser beam will be off, as normal when you power on again. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Printhead covers. • Ensure that the safety filter is in the correct position. • Cover the Return Mirror with paper to protect the PC Drum. • Ensure that the Laser Shutter is in the open position. • Place the Diagnostic Function Switch in position **3**. • Power on the printer. • Run Adjustment Routine C0 to turn on the scanning, primary (printing) beam. (continued on next page)		

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	• Press **ENTER** as necessary to turn on the Mirror Motor (M201) (you will be able to hear it). • Check for the scan line on the Return Mirror. **Hint** If the printer has recently been installed or moved, the problem is probably caused by movement of Mirror 1, Mirror 2, or the Beam Detect Mirror. One or all of these parts may have moved. This MAP fixes a printhead with multiple problems. **Is there any beam present at the Beam Detect Card (BDxxx)?**	Go to Step 2.	Go to Step 6.
Step 2.	• Do the following check at both printhead resolutions **Is the beam centered on the white line of the sensor cover on the Beam Detect Card (BDxxx) sensor?**	Go to Step 5.	Go to Step 3.
Step 3.	**Is the beam displaced in the vertical direction only?**	Go to Step 4.	Go to Step 7.

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 4.	• Perform the Vertical Adjustment procedure under Beam Detect Mirror Check, until the beam is centered on the sensor. (2094) • Run Test prints. **Do you still have a D706 SRC?**	Go to Step 5.	Although it is possible that only the Beam Detect Mirror adjustment was incorrect, it is possible that another part, such as the Laser, Mirror 1, or Mirror 2, may be out of adjustment. • Perform the Beam Power Check (2094). If you find any problems, it may be necessary to perform the entire printhead adjustment sequence, beginning with Zero Beam Alignment. **Important** If the printer was newly installed or moved and has never printed, Mirror 1 may have moved. Do not loosen the Laser or the Laser Support Bracket to adjust the Zero Beam Alignment with a new or moved printer. Adjust only Mirror 1.

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 5.	• Perform the Beam Power Check. (2094). **Is the beam power correct?**	Do the following, one step at a time, until the problem is corrected: • Perform the Beam Detect Mirror Check (2094). • Check for continuity of the following wires. If you find an open, repair the open circuit. – PJ136-23 and PJ212-7 – PJ136-24 and PJ212-8 – PJ136-25 and PJ212-9 – PJ136-26 and PJ212-10 – PJ136-27 and PJ212-15 – PJ136-28 and PJ212-16 – PJ136-29 and PJ212-17 – PJ136-30 and PJ212-18 – PJ136-31 and PJ212-19 – PJ136-32 and PJ212-20 – BD and VD coax cables – Install a new Beam Detect Card (BDxxx). @ (continued on next page)	Go to Step 7.
Step 5 (cont.)		• Install a new Mechanism Interface Card (MIC) . @	

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 6.	Perform the following steps: • Insert a piece of white paper in the beam path between the AO Modulator (AM201) and the safety filter. • Look for the beam on the paper. • Remove the paper. **Could the laser beam be seen on the paper?**	Go to Step 7.	There is no laser beam. Perform the following steps: • SHUTDOWN AND POWER OFF THE PRINTER. • Check the position of the Laser Shutter. It may be shutting off the beam. • Check that the safety filter moves freely and that it is not blocking the beam. • Ensure that the foam between the laser assembly and the printhead is not blocking the beam. • The Laser may be installed at an angle that does not permit the beam to enter the printhead. Adjust the Laser position if it is installed at an angle. When you can see the laser beam on the paper, go to Step 7.

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 7.	**Hint** If you always seem to have more than one beam on (that is, you cannot turn the primary beam off), fully power off using the correct shutdown procedures and power back on again. This is to reset the control unit that may be driving the AO Modulator. Read the information in the following statement. **Important** If the printer was newly installed or moved and has never printed, Mirror 1 may have moved. Do not loosen the Laser or the Laser Support Bracket to adjust the Zero Beam Alignment with a new or moved printer. Adjust only Mirror 1. • Perform the Zero Beam Alignment check and Beam Pattern Check (2094). **Could you make the adjustments correctly?**	Go to Step 8.	There is a failure in one of the following: • AO Modulator (AM201) • AOM drivers – AOM Driver (AM202) – AOM Driver (AM203) – AOM Driver (AM204) • SHUTDOWN AND POWER OFF THE PRINTER. Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – PJ216-1 and PJ472-3 – PJ216-2 and PJ472-8 @ (continued on next page)

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 7 (cont.)			• Install the new parts listed below, one at a time, until the problem is corrected: – AO Modulator (AM201) – Printhead Interface Card (VIxxx) – AOM Driver (AM202) – AOM Driver (AM203) – Toner Control Card PCxxx When you have made the repair, go to Step 8. @
Step 8.	**Hint** When only one beam is on at the aperture - that is the zero beam. • Perform Aperture Adjustment through Beam Detect Mirror Check (2094). • Run Test Prints. **Does the D706 error still occur?**	Go to Step 9.	The adjustment procedure corrected the problem.
Step 9.	The tab on the inner Printhead cover moves the safety filter into the operating position when the cover is in place. **Is the tab in place on the inner Printhead cover?**	Go to Step 10.	Repair the inner Printhead cover as necessary.

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 10.	Do the following, one step at a time, until the problem is corrected: • Ensure that all of the checks (cables, alignment, etc.) have been made. • Install a new Beam Detect Card (BDxxx). • Install a new Toner Control Card PCxxx. • Check continuity of the following wires. If you find an open circuit, repair the broken wire. – PJ136-27 and PJ212-15 – PJ136-28 and PJ212-16 – PJ136-29 and PJ212-17 – PJ136-30 and PJ212-18 – PJ136-31 and PJ212-19 – PJ136-32 and PJ212-20 – PJ136-23 and PJ212-7 – PJ136-24 and PJ212-8 – PJ136-25 and PJ212-9 – PJ136-26 and PJ212-10 • Run Test Prints. @ **Does the D706 error still occur?**	Go to Step 11.	The problem is fixed.
Step 11.	• If this is a new installation or the control unit has been recently attached, check the following coaxial connectors at the printer interface plate: – PJ203 on the printer connector labeled DBD. **Are the connectors correctly installed?**	Go to Step 12.	Install the connectors correctly.

Table 263. MAP D706A (continued)

Step	Questions/Actions	Yes	No
Step 12.	• Run the Mechanism Interface Card (MIC) Isolation Wrap Test. **Did the test fail?**	• Install a new MIC (Mechanism Interface Card). @	Do the following, one step at a time, until the problem is corrected: • Repair an open circuit between one of the following pairs of connectors: – Connector pin P211-1 and PJ203-1 – Connector pin P203-1 and PJU7-1 on the MIC Card (two-beam) – Connector pin P203-1 and DB on the PQE Card (four- and five-beam) • Repair a short circuit to ground in the wiring network described by the following points: – PJ203-1 – PJ211-1 • Install a new Beam Detect Card (BDxxx). • Install a new PQE Card. • Install a new MIC (Mechanism Interface Card). @

MAP D70B: Printhead Underrun

Note: Use this MAP for the two-beam printhead only.

Symptom Explanation	Conditions That Could Cause This Symptom
The MIC (Mechanism Interface Card) has not detected the start-of-scan signal from the Beam Detect Card (BD132) for one of the beams, or the Printhead is not accepting MIC (Mechanism Interface Card) data at the proper rate.	• The Beam Detect Sensor does not have enough laser beam power on one of the beams. • The laser beam is misaligned at the Beam Detect Sensor. • There is a failure in the control unit or in the connections to the printhead.

REFERENCES

- Removals & Adjustments - Two Beam 240 Printhead
- Removals & Adjustments - Two Beam 240/300 Printhead
- Circuit Diagrams - CD124 - Beam Detect (BD131, BD132, BD141) — (Two, Four, or Five Beam)
- Wiring Diagrams -
  WD42.3 - Beam Detect (Multi Beam Printhead)
  WD93 - Printer Simplified Logic Flow
- How to Run Diagnostics - 1627

FIX VERIFICATION

- Print the **Print Pack** (1569).
  An error is indicated by SRC D70B.

QUICK CHECKS

If the printer is newly installed and has never printed:

- Ensure that the coaxial cables to the Mechanism Interface Card (MIC), PQE Card, Printer Interface Card (IFxxx), Printhead Interface Card (VI141), AO Modulator Drivers and AO Modulator are correctly connected (not reversed and firmly seated) at both ends.

If the problem occurs after the printhead or printer was serviced:

- Ensure that the coaxial cables to the Mechanism Interface Card (MIC), PQE Card, Printer Interface Card (IFxxx), Printhead Interface Card (VI141), AO Modulator Drivers and AO Modulator are correctly connected (not reversed and are firmly seated) at both ends.

SERVICE CHECKS

- Run Adjustment Routine C0 to ensure that all beams are on.
- Use the Mechanism Interface Card (MIC) Isolation Wrap Test to confirm that the Mechanism Interface Card (MIC) is good.

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Beam Detect Mirror adjustment	20%	Printhead Links		
Printer Coax VD Cable	20%	Printer Interface Links		
AO Driver (AM202)	15%	Printhead Links		
AO Driver (AM203)	15%	Printhead Links		
AO Modulator (AM201)	08%	Printhead Links		
Printhead Interface Card (VI141)	05%	Printhead Links		
Mechanism Interface Card (MIC)	05%	Control Unit Links		
PQE Card	05%	Control Unit Links		
Toner Control Card PCxxx	03%	2053	3199	2402
Beam Detect Card (BDxxx)	03%	Printhead Links		
Miscellaneous	02%			

MAP D70B BEGINS

Table 264. MAP D70B

Step	Questions/Actions	Yes	No
	DANGER **<19> Abnormally high laser power may be present.** **Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.**		
	DANGER **<2> Laser radiation is present when the printer is powered-on.** **Avoid direct exposure to the laser beam.** **Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.** **Do not push the laser filter slide while the printer is powered-on.**		

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 1.	**Important** You must power-off the control unit after a SRC D70B. This is to ensure that the control unit will no longer be driving the AO Modulator (and Primary Beam) after the error. In other words, the laser beam may be "locked on" until you power off the control unit. The laser beam will be off, as normal when you power on again. • SHUTDOWN AND POWER OFF THE PRINTER. • Remove the Printhead covers). • Ensure that the safety filter is in the correct position. • Cover the Return Mirror with paper to protect the PC Drum. (continued on next page)		

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 1 (cont.)	• Ensure that the Laser Shutter is in the open position. • Place the Diagnostic Function Switch in position **3**. • Power on the printer. • Run Adjustment Routine C0 to modulate both the upper and lower beams. • Place a piece of paper in the path of the laser beam between the AO Modulator (AM201) and the L1 lens so that the laser beam can be projected on it. **Are both zero beams present?**	Go to Step 2.	• One of the beams is blocked. Check the laser path from the Woliston Prism through the AO Modulator (AM201) to find where it is blocked. • If both beams have low power, perform the Printhead Checks and Adjustments to ensure that the beam path is properly aligned and the correct beam power is being produced. (2094)
Step 2.	• Ensure that Adjustment Routine C0 is running. **Are both the upper and lower laser beams present and being modulated, so that the primary beams are on?**	Go to Step 3.	Go to Step 8.

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 3.	• Perform the Beam Power Check to ensure that each beam has at least 29 mV at point “C”. (2094) **Is the beam power on each beam 29 mV or greater?**	Go to Step 4.	• If both beams have low power, perform the Printhead Checks and Adjustments to ensure correct alignment of the laser beam.(2094) • If beam power is not acceptable after aligning the laser beam, install a new Laser. • If only one beam has low power, install the following, one at a time, until the problem is fixed. – The AO Modulator Driver for the failing beam – Cable from the AO Modulator Driver to the AO Modulator for the beam with the low power – AO Modulator (AM201) @
Step 4.	• Perform the Beam Detect Mirror Check to ensure that the beam is aligned properly on the Beam Detect Card (BD132). (2094) Be sure to check for both printhead resolutions in a 240/300 DPI printhead. **Was the adjustment correct?**	Go to Step 5.	• Correct the adjustment.

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 5.	Check the following connectors to ensure that they are properly connected: • PJ206 • PJ204 • VD1 at the PQE Card • PJ233 • PJ236 • VD2 at the PQE Card **Are all the connectors properly connected?**	Go to Step 6.	• Ensure that all connector are properly connected.
Step 6.	Check the continuity between the following wires: • PJ206 to PJ204 • PJ204 to VD1 on the PQE Card • PJ236 to PJ233 • PJ233 to VD2 on the PQE Card **Do all the wires have continuity?**	Go to Step 7.	• Repair or replace the broken wires or cables as necessary.

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 7.	• Run the Mechanism Interface Card (MIC) Isolation Wrap Test. **Did the test complete without an error?**	• POWER OFF THE SYSTEM. Do the following, one step at a time, until the problem is solved: • Check the following cables for proper contact at their connectors and for any damage: – Interface cable from PJ202 to PJJ6 on the Mechanism Interface Card (MIC). – Cable PJ401 to PJ201 • Install the following new parts: – Interface cable PJ202 to PJJ6 on the Mechanism Interface Card (MIC). – Beam Detect Card (BD132) – PQE Card – Printer Logic Card B1J11 Card – Printer Interface Card (IFxxx) – Cable PJ401 to PJ201 – Mechanism Interface Card (MIC) – Toner Control Card PCxxx @	• Install a new Mechanism Interface Card (MIC). @

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 8.	• Ensure that Adjustment Routine C0 is running. **Is the upper "Primary" laser beam present?**	Go to Step 10.	Go to Step 9.
Step 9.	• Ensure that Adjustment Routine C0 is running. Turn the potentiometer on the AOM Driver (AM202) fully clockwise and then fully counterclockwise. This is a 1-turn potentiometer and should come to rest against the stop. **Is the upper primary laser beam present at either the fully clockwise or counterclockwise position?**	The incorrectly adjusted AOM Driver (AM202) was the problem. • Perform the AOM Power Peaking and Matching Adjustment procdure . (2094) • Perform the Beam Power Check to ensure that the power of the two beams is properly matched. (2094)	Go to Step 13.
Step 10.	The lower primary beam is missing. • Ensure that Adjustment Routine C0 is running. Turn the potentiometer on the AOM Driver (AM203) fully clockwise and then fully counterclockwise. This is a 1-turn potentiometer and should come to rest against the stop. **Is the lower primary laser beam present at either the fully clockwise or counterclockwise position?**	The incorrectly adjusted AOM Driver (AM203) was the problem. • Perform the AOM Power Peaking and Matching Adjustment procdure . (2094) • Perform the Beam Power Check to ensure that the power of the two beams is properly matched. (2094)	Go to Step 11.
Step 11.	Check the following connectors to ensure they are properly connected: • PJ240 • PJ238 • PJ239 • PJ237 • PJ241 **Are all the connectors properly connected?**	Go to Step 12.	• Ensure that all connectors are properly connected.

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 12.	Check the continuity between the following wires: • PJ240 to PJ238 • PJ239 to PJ237 • PJ241-1 to P216A-1 • PJ241-2 to P216A-2 **Do all the wires have continuity?**	Install the following, one at a time, until the problem is corrected: • AOM Driver (AM203) • Printhead Interface Card (VI141) • AO Modulator (AM201) • PQE Card • Toner Control Card PCxxx • Mechanism Interface Card (MIC) @	• Repair or replace the broken wires or cables as necessary.
Step 13.	Check the following connectors to ensure they are properly connected: • PJ215 • PJ213 • PJ214 • PJ207 • P216 to J216A **Are all the connectors properly connected?**	Go to Step 14.	• Ensure that all connectors are properly connected.

Table 264. MAP D70B (continued)

Step	Questions/Actions	Yes	No
Step 14.	Check the continuity between the following wires: • PJ215 to PJ213 • PJ214 to PJ207 • J216A-1 to P216-1 • J216A-2 to P216-2 **Do all the wires have continuity?**	Install the following, one at a time, until the problem is corrected: • AOM Driver (AM202) • Printhead Interface Card (VI141) • AO Modulator (AM201) • PQE Card • Toner Control Card PCxxx • Mechanism Interface Card (MIC) @	• Repair or replace the broken wires or cables as necessary.

Chapter 2. Diagnostics

Using the Display/Touch Screen 1554
  Display/Touch Screen Main Window 1555
  Printer Status Window 1557
Password 1558
Operator Panel 1559
Panel Test 1561
Service Actions 1563
  Logs 1564
    Error Log 1565
    Summary Log 1566
    PM Log 1567
  Print 1568
    Print Log (including Print Pack) 1569
  Diagnostics - General 1571
  Attachment Diagnostics 1572
    Parallel Channel Tests 1573
    ESCON Channel Tests 1574
    Token Ring Tests 1575
    Ethernet Tests 1576
    FDDI Tests 1578
    Token Ring, Ethernet, and FDDI Attachment Test Results 1579
  Mechanism Diagnostics 1580
  Pre/Postprocessor Diagnostics 1583
  Pre/Postprocessing Interface Test Card 1587
    Checking signals 1589
    Checking voltages 1592
  Print Quality Enhancement 1593
  Disk Operations 1594

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Traces 1596
Configuring the Internal Control Unit Trace 1598
Print Samples 1600
Print Sample Terms 1601
Primary Print Sample 1602
Bar Code Sample 1603
Alternate Print Sample 1604
Printer Diagnostics 1606
Diagnostic Function Switch Positions 1609
Normal Print (Position 0) 1610
Read From or Write to Memory (Position 2) 1611
Preparing to Read From or Write to Memory 1611
Reading from Memory 1612
Writing to Memory 1613
Memory Addresses and Values 1614
Read From or Write to Toner Control Program Memory (Position 2) 1619
Read From or Write to Toner Control Program Memory (Position 2) - Standard Toner 1402822 1620
Read From or Write to Toner Control Program Memory (Position 2) - Toner 1402833 1622
Exerciser Routines (Position 3) 1627
Selecting Run Options 1628
Driver Routines 1633
Driver Routine Descriptions 1638
Sensor Routines 1662
Sensor Routine Descriptions 1666
Adjustment Routines 1695
Adjustment Routine Descriptions 1697
Encoder Routines 1705
Encoder Routine Descriptions 1707
Read Memory Address String (Position 5) 1718
Modify Steering Servo (Position 5) 1719
Modify Backup Roll Lift Motor Open/Close Timing (Position 5) 1721

Backup Roll Lift Motor Timing Adjustment Procedure for Bloom Improvement 1724
Clear Memory (Position 8) 1725
Optical Sensor Margin Tests (Position 9). 1726
Side 1/Side 2 Diagnostics 1727
MIC Side 2 Verification Test 1727
MIC Side 2 Sensor Test 1729
Special Services Function Mode 1730
Mechanism Interface Card (MIC) Isolation Wrap Test 1734
Single Beam Printhead 1735
Two Beam Printhead 1738
RS/6000 Controller 1741
Automatic Tests. 1741
Host Error Reporting 1747
EREP Summary Report. 1748
EREP Detail Report. 1749
Interpretation of EREP Sense Bytes 1751
Format 0 1752
Format 1 1753
Format 2 1754
Format 3 1755
Format 4 1757
Format 5 1758
Sense Byte 0 1760
Sense Byte 1 1760
Sense Byte 2 - Action Code 1761
Sense Byte 3 1763
E0XX Codes and SRC Cross-References 1764
E1XX Error Codes to MAP Cross Reference 1772
Hexadecimal-to-Decimal Conversion 1777

Using the Display/Touch Screen

The Display/Touch Screen provides a touch sensitive screen that allows you to interact with the printer. You select functions from the menus. These functions enable you to:

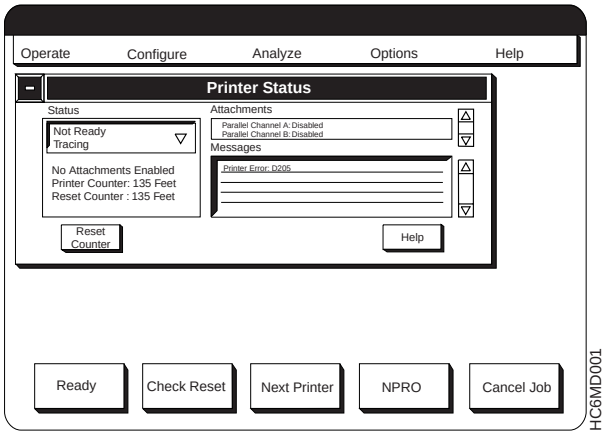
- Display and record problem conditions during normal operation
- Configure the printer, attachments and pre/post processing interfaces.
- Run tests to recreate problems and isolate failures.
- You also can review and print logs, print print-quality samples, run traces, and back up and restore memory.

Table 265. Menu Functions

Operate	Configure	Analyze	Options	Help
• Ready • Stop • Printer Status • Cancel Job • Clear Buffers • Thread/Align Forms • NPRO • NPRO Page • Shutdown/Restart	• Define Forms • Configure Printer • Configure Attachments • Configure Pre/Post • Adjust Print • Remote Access **Note:** Operable with code level _._ or higher.	• Service Actions • Traces • Print Samples	• Assign Form to Load • Enable/Disable Attachments • Password • Change Language • Clean Screen • Calibrate Touch Screen • Front Face • Special Features	• General Help

Display/Touch Screen Main Window

Table 266. Display/Touch Screen Main Window



The menu bar at the top of the Display/Touch Screen main window provides access to the following functions: **Operate, Configure, Analyze, Options,** and **Help**.

Pushbuttons at the bottom of the Display/Touch Screen main window are:

- **Ready/Stop**

  Acts as a toggle between Ready and Stop, depending on the current state of the printer.

  Ready - Lets you put the printer in Ready status if there is no problem, and start printing if a job is waiting.

  Stop - Finishes the page that is currently printing and then lets you stop the printer (Not Ready status).
- **Check Reset**

  Informs the system that an error has been corrected and the printer can return to a Ready status. This pushbutton is not active when the printer is in Ready mode.
  Note: Available with code level 9.5 or higher.
- **Next Printer**

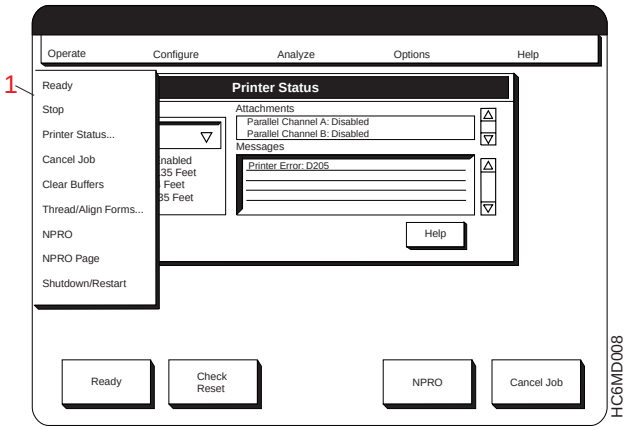
  Switches from one simplex printer window to the other simplex printer window (shown only on duplex systems when the system is in dual-simplex mode).
- **NPRO** (nonprocess runout)

  Lets you move forms through the printer without printing them.
- **Cancel Job**

  Lets you stop a print job. The print data is deleted.

(continued on next page)

Table 266. Display/Touch Screen Main Window (continued)

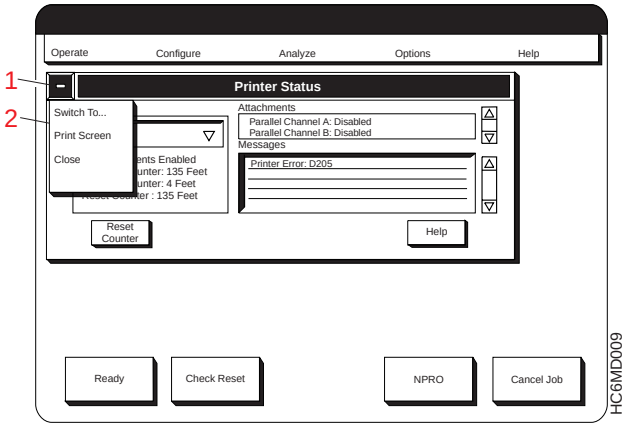


This figure shows the Operate, pull-down menu and the Printer Status, procedure window.

- **Pull-Down Menus**

  A pull-down menu **(1)** appears when you select a choice from the Main Window Menu Bar. The menu contains a list of functionally-grouped procedures.
- **Procedure Windows**

  A procedure window appears when you select a procedure from the pull-down menu. The procedure window provides you with all the lists, options, and pushbuttons you need to accomplish the procedure you have selected.

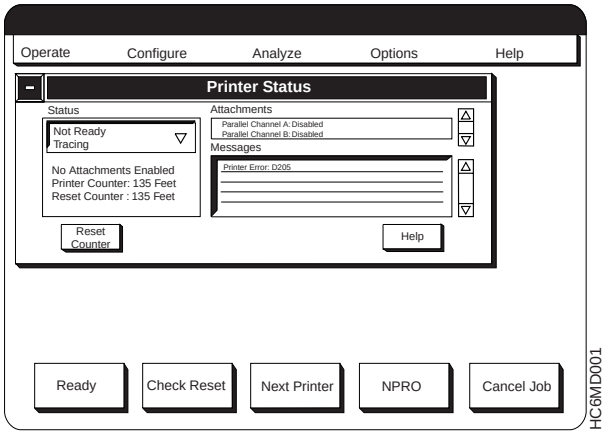


The system menu symbol **(1)** is at the left side of the title bar on procedure windows. When you select the symbol, a pull-down menu **(2)** appears directly under the symbol. There are three actions on the pull-down menu from which you can choose:

- **Switch To** Displays a pop-up window that lists all the procedures that are currently open. Selecting any procedure name from the list moves the window for the procedure to the front.
- **Print Screen** lets you print the current screen (if all host attachments are disabled)
- **Close** lets you close the current procedure window.

Printer Status Window

Table 267. Printer Status Window



The **Printer Status** window provides the following information as a result of the automatic checks:

- **Status**
  - Printer: Ready, Not Ready, or specific activity
  - Attachments: Enabled or Disabled
  - Print Counter: Total print count
  - Reset Counter: Print count for a specific time

    To set the reset counter to zero, select the **Reset Counter** button.
  - Pre/Postprocessors: Enabled or Disabled.
- **Attachments**

  A list of the installed host attachments in the system configuration and their enabled/disabled status
- **Messages**

  Information requiring intervention on the printer.

  To retrieve deferred **Intervention Required, Printer Error**, or **Out of Supplies** messages window with more information, select the message in the list in the **Messages** box.

Password

The procedures and information available on the Display/Touch Screen depend on the user's level of authorization. A procedure is grayed out if it is not authorized for the current user.

No password is required for access to operator procedures, but Key Operator and Customer Engineer (CE) procedures are password-protected. The key operator can change the Key Operator password, and the customer engineer can change both the Key Operator and the Customer Engineer passwords.

Initially, the CE password may be set as "empty", meaning that you select the password by selecting only the **OK** key on the password keyboard.

If you do not know the password, contact your next level support.

Entering a Password

To enter a password

1. Select a password-protected user authorization level choice in the **Password** window from the **Options** pulldown menu.
2. Use the **Password Keypad** that appears to enter the password.
3. Select the **OK** key.

When the password is accepted, the new authorization level is shown highlighted on the **Password** window.

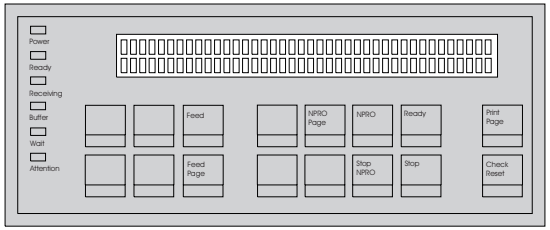
Changing a Password

To change your password, or that of the Key Operator:

1. Select **Options** on the menu bar of the Display/Touch Screen main window.
2. Select the **Password** procedure on the pulldown menu that appears. The **Password** window appears with the current level of authorization highlighted.
3. If you want to change the password of the level that is highlighted, go to step 5.
4. To change the password for a higher level of authorization than the level initially highlighted, select the higher level and enter the current password for that level on the **Password Keypad** that appears. The **Password** window will appear with the new level highlighted.
5. Select the **Change** pushbutton.
6. Use the **Password Keypad** that appears to enter a new password, and then select the **OK** pushbutton. The **Password** window reappears.
7. Select the **Close** pushbutton to leave the **Password** window.

Operator Panel

The operator panel is on the left front cover of the printer where it serves as an auxiliary control unit to perform some printer tasks more conveniently than from the Display/Touch Screen.



The panel consists of:

- An alarm
- A2 x 40 liquid crystal display (LCD) to provide status information, error conditions, and other messages in verbal rather than coded form.
- An LCD that displays alphabetic characters in the language in which the printer is set, numeric characters, and special characters as required.
- 6 light emitting diode (LED) indicators:

  Power
  The printer has power.

  Ready
  The printer is ready to print.

  Receiving
  The printer is communicating with the host.

  Buffer
  Data is in the buffer and available for printing.

  Wait The printer is busy. See the LCD or the Display/Touch Screen for a message.

  Attention
  The printer requires operator intervention. See the LCD or the Display/Touch Screen for a message.
- 9 keys that let you perform a subset of the Display/Touch Screen printer functions:

(continued on next page)

Table 268. Op Panel Button Functions

Key	Explanation
Feed	Moves the forms forward by the amount in the Feed configuration setting without printing; used for loading forms. (Used only in duplex printing systems in Duplex mode and affects both printers in the system.)
Feed Page	Moves the forms forward throught both printers to the next top-of-form position without printing; used for threading forms. (Used only in duplex printing systems in Duplex mode and affects only the printer on which it is mounted.)
Print Page	Prints one page.
NPRO	Moves the forms forward through the printer by a fixed length of forms.
Stop NPRO	Stops the nonprocess runout.
NPRO Page	Moves the forms forward through the printer to the next top-of-form position.
Stop	Stops printing, clears the LCD display, and makes the printer Not Ready. Turns off the Ready indicator, and turns on the Buffer indicator if there is data in the buffer.
Ready	Clears all error conditions and makes the printer ready to print. The Ready indicator goes on. When you press this key, all other panel keys except Stop are disabled.
Check Reset	Clears all error conditions but does not make the printer ready to print.

Panel Test

The panel test verifies the operation of the LEDs, LCD, alarm, keys, and panel controller. It attempts to turn on and off the LEDs and every pixel of the LCD, sound the alarm, work the panel controller, and, with operator assistance, check the key depressions.

To run the test:

Step 1. Select **Analyze** on the menu bar of the Display/Touch Screen main window.

Step 2. Select **Service Actions** on the menu that appears.

Step 3. If you have not already entered your password as a customer engineer, the Password window appears.

Step 4. Select **Customer Engineer** in the Password window. Use the keyboard that appears to select your password, and then select the **Enter** key. When your password is accepted, the Service Actions window appears again.

Step 5. Select **Diagnostics** on the Service Actions menu.

Step 6. Select **Mechanism** on the Diagnostics menu that appears.

Step 7. Select **Operator Panel Test on the list of diagnostic tests**.

Step 8. If printing in duplex mode, select **Printer 1 or Printer 2**.

Step 9. Open the printer cover on which the operator panel is mounted.

Step 10. Loosen the 2 screws at the bottom of the rear cover of the operator panel and lift the cover up and off. Locate the reset switch.

Note: The following steps must be done before the clock times out. Otherwise, and SRC 312 occurs on the operator panel.

Step 11. Select the **Run** button to isolate the operator panel from the mechanism interface card (MIC) and make the panel ready for manual testing.

Step 12. Simultaneously press and hold down the **Ready** and **Check Reset** keys on the operator panel.

Step 13. While you hold down those two keys, press and release the reset switch on the back of the operator panel.

Step 14. **Continue holding** the **Ready** and **Check Reset** keys until the LCD shows: *OP-PANEL UNIT CE TEST*. Then release the two keys.

The LEDs and the LCD are illuminated long enough for you to verify visually the operation of each element. The alarm is sounded. The characters of the language set are displayed.

Note: Ignore the message: *TO EXIT, POWER DOWN THE PRINTER*.

Step 15. When your are instructed *PRESS EACH KEY TO TEST*, press any key to display a template of the 16 key locations (labeled 0 to 15).

Press each key briefly to temporarily clear that key from the template.

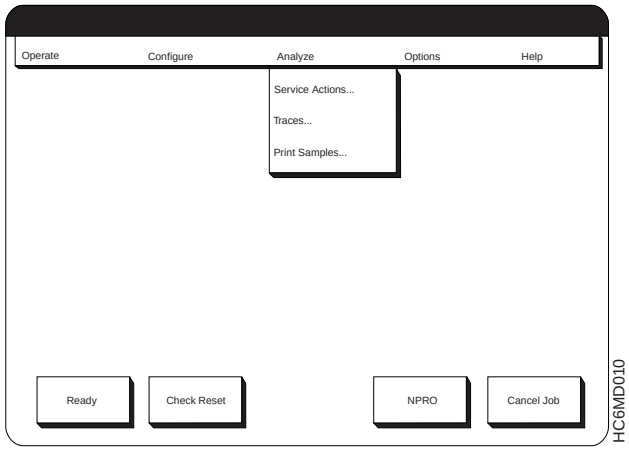
Step 16. To run the operator panel test again, repeat steps 12 to 15

Step 17. To exit the test, return to the Display/Touch Screen and select the **Stop** button in the Operator Panel Test pop-up window.

Step 18. When you are done testing the operator panel, select the**Restart** button in the Operator Panel Test window.

Service Actions

Table 269. Service Actions



Accessing Service Actions

1. Select **Analyze** on the menu bar of the Display/Touch Screen main window.
2. Select **Service Actions**.
3. If you have not already entered your password as a customer engineer (through **Options** on the menu bar of the Display/Touch Screen main window), the Password keyboard appears.

Note: If preventive maintenance is not due, the **Service Actions** window will appear. If preventive maintenance is due, the **Preventive Maintenance Log** window also appears with a pop-up **PM Due** window indicating which services are due. Select the **Cancel** button to close the **PM Due** window.

The selections available on the menu bar of the Service Actions window are:

- **Logs**
- **Print**
- **Diagnostics**
- **Disk Operations**

In addition to the selections on its menu bar, the Service Actions window provides the following information:

- Print Count
- Analysis
  - SRC
  - Events
- Configuration
  - Code level
  - EC level
  - OS level
  - Memory
- Printer
  - Type
  - Manufacturing plant
  - Serial number.

Logs

The **Logs** function on the menu bar of the Service Actions window lets you review the error logs and work with the preventive maintenance (PM) log.

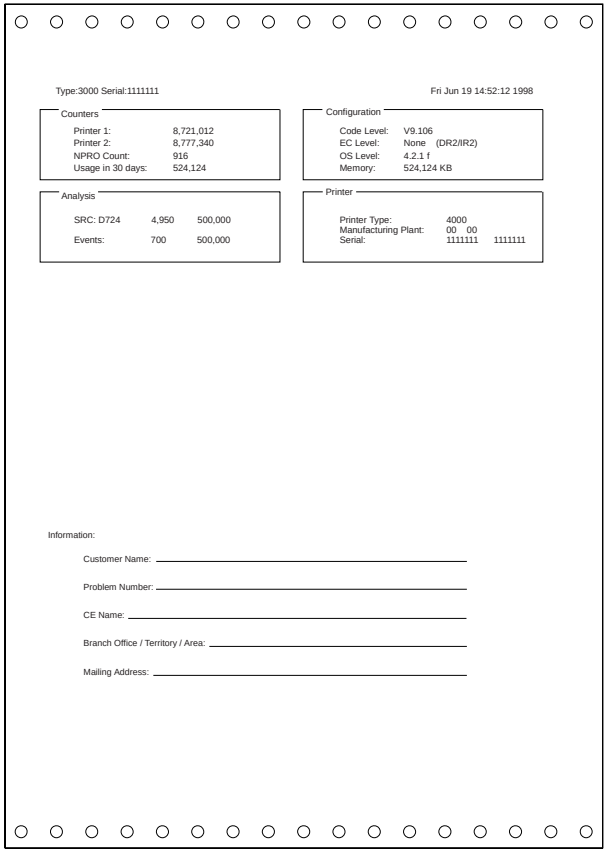
The error log is a chronological listing of printer errors. The summary log is a sorted list of the most frequent SRCs in the error log. The PM log is a cumulative indicator of printer usage (rolls, brushes) with projections of when preventive maintenance is due.

You can use these logs to:

- Determine the number of failures in a particular area of the printer
- Obtain printer usage information
- Look for parts that fail intermittently
- Verify a customer description of a problem
- Set the PM counters for special situations
- Record completed preventive maintenance.

To access the logs, select **Logs** on the Service Actions menu bar.

The first page of a printed log looks like this:



Error Log

Table 270. Error Log

If you select **Error Log** on the Logs menu, the Error Log window appears. The error list includes:

- SRC number
- Date and time
- Print count
- CE (whether the error occurred in service mode)
- S/D (whether the error occurred in simplex or duplex mode)
- P (printer number):
  - 0 - control unit or common
  - 1 - printer 1
  - 2 - printer 2.

Filter

The **Filter** button, when in the On condition, filters *events* out of the list of errors.

To change the filter condition, select the **Filter: On** button and then select **Filter: Off** in the pop-up window. To return to filter on, reverse this procedure.

After you select one of the errors in the log, you also can select one of the following, which will be displayed in a pop-up window.

- **Details**

  Details explains the SRC and provides the frequency of the SRC occurrence and the attachment involved. If all the SRCs occurred with the same form, the form name is provided. Select the Error Log to leave the Details window.
- **Sense Data**

  Sense Data is used primarily by support level personnel. It lists the exception code, environment code, and sense format. For some errors, it provides the contents of several memory locations. Select the Error Log to leave the Sense Data window.
- **Bookmark**

  The “bookmark” is a marker that initially is at the end of the list of errors. When you select **Bookmark,** the marker is placed after the selected error. You can move the bookmark (including returning it to the end of the list) by repeating the process of selecting an error and then selecting **Bookmark.**

  The Bookmark is used to view the subset of errors in the list above the Bookmark in the Summary Log when a count of **0** is selected.

  To leave the Error Log window, select the **Close** button.

Summary Log

Table 271. Summary Log

If you select **Summary Log** on the Logs menu, the Summary Log window appears. The summary list includes:
Note: The Summary Log is available only on code level 8.0 or higher.

- SRC number
- Frequency of occurrence of the SRC
- MPSRC (mean prints between occurrences of this SRC).

  MPSRC is the result of dividing the number of prints by the number of SRCs (repeats included). Both the measurement interval and the number of prints correspond to either the actual number of prints (shown in the field at the bottom of the window) or 500,000 prints, whichever is less.

You also can review the SRCs within a range, for example, the last 500,000 prints:

1. Select the print count field at the bottom of the Summary Log window. A numeric key pad appears along with keys to control the position of the cursor in the pad's data field.
2. Select a new print count (range) value (in this example, 500,000).
3. Select the **OK** key. The Summary Log window reappears showing only the SRCs in the restricted range.

If you previously placed the bookmark in the error log, you can review the subset of errors in the list above the bookmark:

1. Select the print count field at the bottom of the Summary Log window.
2. On the numeric key pad that appears, select 0.
3. Select the **OK** key. The Summary Log window reappears showing only the SRCs in the list above the bookmark.

Filter

The **Filter** button, when in the On condition, filters *events* out of the list of errors.

To change the filter condition, select the **Filter: On** button and then select **Filter: Off** in the pop-up window. To return to filter on, reverse this procedure.

Sort

The list initially is sorted by frequency. To sort it by SRC, select the **Sort: Freq** button and then the **Sort: SRC** button in the pop-up window. To return to frequency sorting, reverse this procedure.

To leave the Summary Log window, select the **Close** button.

PM Log

Table 272. PM Log

If you select **PM Log** on the Logs menu, the Preventive Maintenance Log window appears. The PM list includes:

Item (maintenance levels and specially tracked parts)

Feet:

Used

Remaining

% Remaining

Days Left (estimated).

Use the information in the PM log to identify printer areas that need planned maintenance or parts replacement.

OK

If you select the **OK** button, the window closes and any PM changes you have made are accepted.

CANCEL

If you select the **Cancel** button, the window closes without accepting any changes.

Change

To change a PM counter:

1. Select the item in the log window.
2. Select the **Change** button. The Change Preventive Maintenance Data window appears showing the values when last changed for that item.
3. Select the counter you want to change. A numeric key pad appears along with keys to control the position of the cursor in the pad's data field.
4. Select the new PM value to appear in the data field.
5. Select the **OK** key. The Change Preventive Maintenance Data window reappears with the new value.
6. If the new value is correct, select the **OK** button. The Preventive Maintenance Log window reappears. If the new value is not correct, repeat step 3 through step 6.
7. If the PM data is correct, select the **OK** button. If not, repeat this set of step 1 through step 7.

Completed

To record that PM has been done:

1. Select the item in the log window.
   Note: Selecting the **Completed** button resets the "Feet Used " counter to zero for the item selected.
2. Select the **Completed** button.
3. If the PM data is correct, select the **OK** button. If not, repeat steps 1 to 3.

Print

This function lets you print the print-quality samples and the error logs. On the Service Actions menu bar, select **Print Samples** or **Print Log**.
Note: Disable all attachments before printing print samples, error logs, and traces.

Print Samples

If you select **Print Samples** on the Print menu, you can print patterns, bar codes, and text to check visually for print-quality defects.

There are 11 selections:

- Primary
- Bar code
- Alternate
- Gray
- All white
- Postprocessor
- Text 1
- Text 2
- Printhead power
- Color
- MICR

See Print Samples for print quality definitions and print sample descriptions.

Print Log (including Print Pack)

Table 273. Print Log

If you select **Print Log** on the Print menu, you can choose five types of printout. Each includes a header that records printer data and conditions when the log is printed. The header provides model, serial number, EC level, total usage, 30-day usage, and most frequent SRC.

Print Pack includes:

- The short filtered error log .
- A selection of print samples, which includes enough copies of each of the samples to represent two revolutions of the PC drum. The print samples printed are:
  - Primary
  - All white (simplex)
  - Alternate
  - Bar code (simplex)
  - All white (duplex)
  - Text 1 (duplex).

  See Print Samples for print quality definitions and print sample descriptions.
  Note: The **Gray** print sample is available only on code level 8.0 or higher. Your printer may or may not have the **Color** sample. It will depend upon your microcode level.

(continued on next page)

Long Error Log

This log provides all data about each error: SRC, date, time, print count, CE mode, simplex/duplex mode (S/D), printer number (P), form name, message (intervention text), sense data, and attachment data.

The long log also includes:

- Identification/heading information
- One page each of:
  1. Forms identification/description from the configure program and preventive maintenance log (current PM status)
  2. Attachment identification/description from the configure program for each attachment.

The long log is printed in landscape mode.

Table 273. Print Log (continued)

Long Filtered Error Log

This log provides all the information of the long error log except that filtering removes events such as power-on, that is, the SRCs with B0xx numbers. This log is printed in landscape mode.

Short Filtered Error Log

This log provides all the information of the short error log except that filtering removes events such as power-on, that is, the SRCs with B0xx numbers. This log is printed in portrait mode.

Short Error Log

This log provides all the information of the long error log except sense and attachment data. It is printed in portrait mode.

You can print **multiple copies** of a log:

1. Select the log you want to print.
2. Select the **How Many?** field. A numeric key pad appears along with keys to control the position of the cursor in the pad's data field.
3. Select the number of copies.
4. Select the **OK** key. The Print Logs window appears again with the new value.
5. Select the **Print** button.

Diagnostics - General

If you select **Diagnostics** on the Service Actions menu, you can test attachments, the printers, and preprocessor and postprocessor interfaces.

To run a test in one of the Diagnostics lists:

1. Read the instructions for the test and make the required power status and cabling changes.
2. Select the test.
3. Select the **Run** button to start the test.

The pop-up window that appears identifies the test running and provides a **Stop** button when needed.

If there is a problem with a test, a Printer Error or Intervention Required window (red title bar) appears with a description of the problem and how to clear it. If an SRC is displayed, go to the MAP with that number.

4. To leave the Diagnostics window, select the **Close** button.

Shutdown Procedure

Attention: Do not stop an Infoprint 4000 by turning the control unit and printer power switches to Off. There is a procedure to shut down the printer that performs all necessary cleanup operations before powering off.

To shut down an Infoprint 4000:

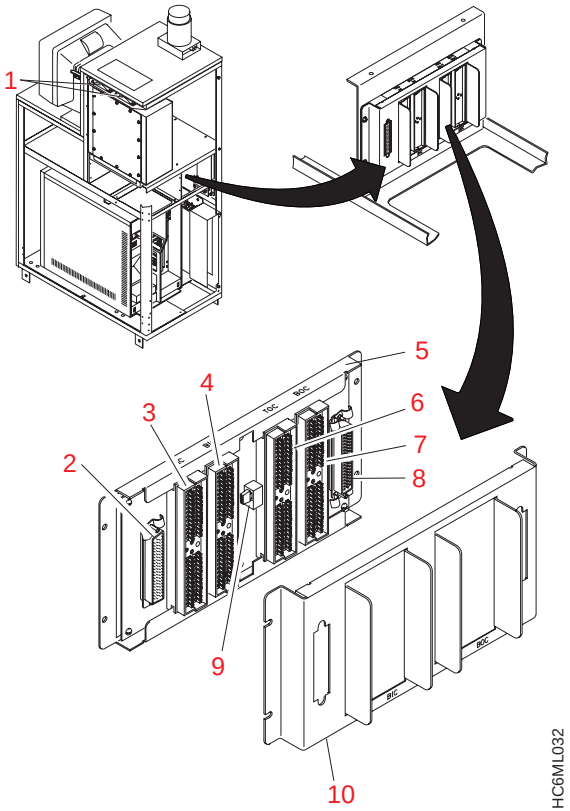
1. On the menu bar of the Display/Touch Screen main window, select **Operate**.
2. On the pulldown menu that appears, select **Shutdown/Restart**.
3. On the procedure window that appears, select **Shutdown**.
4. When the `Shutdown is complete` message appears on the Display/Touch Screen, you can power off the printer.

Attachment Diagnostics

Select **Analyze** on the menu bar of the Display/Touch Screen main window, and then select **Service Actions** on the menu that appears.

If you select **Attachment** on the Diagnostics menu, the Attachment Diagnostics window appears listing the available tests.

Parallel Channel Tests



Note: The channel must be disabled to run the test. If a two-channel switch is present, diagnostics can be run on one channel while the second channel is enabled.

Parallel Channel A (or B) Basic Test

Select this test to exercise the functions of parallel channel A or B. Select the **Run** button to start the test.

Parallel Channel A (or B) Wrap Test

Use this test to check the input and output circuits of parallel channel A or B.

1. Ensure that all devices on the channel are varied off at the host Display/Touch Screen.
2. Disable the channel.
3. Open the rear cover of the control unit.
4. Disconnect the channel cables from the channel tailgate.
5. Install terminator block PN 2282675 on the bus out-connector (BOC) **(7)**
6. Install terminator block PN 2262676 on the tag out-connector (TOC) **(6)**.
7. Attach channel wrap block PN 8575337 to the bus in-connector (BIC) **(4)**.
8. Install channel wrap block PN 8575338 to the tag in-connector (TIC) **(3)** .
9. Select **Parallel Channel A (or B) Wrap Test**.
10. Select the **Run** button to start the test.

ESCON Channel Tests

ESCON Channel A (or B) Basic Test

Select this test to exercise the functions of ESCON channel A or B. Select the **Run** button to start the test.

ESCON Channel A (or B) Wrap Test

Use this test to check the input and output circuits of ESCON channel A or B.

1. Ensure that all devices on the channel are varied off at the host Display/Touch Screen.
2. Disable the channel.
3. Disconnect the channel cable from the channel card connector on the rear of the RISC controller (slot 4 if channel A; slot 2 if channel B).
4. Attach the ESCON wrap plug (PN 5605670) to the channel card connector on the RISC controller.
5. Select **ESCON Channel A (or B) Wrap Test.**
6. Select the **Run** button to start the test.

Token Ring Tests

The following conditions must be met before the you can run the Token Ring tests:

- The Token Ring attachment must be disabled.
- The Token Ring adapter card must be physically installed.
- The Token Ring attachment must be configured as “Installed” in the attachment configuration.
- Ensure that the SNMP agent and RMI are turned OFF. The SNMP agent and RMI are turned On/Off on the Remote Access screen under Configure.

Note: If the SNMP agent or RMI is ON, it is necessary to turn it OFF. You must then select the **Restart** pushbutton or perform the **Shutdown** procedure, power off the entire system, and power on again before you can continue with diagnostics.

Token Ring Basic Test

Select this test to check the basic function of the token ring adapter card. The test does NOT test the input and output of the adapter.

1. Unplug the Token Ring cable at the customer port.
2. Leave the Token Ring cable plugged into the controller adaptor card slot.
3. Select **Token Ring Basic Test**.
4. Select the **Run** pushbutton to start the test.

Token Ring Wrap Test

Select this test to check all the functions of the Token Ring adapter card.

1. Unplug the Token Ring cable at the customer port.
2. Leave the Token Ring cable plugged into the controller adaptor card slot.
3. Select **Token Ring Wrap Test**.
4. Select the **Run** pushbutton to start the test.

Ethernet Tests

The following conditions must be met before you can run the Ethernet tests:

- The Ethernet attachment must be disabled.
- If a RS/6000–Type 7013 Model 595 Controller is installed in the control unit, an Ethernet Adapter Card must be physically installed in adaptor card slot 0/2 or 0/4 of the controller.
- If a RS/6000–Type 7025 Model F50 Controller is installed in the control unit, an Ethernet Adapter Card must be physically installed in adaptor card slot 6 or 8 of the controller.
- If a RS/6000–Type 7043 Model 43P-140 controller is installed in the control unit, there can be either the basic ethernet connection built into the planar card which runs 10 base T, or there can be an optional faster Ethernet Adapter Card which must be physically present in slot 2 or slot 4 of the controller. This card runs at 10 base T100.
- The Ethernet attachment must be configured as “Installed” in the attachment configuration.
- Ensure that the SNMP agent is turned **Off**. Turn the SNMP agent off on the Remote Access window if necessary.

Note: If the SNMP agent is **On** and you turn it off, you must then select the **Restart**pushbutton or perform the **Shutdown** procedure, power off the entire system and power it on again before you continue with the diagnostics.

Ethernet Basic Test:

Select this test only if wrap plugs are not available. This test checks the basic function of the Ethernet card. The test does not test the input and output of the Ethernet card.

- Unplug the Ethernet cable or transceiver from the rear of the controller .
- Select **Ethernet Basic Test**.
- Select the **Run** pushbutton to start the test.

(continued on next page)

Ethernet Wrap Tests:

Select the wrap test or tests for the type of Ethernet network to which the printer is attached.

- **Thin coax (10Base2)**

  Select this test to check the Ethernet functions of the Ethernet card for 10Base2 attachments.

  – Unplug the Ethernet cable or transceiver from the rear of the controller .
  – Install the thin coax wrap connector (PN 02G7433) on the Ethernet thin coax connector at the rear of the controller.
  – Select **Ethernet 10Base2 Wrap Test**.
  – Select the **Run** pushbutton to start the test.

- **Thick coax (10Base5) and twisted pair (10BaseT)**

  Select this test to check the Ethernet functions of the Ethernet card for 10Base5 and 10BaseT attachments.

  – Unplug the Ethernet cable or transceiver from the rear of the controller .
  – Install the thick coax wrap connector (PN 71F1167) on the Ethernet 15-pin connector at the rear of the controller.
  – Select **Ethernet Port Wrap Test**.
  – Select the **Run** pushbutton to start the test.

- **Twisted pair (10BaseT)**

  Select this test to check the 10BaseT transceiver if the Ethernet Port Wrap Test runs successfully.

  – Unplug the twisted pair cable from the transceiver that is plugged into either PCI slot of the Type 7009 Model 43P-140 controller.
  – Place the test Switch on the transceiver in the **Off** position. Do not install a wrap plug.
  – Select **Ethernet 10BaseT Transceiver Test**.
  – Select the **Run** pushbutton to start the test.

FDDI Tests

Table 274. FDDI Tests

The following conditions must be met before the you can run the FDDI tests (Type 7013 Model 595, Type 7025 Model F50, Type 7043 Model 43P-140):

- The FDDI attachment must be disabled.
- The FDDI adapter card must be physically installed.
- The FDDI attachment must be configured as “Installed” in the attachment configuration.
- Ensure that the SNMP agent is turned OFF. The SNMP agent is turned On/Off on the Remote Access screen.

Note: If the SNMP agent is ON, it is necessary to turn it OFF. You must then select the **Restart**pushbutton or perform the **Shutdown** procedure, power off the entire system, and power on again before you can continue with diagnostics.

FDDI Basic Test

Select this test to check the basic function of the FDDI adapter card. The test does NOT test the input and output of the adapter.

1. Unplug the FDDI cable at the customer port.
2. Leave the FDDI cable plugged into the controller adaptor card slot.
3. Select **FDDI Basic Test**.
4. Select the **Run** pushbutton to start the test.

FDDI Wrap Test

Select this test to check all the functions of the FDDI adapter card.

1. Unplug the FDDI cable at the customer port.
2. Leave the FDDI cable plugged into the controller adaptor card slot.
3. Select **FDDI Wrap Test**.
4. Select the **Run** pushbutton to start the test.

Token Ring, Ethernet, and FDDI Attachment Test Results

These attachment tests are unable to test all of the circuitry on an adapter. Use the following as a guideline to interpret the results of a test.

The test will end with one of the following results:

- The test indicates it completed successfully.

  This result is a strong indication that the adapter is working properly, at least during the test. If the customer communication problem is a solid continuous problem, it is probably configuration or software and not the adapter.
- The test indicates a specific failure of a component with an SRC.

  This result is a strong indication that the adapter has a hardware problem. However, the defect on the adapter may not be causing any problem with the customer communications. If the customer is having communication problems for no other obvious reason, use the MAPs for further problem determination.
- The test terminates with a timeout. The SRC may be A400, A403 or A40D.

  Use the MAPs for further problem determination.
- The test terminates with a control unit crash. A code usually appears in the control unit LED display.

  This result is a strong indication of a hardware problem. Reseat the adapter card and rerun the test. Be certain to follow the instructions for plugging or unplugging any wrap plugs or cables. If the same result occurs again and there does not appear to be any other reason for a communication failure, the adapter should be replaced as a further step in problem determination.

Mechanism Diagnostics

If you select **Mechanism** on the Diagnostics menu, the Control Unit Diagnostics (Mechanism) window appears listing the available tests.

Note: Running these diagnostics prevent further printing until you do a Restart.

Table 275. Mechanism Disagnostics

Reading the MIC LED Display

The LED has 7 segments and displays one digit at a time. The numbers that appear are progress indicators.

Three horizontal bars that appear for 5 seconds indicate that an error occurred. The digits of the error code are then displayed sequentially. After the last digit, a hyphen (-) appears and the sequence repeats. Trailing zeros are suppressed.

Other MIC LED status indicators

- 0 - Normal (Printing)
- 2 - Normal (Ready to Print)
- 3 - Engine cycling up, or out of supplies condition
- 6 - Waiting for fuser temperature
- 8 - SCSI hang
- 9 - Memory test failure
- L - Looking for active SSA link
- = - Waiting for RISC memory download

MIC BASIC Test

Select this test to exercise the functions of the mechanism interface card.

Select the **Run** button to start the test.

MIC Loop Test

Select this test to further exercise the mechanism interface card by looping part of the MIC test.

Select the **Run** button to start the test.

Results appear on the LED attached to the MIC.

Select the **Power Off** button in the pop-up window to stop the test. After the message **Shutdown complete** appears, power off the control unit and the printer.

Table 275. Mechanism Disagnostics (continued)

MIC Communication Test

You can perform this test on any of the printer models. This routine searches the communication path and reports which devices are communicating with the control unit. Select this test to determine which device or connection to the device is failing when a D208 error is detected.

To run the test:

1. Select **Analyze** and then select **Service Actions**.
2. Select **Diagnostics**.
3. Select **MIC Communications Test**.
4. Select **RUN**.

The results of the diagnostic test appear in a pop-up window on the Display/Touch Screen. Examples of possible messages are:

```
Printer 1 MIC (2 paths) and a Printer 2 MIC (1 path) were sensed.
No devices were sensed.
```

Note: SSA requires 2 MIC paths. SCSI requires 1 MIC path.

Note: A restart is required after you run this test.

MIC Isolation Wrap Test

Perform this test in stand-alone mode, not using the Display/Touch Screen. The tests are differentiated by the type of printhead installed. See Mechanism Interface Card (MIC) Isolation Wrap Test.

Table 275. Mechanism Disagnostics (continued)

Printer Interface Test

Select this test to check communication between the printer logic and the control unit.

1. Select the **Run** button to start the test.
2. Select the **Restart** button in the pop-up window to stop the test.

Printer Activation Test

Select this test to run the printer but not the forms. (Forms must be installed, however, or the end-of-forms sensor must be covered.)

Use caution if it is necessary to remove safety covers, because this test applies voltage to the lamps, coronas, and PC drum; heats the fusing elements to operating temperature; and turns the PC drum and developer rolls.

1. Select the **Run** button to start the test.
2. Select the **Stop** button in the pop-up window to stop the test and the printer.

Alarm Test

Select this test to check and set the volume on the alarm that sounds when the printer requires operator intervention. The volume control is on the back of the alarm and light assembly.

1. Select the **Run** button to start the test.
2. Select the **Stop** button in the pop-up window to stop the test.

Attention Light Test

Select this test to check the light that flashes when the printer requires operator intervention. The electrical contacts for remote alarm devices are included in this test.

1. Select the **Run** button to start the test.
2. Select the **Stop** button in the pop-up window to stop the test.

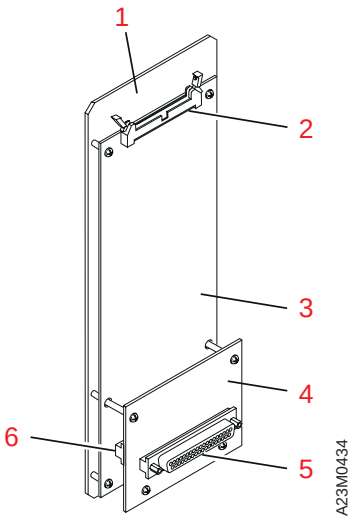
Operator Panel Test

Select this test to isolate the operator panel from the mechanism interface card (MIC) to make the panel ready for manual testing see Panel Test.

1. Select the **Run** button to start the test.
2. Select the **Stop** button in the pop-up window to stop the test.

Pre/Postprocessor Diagnostics

Table 276. Pre/Postprocessor Diagnostics



Important: If the Side 1/Side 2 Verification function is installed, you must unplug the Side 1/Side 2 Verification Control Card from the MIC to allow the Pre/Processor diagnostics to run properly. (The function may be installed as standard or as RPQ 8B3951.)

(continued on next page)

Two interfaces accommodate a variety of pre/postprocessing devices:

1. 4710 Pre/postprocessor interface feature:

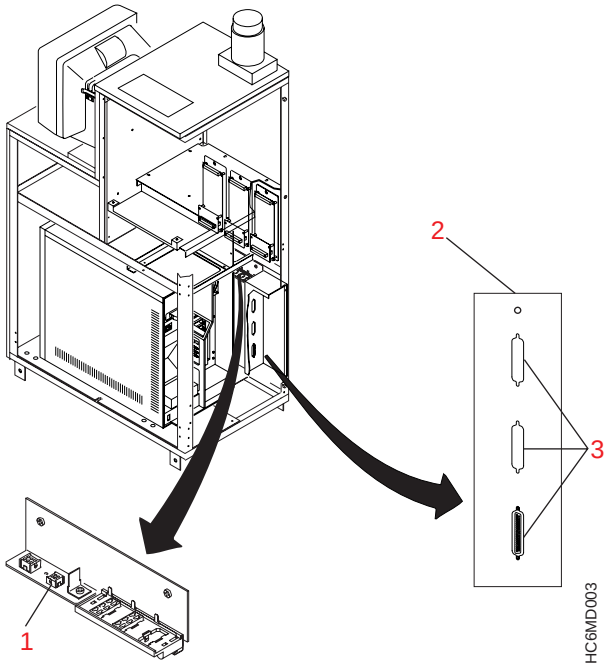
   The 4710 interface card has two designs. The old design couples the CGIC **3** and YUCC **4**. The new design is a single card called the CGUC **3** without the YUCC **4**. It is also known as the coupled interface card.
2. 4720 Pre/postprocessor interface feature:

   The 4720 interface card is a single card called the CGIC **3** and is also known as the intelligent postprocessor card.

The pre/postprocessor card assemblies are mounted on the frame inside the control unit. The card positions are labeled PRE/POST CARD 1 or 2 or 3 as appropriate.

1. If you select **Pre/Postprocessor** on the Diagnostics menu, the Pre/Postprocessor Diagnostics window appears listing the available tests.
2. Select **Port 1, Port 2,** or **Port 3.**
3. If the printer is running in duplex mode on a duplex printing system, also select **Printer 1**, or **Printer 2**.

Table 276. Pre/Postprocessor Diagnostics (continued)



Note: The tailgate connectors are numbered from top to bottom and are labeled `P/P DEVICE 1` or `2` or `3` as appropriate.

Attention: Equipment will be damaged if you use the wrong wrap plug. If you are not certain whether you are testing a 4710 or 4720 interface card, then check the part number on the card against parts catalog.

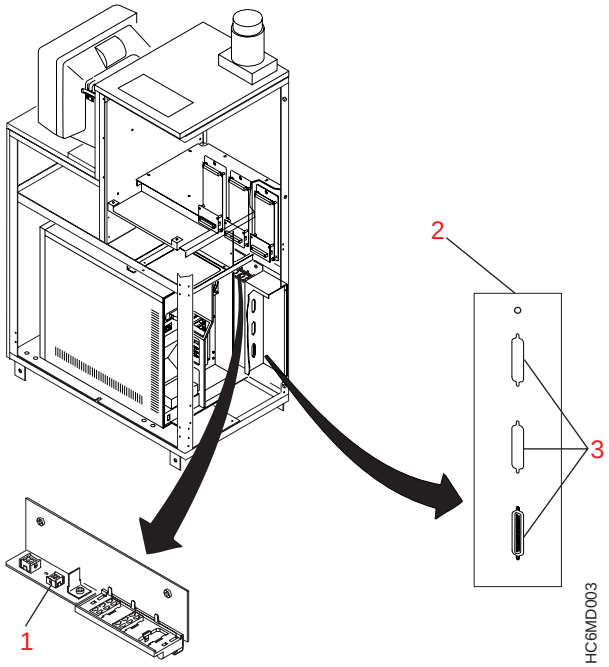
(continued on next page)

Intelligent Interface Wrap Test (For 4720 feature cards only)

Use this test to identify a problem in the advanced function postprocessing interface.

1. Disable the channels.
2. Disconnect the postprocessor cable from the pre/postprocessor tailgate **(3)** at the lower right rear of the control unit.
3. Open the rear cover of the control unit.
4. Connect wrap plug B (PN 45G2037) (For the 4720 feature only) to the pre/postprocessor tailgate connector from which the cable was removed in step 2.
5. Plug the power connector on the wrap plug into the service power takeoff connector **(1)** on the channel tailgate frame.
6. Select **Intelligent Interface Wrap Test.**
7. Select the **Run** button to start the test.
   - Successful completion of the test may be followed by intervention-required message D204. This message is due only to the presence of the wrap plug and can be ignored. No action is required.
   - Run the test multiple times to ensure accurate results.
8. When the test is completed, remove the wrap plug and power connector and reconnect the postprocessor cable.
9. Press the **Restart** button; this causes a system **Restart**.

Table 276. Pre/Postprocessor Diagnostics (continued)



Note: The tailgate connectors are numbered from top to bottom and are labeled `P/P DEVICE 1` or `2` or `3` as appropriate.

Attention: Equipment will be damaged if you use the wrong wrap plug. If you are not certain whether you are testing a 4710 or 4720 interface card, then check the part number on the card against parts catalog.

(continued on next page)

Coupled Interface Wrap Test (4710 feature cards only)

Use this test to identify a problem in the pre/post-processing interface.

1. Disable the channels.
2. Disconnect the pre/postprocessor cable from the pre/postprocessor tailgate **(3)** at the lower right rear of the control unit.
3. Open the rear cover of the control unit.
4. Connect wrap plug A (PN 45G2036) (For the 4710 feature cards only) to the pre/postprocessor tailgate connector from which the cable was removed in step 2.
5. Plug the power connector on the wrap plug into the service power takeoff connector **(1)** on the channel tailgate frame.
6. Select **Coupled Interface Wrap Test.**
7. Select the **Run** button to start the test.
   - Successful completion of the test may be followed by intervention-required message D204. This message is due only to the presence of the wrap plug and can be ignored. No action is required.
   - Run the test multiple times to ensure accurate results.
8. When the test is completed, remove the wrap plug and power connector and reconnect the pre/postprocessor cable.
9. Press the **Close** button, then do a system **Restart** procedure.

Table 276. Pre/Postprocessor Diagnostics (continued)

Offset Test

Select this test to generate a job offset signal.

Select the **Run** button to start the test.

Select the **Stop** button in the pop-up window to end the test.

When you are instructed by a MAP to check the offset signal at the pre/postprocessor interface with the pre/postprocessor interface test card, see Pre/Postprocessing Interface Test Card.

Motor Test

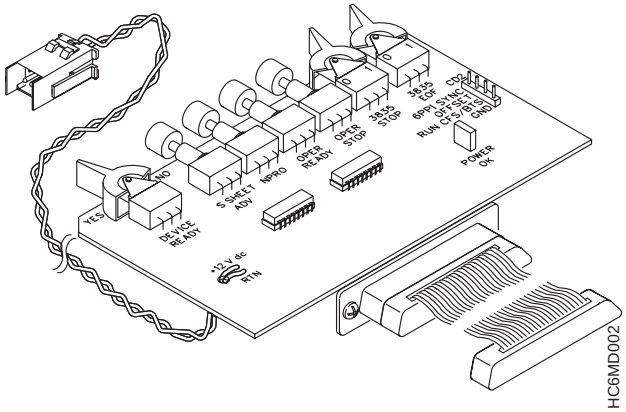
Select this test to generate a signal to run the pre/postprocessor motor.

Select the **Run** button to start the test.

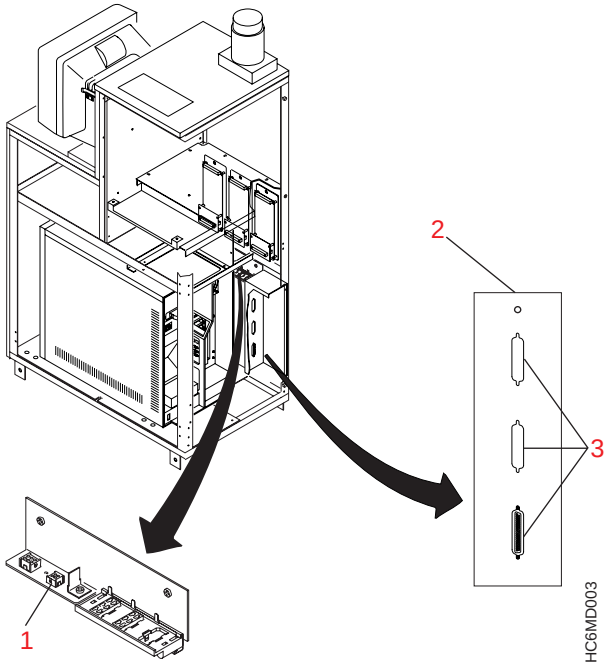
Select the **Stop** button in the pop-up window to end the test.

When you are instructed by a MAP to check the motor signal at the pre/postprocessor interface with the pre/postprocessor interface test card, see Pre/Postprocessing Interface Test Card.

Pre/Postprocessing Interface Test Card



HC6MD002



HC6MD003

The pre/postprocessing interface test card (PN 45G2033) is used to diagnose problems that might be caused either by the printer or by a pre/postprocessor.

Attention: Use the pre/postprocessing interface test card only with the 4710 interface card, *not* with (intelligent advanced function postprocessing) 4720 interface cards. If you are not certain if the card is a 4710 or 4720 interface card, then check the part number against the parts catalog.

1. Using its extension cable, attach the test card to the pre/postprocessor tailgate in place of the pre/postprocessor cable.
2. Plug the power connector on the test card into the service power takeoff connector **(1)** on the channel tailgate frame.
3. Printer states generated by the interface test card produce messages on the Display/Touch Screen in a pop-up window.
   - Select the **Printer Status** field to see these messages about the pre/postprocessor devices.

If the printer operates correctly with the test card, you can assume that the problem is in the pre/postprocessor.

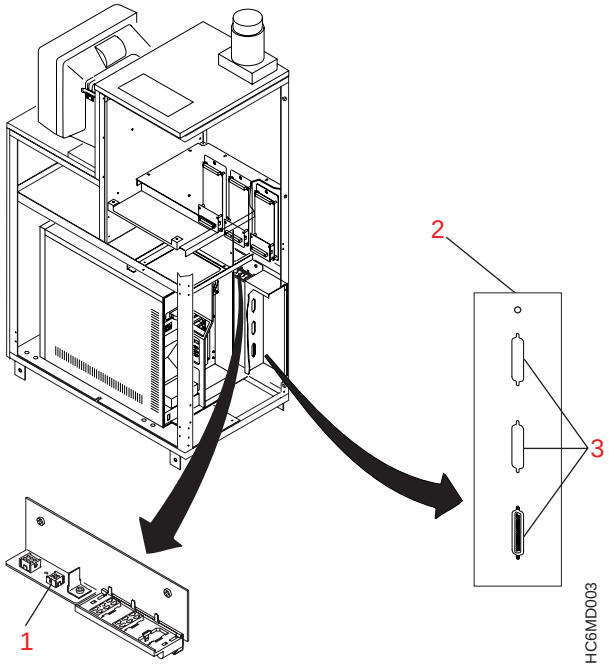
Table 277 describes the functions of the switches and test points on the interface test card, and the Display/Touch Screen messages the procedures produce.

Table 277. Pre/Postprocessing Interface Test Card

Switch, Test Point, or LED	Description
DEVICE READY (YES position)	Indicates that the device is powered on and ready.
DEVICE READY (NO position)	Simulates a jam or hard stop at the device. The Display/Touch Screen shows: `Pre/postprocessor Not Ready SRC D204`.
S SHEET ADV	Causes the printer to advance one page of forms.
NPRO	Causes the printer to fuse the forms already between the transfer station and the fuser, and feed them into the stacker. The Display/Touch Screen shows: `PRINTING`.
OPER READY	Resets the OPER STOP condition.
OPER STOP	Simulates the action of a stop key on the pre/postprocessor, a soft stop, a recoverable error, or a pause. The Display/Touch Screen shows: `Pre/postprocessor Busy`.
3835 STOP (0 position)	Simulates the action of a stop key on the pre/postprocessor, a soft stop, a recoverable error, or a pause. The Display/Touch Screen shows: `Pre/postprocessor Busy`.
3835 STOP (1 position)	Normal position.
3835 EOF (0 position)	Simulates an end-of-forms signal from the pre/postprocessor. The Display/Touch Screen shows: `End of Forms`.
3835 EOF (1 position)	Normal position.
6 PPI SYNC	Test point for ac voltage measurement.
OFFSET	Test point for dc voltage measurement.
RUN CFS/BTS	Test point for dc voltage measurement.
GND	Ground point for voltage measurements.
POWER OK	Lights when the interface test card is installed and powered, and checks the voltage regulator on the isolation card.

Checking signals

Table 278. Checking Pre/Post Signals



(continued on next page)

Use this procedure to test the interface signals. To activate a pushbutton switch, press it until it clicks, and then release it. If a problem occurs, go to MAP 0840.

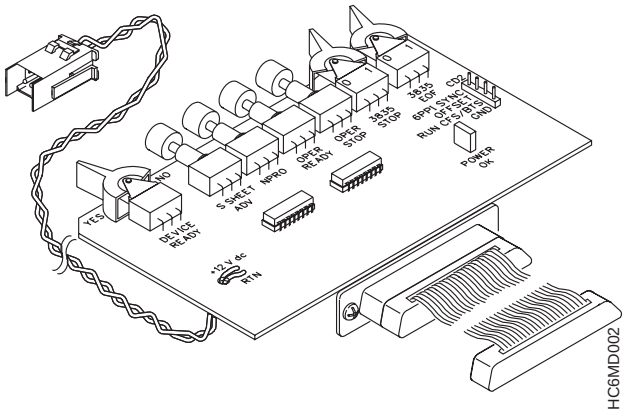
1. Disable the attachments.
2. Press READY to make the printer ready.
3. Set the toggle switches on the test card:

   DEVICE READY to YES

   3835 STOP to 1

   3835 EOF to 1.
4. Attach the test card extension cable to the test card and then connect the other end of the cable to the appropriate pre/postprocessor connector **(3)** on the pre/postprocessor tailgate **(2)**
5. Connect the test card power cable to the service power takeoff connector **(1)** on the channel tailgate frame. The POWER OK LED on the test card should now be on.

Table 278. Checking Pre/Post Signals (continued)



6. Set the DEVICE READY switch on the test card to the NO position. The Display/Touch Screen shows:

   `Pre/postprocessor Not Ready`
7. A “Printer Error” window appears with SRC D204.
   - Press **Complete** on the Display/Touch Screen.
   - Press **Ready** on the Display/Touch Screen.
8. Set the DEVICE READY switch on the test card to the YES position.
9. Press and release the OPER STOP button on the test card. The Display/Touch Screen shows:

   `Pre/postprocessor Busy`
10. Press and release the OPER READY button on the test card. The Display/Touch Screen shows:

    `Ready`
11. Set the 3835 STOP switch on the test card to 0. The Display/Touch Screen shows:

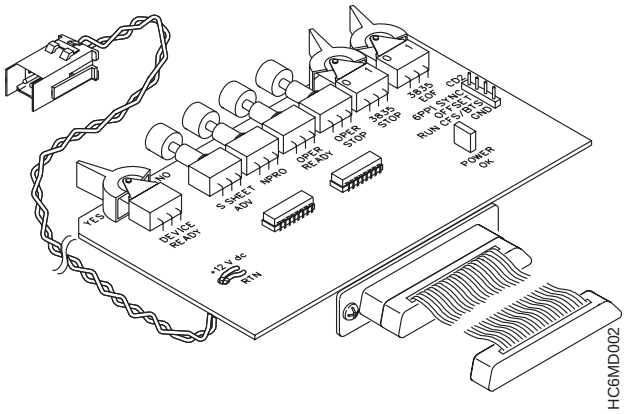
    `Pre/postprocessor Busy`
12. Set the 3835 STOP switch on the test card to 1. The Display/Touch Screen shows:

    `Ready`
13. Press and release the OPER STOP button on the test card. The Display/Touch Screen shows:

    `Pre/postprocessor Busy`

(continued on next page)

Table 278. Checking Pre/Post Signals (continued)



14. Press and release the NPRO button on the test card. The printer should perform a nonprocess runout. The Display/Touch Screen shows:

    `Printing`

    `Pre/postprocessor Busy`
15. Press and release the S SHEET ADV button on the test card.
16. Press and release the NPRO button on the test card. The printer should perform a nonprocess runout of one sheet. The Display/Touch Screen shows:

    `Printing`

    `Pre/postprocessor Busy`
17. Press and release the OPER READY button on the test card. The Display/Touch Screen shows:

    `Ready`
18. Set the 3835 EOF switch on the test card to 0. The Display/Touch Screen shows:

    `Pre/postprocessor End of Forms`
19. A “Printer Error” window will be displayed with EOF.
20. Set the 3835 EOF switch on the test card to 1.
21. Press **Complete** on the Display/Touch Screen.
22. Press **Ready** on the Display/Touch Screen.

Repeat these checks, if necessary, with the test card extension cable attached to another coupled interface pre/postprocessor connector on the tailgate.

Checking voltages

Four pins on the pre/postprocessing interface test card are collectively labeled CD2. You can use these pins to probe the 6 PPI Sync, Offset, and Run CFS/BTS signals.

Attention: Use only a digital multimeter, not an electrostatic voltmeter or oscilloscope, for these voltage readings.

Table 279. Checking Pre/Post Voltages

6 PPI Sync

Run one of the print samples or any customer form to generate a 6 pulse-per-inch synchronization signal.

The voltage at test point 6 PPI SYNC should be:

- Greater than 0.2 V ac when the forms are running
- 0 V ac when the forms are stopped.

Offset

Run the Offset Test to generate a job offset signal.

When the test begins, the voltage at test point OFFSET should change from its previous level. It can change in either direction:

- The low level should be less than +0.2 V dc.
- The high level should be greater than +3.5 V dc.

Run CFS/BTS

Run the Motor Test to generate a signal to run the pre/post-processor motor.

The voltage at test point RUN CFS/BTS should be:

- Greater than +3.5 V dc when the test is running
- Less than +0.2 V dc when the test is not running
- Greater than +3.5 V dc when forms are running.

Repeat these checks, if necessary, with the test card extension cable attached to another coupled interface pre/postprocessor connector on the tailgate.

Print Quality Enhancement

Even though this shows up on the Diagnostics menu, Print Quality Enhancement (PQE) is really an adjustment procedure rather than a diagnostic test. These values must be set to the default values.

For single beam printheads, see PQE Stroke Width Adjustment.

For two beam 240 printheads, see PQE Stroke Width.

For two beam 240/300 printheads, see PQE Stroke Width.

Disk Operations

If you select **Disk Operations** on the Service Actions menu, you can update the system microcode, and back up and restore the hard-disk files.

Table 280. Disk Operations

Update Microcode

Select this function to determine the current microcode version and EC level.

Attention: Never install a lower version of microcode. If the new level microcode version does not work correctly, contact your next level support.

To update the microcode,

1. Select **Diskette** as the source of the update.
2. Select the **Update** button.

Select the **Cancel** button to close the window without updating the microcode.

Back Up Disk

Select this function to back up the configuration information to diskette.

Select the **Continue** button to perform the backup, or the **Cancel** button to close the window without backing up the configuration information.

Restore Disk

Select this function to restore the configuration files from the backup diskette to the hard disk files.

Attention: Do NOT use the Restore Function in the following cases or the hard drive data will be damaged.

- For code versions prior to level 6.1, the code version in use when the backup diskette was created is not the same as the code version installed in the printer.
- If the model, feature, or RPQ is not the same on the backup diskette as on the printer where the configuration files are to be restored. For example, a DW2 backup diskette cannot be used on a DW2 with the 229 PPM feature installed.

Select the **OK** button to perform the restore or the **Cancel** button to close the window without restoring.

Note: After this function is completed, a reboot of the printer is required. Messages on the screen will provide instructions.

Table 280. Disk Operations (continued)

Note: The following pertains to microcode level 9.2 or higher.

Save Forms

Select this function to save the forms information for loading to a another printer. Save all the “Defined Forms”information on a blank 1.4MB formatted diskette. The Save function will only save forms information for the current printer mode (either simplex for duplex).

Restore Forms

Select this function to restore the forms information on a “Save Forms” diskette taken from one printer to restore to another printer. The “Restore Forms” function will only restore forms information for the current printer mode (either simplex for duplex).

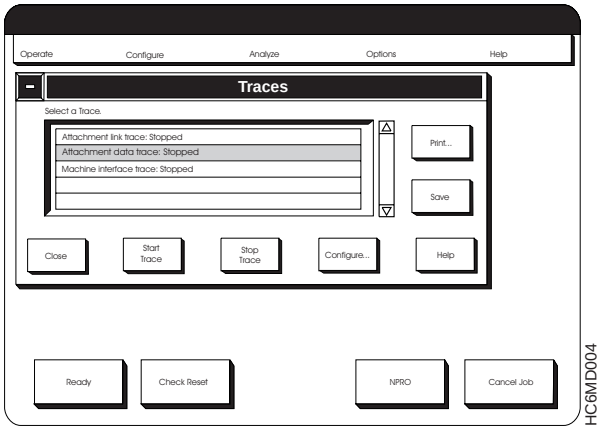
Traces

Table 281. Traces

This function requires a password and can be used by a key operator as well as by a customer engineer.

Traces lets you record channel and microcode events as an aid in resolving problems. More than one trace can be started at one time, and a trace remains active until you stop it. When you start a trace, data from a previous trace of the same kind is lost unless you have printed the earlier trace.

Stop a trace before you try to print it. Powering off does not stop a trace but does cause the data to be lost.



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Note: Disable all attachments before you print traces, print samples, and error logs.

To access the Traces:

1. Select **Analyze** on the menu bar
2. Select **Traces** on the menu that appears.
3. The Traces window shows you the status of each trace as Started or Stopped.

The buttons in the window let you

- **Start**
- **Stop**
- **Configure** (used only with the Internal Control Unit Trace).

Note: The **Configure** button is grayed out unless you have entered a CE password.

- **Print**
- **Save**

Table 281. Traces (continued)

To **run** a trace:

1. Select the trace on the list in the Traces window.
2. Select the **Start Trace** button.
3. Run the operation you want to trace. If an operational problem occurs, stop the trace.
4. Select the **Stop Trace** button when you have collected sufficient data.
5. Select the **Print** button. Do not send this printout to Engineering unless you are requested to do so. It is better to send a diskette for analysis, as noted below.

To **save** a trace:

1. After you select, run, and stop a trace, select the **Save** button.
2. Insert a formatted 3.5-inch diskette in the diskette drive of the RISC controller as instructed in the pop-up window.
3. Select the **Save** button in the pop-up window.
4. If there is a problem that needs to be resolved, send the diskette to Engineering for analysis.

Attachment Link Trace

This trace records the activity in the attachment driver.

Attachment Data Trace

This trace records the data that passes between the host and the rasterizer.

Mechanism Interface Trace

This trace records all operations of the mechanism interface card (MIC).

Internal Control Unit Trace

This trace continuously records the communications being generated and sent within and among the subsystems of the control unit. For more details on this trace see Configuring the Internal Control Unit Trace.

Configuring the Internal Control Unit Trace

Table 282. Configuring the Internal Control Unit Trace

Note: You probably will use these traces only when working with your next level support.

Unlike the other traces, you can print this “always on” trace without stopping it.

The standard default activities that are traced are as follows:

- Printer Ops
- Display/Touch Screen
- Mechanism
- Rasterizer
- Decompressor
- Attachment

For a list activities that you can configure for this trace see Table 283.

To configure the internal control unit trace:

1. Select it on the list of traces.
2. Select the **Configure** button.
3. Make your selections on the Subsystems and Trace Items menus.
4. Select the **Run** button to start these additional traces.
5. Select the **Reset** button to stop these additional traces.

Table 283. Internal Control Activity Options

You can configure this trace to record the following activities:	C–Communications M–Memory creation P–Process creation Q–Queue access R–Resources S–Shared memory access T–Timer services D–Data Base L–Data Base Library	0–User level 0 1–User level 1 2–User level 2 3–User level 3 4–User level 4 5–User level 5 6–User level 6 7–User level 7 8–User level 8 9–User level 9	a–User level 10 b–User level 11 c–User level 12 d–User level 13 e–User level 14 f–User level 15 g–User level 16
The activities can be recorded for these subsystems:	Global Printer Ops Display/Touch Screen Mechanism Rasterizer Decompressor Attachment	Msnwrite_Cntl Msnwrite_PM Msnread_Status Msnshift Internalprint TCP_Attachment	DM TM Msn_Model_Input Msn_Input1_Main Msnwrite_pd snmp

Print Samples

Table 284. Print Samples

Note: Disable all attachments before you print traces, print samples, or error logs.

An operator can use this function as well as a customer engineer because it does not require a password.

Use this function to print selected samples:

- All samples (8 each of the following)
- Primary
- Alternate
- All white
- Bar code
- Text 1
- Text 2
- Color
- MICR

To access the Print Samples:

1. Select **Analyze** on the menu bar of the Display/Touch Screen main window.
2. Select **Print Samples** on the menu that appears.
3. Select the sample you want to print.
4. Select the **How Many?** field. A numeric key pad appears along with keys to control the position of the cursor in the pad's data field.
5. Select the number of copies.
6. Select the **OK** key. The Print Samples window reappears with the new value.
7. Select the **Print** button.

Eight is the minimum number of copies you need to see repeating spots (2 revolutions) on the photoconductor drum when you use an 8.5-in. wide form. For other form widths, divide twice the circumference of the drum 165.1 cm (65 in.) by the form width to determine the minimum number of copies to print.

Patterns are truncated if the form is smaller than the pattern. If a failure occurs during a test, the SRC is displayed and can be used as an entry point to the MAPs.

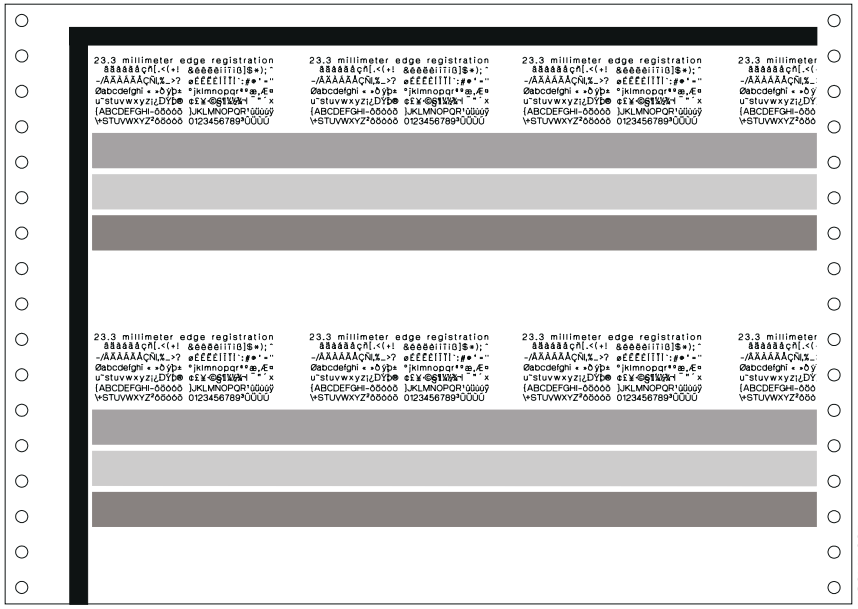
Print Sample Terms

The following terms are used in describing the print-quality samples:

Term	Definition
Scan (horizontal) direction	The direction the laser beam travels in the printer, from the front of the printer to the rear.
Process (vertical) direction	The direction the forms travel through the printer, from the transfer station to the stacker area.
Leading edge	The edge of the forms that proceeds first through the printer.
Scan edge	The edge of the forms nearer the front of the printer.
Registration	The location of the image on the forms.

Primary Print Sample

Table 285. Primary Print Sample

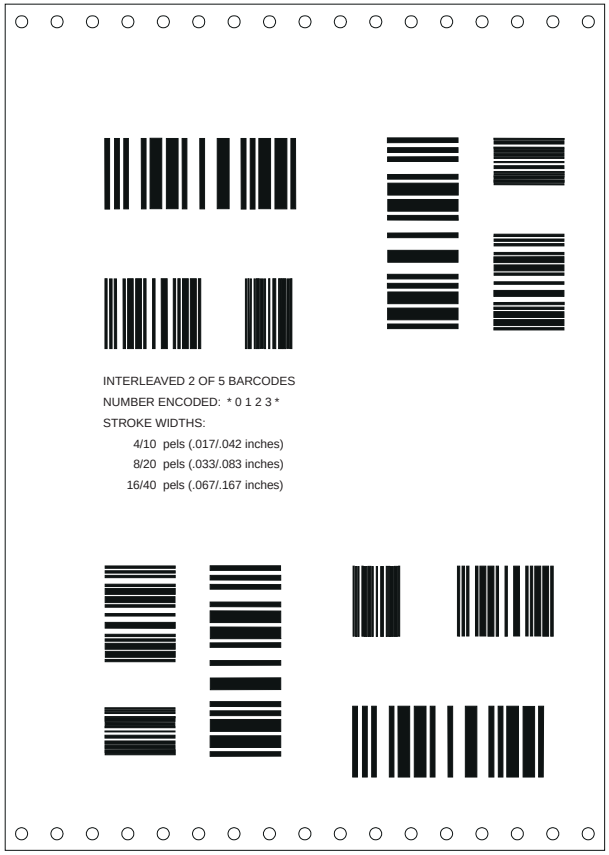


Use the primary sample to evaluate overall print quality. The primary sample is repeated to fill the form being used; it contains:

- **Wide scan and process band patterns (100% black shading).**These patterns can disclose light prints and defects such as poor density, corona streaks, and clinkers of toner. The bands also allow you to check the edge definition in the scan direction. For registration, the 100% black band should be 23.3 mm from the front form edge.
- **A 25% black shading pattern**. This pattern corresponds to a job that specifies light print.
- **A 6% black shading pattern**. This pattern corresponds to a job that specifies extra light print.
- **A 47% black shading pattern**. This pattern corresponds to a job that specifies medium dark print.
- **Default font**. Use this pattern to verify that the font prints correctly.

Bar Code Sample

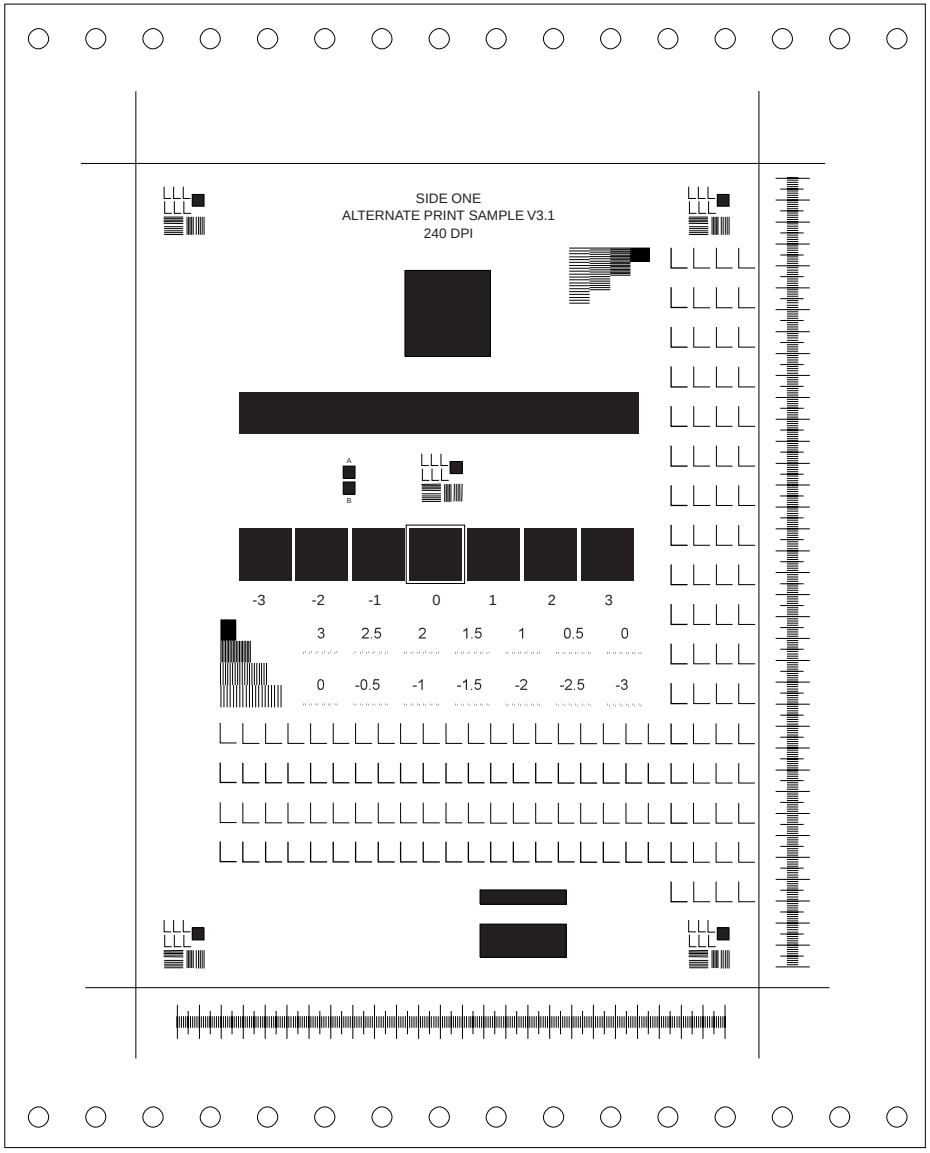
Table 286. Bar Code Sample



Use the bar code sample to test the accuracy of printing for optical scanning. Symbols in different sizes are printed in both the process and the scan directions.

Alternate Print Sample

Table 287. Alternate Print Sample



Use the alternate sample to evaluate other print-quality problems such as spots, background streaks, and light print.

The alternate sample contains:

- **A straight line in the process direction**. Use this pattern to check for lines not printing straight in the process direction.
- **A straight line in the scan direction**. Use this pattern to check for lines not printing straight in the scan direction.
- **Magnification bars**. Use this pattern to check for even spacing. Irregular spacing indicates that moving parts within the printer are changing speed during printing.
- **Black patches**. Use this pattern to check for light print and defects.
- **A character written with a 1-pel scan line and a 1-pel process line**. Use this pattern to detect problems printing characters and images that are 1 pel wide.
- **A character written with a 2-pel scan line and a 2-pel process line**. Use this pattern to detect problems printing characters and images that are 2 pels wide.
- **A character written with a 3-pel scan line and a 3-pel process line**. Use this pattern to detect problems printing characters and images that are 3 pels wide.
- **A character written with a 4-pel scan line and a 4-pel process line**. Use this pattern to detect problems printing characters and images that are 4 pels wide.
- **A set of concentric boxes.** Use this pattern to compare stroke widths in the scan and process directions.

Gray Print Sample

Use the gray sample to detect spots and streaks. A 24% black shading pattern is printed on the entire page.

All White Print Sample

Use the all-white sample to detect marks, residual images, and background. The electrophotographic process is turned on and forms are fed through the printer, but no print data is sent to the printer (that is, all pels are off).

Postprocessor Print Sample

Use this sample to detect problems with the OFFSET signal for postprocessing equipment. One copy of the postprocessor print sample will print 200 sheets (200 simplex pages or 400 duplexed pages). The print sample will generate “Alternate Offset Stacker” signals, which will activate the OFFSET signal in the postprocessor interface cable. The sample will be printed in sets of 20 sheets, and the first sheet of each set will toggle the OFFSET signal. The print sample will allow testing, problem isolation, and setup of postprocessor equipment that supports the OFFSET signal.

Text 1 Print Sample

Use this text sample to evaluate general print quality when running large numbers of prints. The text sample is a repetition of the letter E. It represents 4% for a 216 x 279-mm (8.5 x 11-in.) print. Three copy marks are printed at the perforation.

Text 2 Print Sample

Use this text sample to detect spots and streaks. The sample has characters covering the page.

Printhead Power Sample

Use the printhead power sample to measure the effect of printhead power at the drum when directed by your next level support. A 38-mm wide black stripe is printed 137 mm from the front edge of the paper. The printhead power sample also produces a thin line in the carrier strip centered at the location of the Side1/Side2 verification marks. The thin line may be used to adjust the position of the Side1/Side2 verification sensor.

Color Print Sample

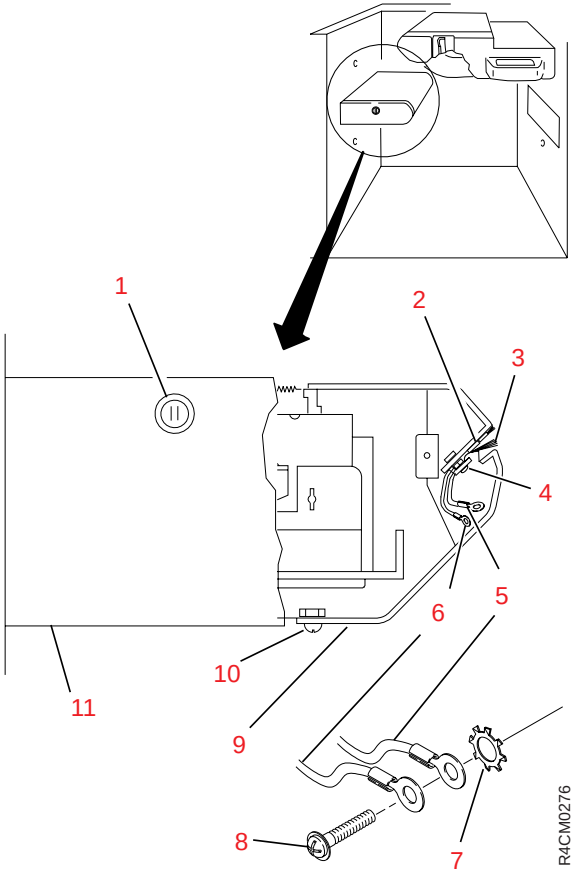
Use the color sample to check the color print quality when using an Infoprint 4000 Hi-Lite Color postprocessor. (Available only with color RPQ # 8B4013.)

MICR Print Sample

Use the MICR sample to generate sample MICR data that can be checked by a MICR reader to verify the read quality of the MICR output. This sample is only available if the internal MICR toner RPQ is installed.

Printer Diagnostics

Table 288. Maintenance Panel



Maintenance Panel

Printer diagnostics, which you run from the maintenance panel, allow you to:

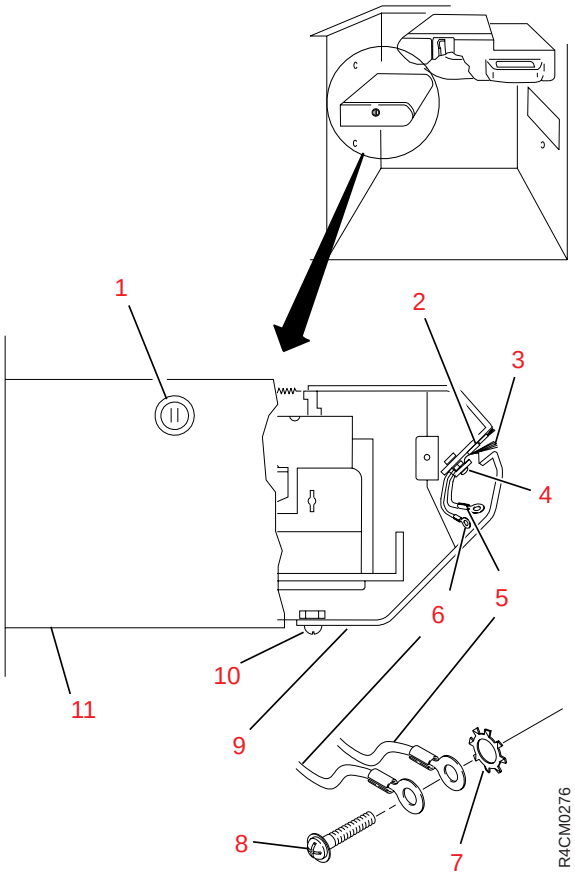
- Read or write to the printer memory
- Test individual printer parts
- Clear the printer memory.

The maintenance panel is located inside the front center of the printer. It has a 4-digit LED display and a hexadecimal key pad.

To access the maintenance panel:

1. On the maintenance panel cover, turn the gold colored thumb screw **(1)** counterclockwise.
2. Remove the cover.
3. Pull out the maintenance panel.

Table 288. Maintenance Panel (continued)

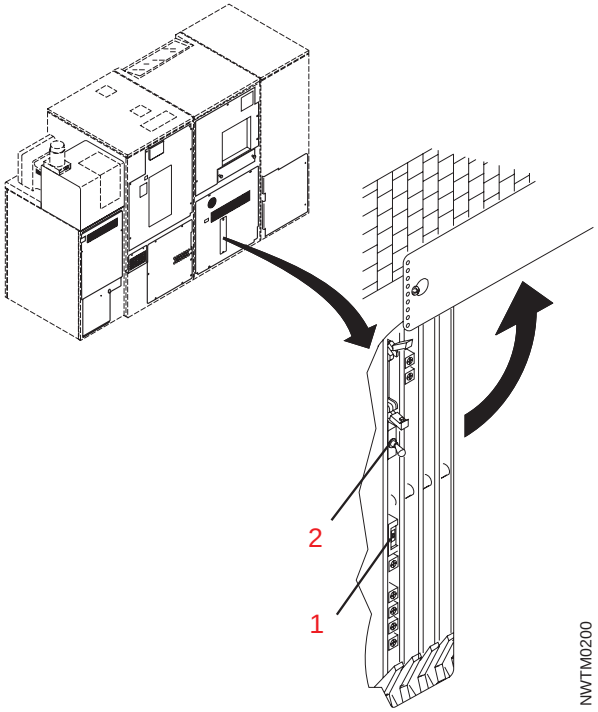


When you have completed your service call, reverse the procedure to put away the maintenance panel.

An extension cable is available to allow you to move the panel close to where you are working. (See Maintenance Panel and Extension Cable.) For example, it is convenient to have the panel on top of the machine when performing printhead adjustments. The cable is normally stored in the control unit along with the other special tools. The connectors are keyed, so that they cannot be installed upside down. When using the extension cable, remember:

- Always power off the machine before connecting or disconnecting the extension cable.
- Do not attach the panel to a vertical surface, such as a cover. The magnets are not strong enough to hold the panel, and they may scratch the paint.

Table 288. Maintenance Panel (continued)



Diagnostic Function Switch and Reset Switch Locations

Diagnostic Function Switch

You use the diagnostic function switch **(1)** to select among the various functions of the maintenance panel.

- The switch is labeled **S2** and is located on the edge of the B1J11 Card.
- You can reach it through a small cover directly over the card by loosening the screws, lifting the cover, and swinging it to one side.
- It is a rotary switch with 10 positions, 0–9. The switch functions are described in Diagnostic Function Switch Positions.
- After setting the diagnostic function switch to 3 or 8, the function is not available until the reset switch is toggled or the printer is powered on.

Reset Switch

- The reset switch **(2)** is located above the diagnostic function switch on the B1J11 Card.
- The reset switch is a spring-loaded toggle switch used with the diagnostic function switch when the diagnostic function switch is set to position 3 or 8.
- Use the reset switch to start the diagnostic functions associated with the switch setting.
- When the diagnostics are completed, return the diagnostic function switch to position 0, and toggle the reset switch or power on the printer.

Diagnostic Function Switch Positions

Table 289. Settings and Functions of the Diagnostic Function Switch

Switch Position	Function	Description	Refer to Page:
0	Normal print	Normal operating mode. Set the switch to this position before you power on or reset the printer.	1610
1	Not used		
2	Read from or write to memory	Allows nonvolatile storage (NVS) to be read or written.	1611
3	Driver, sensor, and encoder margin tests, and adjustment routines	Tests the operation of the motors, sensors, and encoders, and gives feedback while making adjustments.	1627
4	Not used		
5	Read memory address string	Allows long strings of continuous memory addresses to be conveniently read.	1718
5	Modify steering servo	Allows the service representative to increase servo gain.	1719
5	Modify backup roll lift motor open/close timing	Allows the service representative to change backup roll lift motor open/close timing.	1721
6	Not used		
7	Not used		
8	Clear memory	Clears the contents of the NVS (memory). **Attention:** Use with caution because the contents of the NVS cannot be recovered once the NVS is cleared.	1725
9	Optical sensor margin tests	Tests the optical sensors for low output.	1726

Normal Print (Position 0)

When the diagnostic function switch is set to position 0, printer-logic routines automatically run and are followed by a printer warm-up sequence whenever you:

- Initially power on the printer
- Move the reset switch.

To start the initialization sequence:

1. Set the diagnostic function switch to position 0.
2. Either power on the printer or move the reset switch.

When the printer-logic routines complete, the maintenance panel displays:

0	0	0	0

If an error code appears before the above is displayed, see MAP 0010: Symptom Start MAP.

Read From or Write to Memory (Position 2)

Note: For information on reading from and writing to the Toner Control Program, see Read From or Write to Toner Control Program Memory (Position 2).

With the diagnostic function switch set to position 2, you can read from or write to NVS. Doing this helps you:

- Restore the developer mix count if it is necessary to drain and reinstall it
- Read and change machine operating parameters.

Preparing to Read From or Write to Memory

Step 1	Set the diagnostic function switch to position 2.				
Step 2	Move the maintenance panel to the service position.				
Step 3	Wait until the maintenance panel display looks like this:	F			_
Step 4	Press **3** followed by **Enter.**				
Step 5	The display shows a flashing:	u	c		_

Reading from Memory

Step 1	First follow the steps in Preparing to Read From or Write to Memory.				
Step 2	Use Memory Addresses and Values to find the addresses for the counters you want to display. **Note:** Counters usually consist of two memory addresses—a high and a low address.				
Step 3	The maintenance panel display is flashing and looks like this:	u	c		_
Step 4	Press **0 1** followed by **Enter.**				
Step 5	The display shows:	u	c	0	1
Step 6	The display changes to a flashing:				_
Step 7	Enter the memory address, for example, **F F 0 1**.				
Step 8	The display shows a flashing:	F	F	0	1
Step 9	Press **Enter**.				
Step 10	The display shows: Where 0 1. is the low-order byte of the selected address, and X Y is the value at that address.	0	1.	X	Y
Step 11	Press **Enter** to go to the next memory address (FF02).				
Step 12	To determine actual feet, combine the two values read from two memory addresses and add three zeros. For example, suppose FF1F contained 01 and FF1E contained 40; the combined result would be 0140, to which you add three zeros. Thus, 0 140 000 linear feet have printed since that counter was last set to zero.				
Step 13	Press **Start/Stop** when you are finished reading memory addresses.				

Writing to Memory

Step 1	First follow the steps in Preparing to Read From or Write to Memory.				
Step 2	Use Memory Addresses and Values to find the memory addresses for the counters you want to display or change. **Note:** Counters usually consist of two memory addresses—a high address and a low address.				
Step 3	The maintenance panel display is flashing and looks like this:	u	c		_
Step 4	Press **F 1** followed by **Enter.**				
Step 5	The display shows:	u	c	F	1
Step 6	The display changes to a flashing:				_
Step 7	Enter the memory address, for example, **F F 1 E**				
Step 8	The display shows a flashing:	F	F	1	E
Step 9	Press **Enter**				
Step 10	The display shows: Where 1 E. is the low-order byte of the selected address, and X Y is the value at that address.	1	E.	X	Y
Step 11	Enter the desired value, for example, **5 0**				
Step 12	The display shows:	1	E.	5	0
Step 13	Press **Enter.**				
Step 14	The display changes to: Where 1 F. is the next address (1F is the high-order byte in this example) and X Y is the value at that address.	1	F.	X	Y
Step 15	Press **Enter** to go to the next memory address, if desired.				
Step 16	Press **Start/Stop** when you are finished writing memory addresses.				

Memory Addresses and Values

The memory addresses and values vary depending on the type of toner being used in the printer.

Check the toner part number for the printer.

If the toner is part number 70X7425 or 1402822 : Go to Memory Addresses and Values - Standard Toner.

If the toner is part number 1402833 : Go to Memory Addresses and Values for Toner P/N 1402833.

Memory Addresses and Values - Standard Toner:

Note: See Hexadecimal-to-Decimal Conversion for conversion assistance.

Table 290. Memory Addresses and Values

Memory Address (Hex)	Description	Default Value (Hex)	Actual Value or Other Valid Value (Hex)
FF09 (high) FF08 (low)	Standard developer-mix reference setting.	14 (high) 00 (low)	Approximately 1.4 Mft
FF0D (high) FF0C (low)	Oil feed rate when not printing (minutes between feeds)	00 20	0D = 00 0C = 10, 20, 25, 30, 35
FF1F (high) FF1E (low)	Developer mix usage value based on conveyor roll revolutions. This usage is greater than the actual footage printed.	Mix usage ÷ 1000. If usage is unknown, install new mix.	× 1000
FF20	Oil feed rate during printing (printing between feeds) When set to 32 or lower (high oil feed rate), ensure an oil pan is installed.	Normal value = 32	
FF21	Cycle time for oiler belt (seconds between belt movements)	Normal value = 08 for printers with oiler belts Normal value = 00 for printers with oiler rolls	08 = 1.2 seconds 04 = 0.6 second 02 = 0.3 second
FF23	Steering pulley maximum rotation.	26	37 = 37 steps
FF25	Flag to save steering control changes	00 = Restore default values in addresses FF23, FFA1, and FFA2	FF = Save changes
FF28 (See note 1)	Number of times the toner feed button was pushed		00, 01, 02, 03, 04, 05, 06, 07 CHANGE TONER COLLECTOR at 08

Table 290. Memory Addresses and Values (continued)

Memory Address (Hex)	Description	Default Value (Hex)	Actual Value or Other Valid Value (Hex)
FF29 (See note 1)	Page counter after toner empty was detected		100 pages/count ADD TONER at X'0A'
FFA1 (See note 2)	Steering gain	63	42
FFA2 (See note 2)	Steering gain	63	42

Notes:

1. This memory address does not need to be updated or restored in case of an NVS erase.
2. This memory value must be set using diagnostic function switch position 5 (see Modify Steering Servo (Position 5)).

Memory Addresses and Values for Toner P/N 1402833:

Note: See Hexadecimal-to-Decimal Conversion for conversion assistance.

Table 291. Memory Addresses and Values for Toner P/N 1402833

Memory Address (Hex)	Description	Default Value (Hex)	Actual Value or Other Valid Value (Hex)
FF09 (high) FF08 (low)	1402833 developer-mix reference setting.	10 (high) 00 (low)	Approximately 1.0 Mft
FF0D (high) FF0C (low)	Oil feed rate when not printing (minutes between feeds)	00 20	0D = 00 0C = 10, 20, 25, 30, 35
FF1F (high) FF1E (low)	Developer mix usage value based on conveyor roll revolutions. This usage is greater than the actual footage printed.	Mix usage ÷ 1000. If usage is unknown, install new mix.	× 1000
FF20	Oil feed rate during printing (printing between feeds) When set to 32 or lower (high oil feed rate), ensure an oil pan is installed.	Normal value = 32	
FF21	Cycle time for oiler belt (seconds between belt movements)	Normal value = 08 for printers with oiler belts Normal value = 00 for printers with oiler rolls	08 = 1.2 seconds 04 = 0.6 second 02 = 0.3 second
FF23	Steering pulley maximum rotation.	26	37 = 37 steps
FF25	Flag to save steering control changes	00 = Restore default values in addresses FF23, FFA1, and FFA2	FF = Save changes
FF28 (See note 1)	Number of times the toner feed button was pushed		00, 01, 02, 03, 04, 05, 06, 07 CHANGE TONER COLLECTOR at 08

Table 291. Memory Addresses and Values for Toner P/N 1402833 (continued)

Memory Address (Hex)	Description	Default Value (Hex)	Actual Value or Other Valid Value (Hex)
FF29 (See note 1)	Page counter after toner empty was detected		100 pages/count ADD TONER at X'0A'
FFA1 (See note 2)	Steering gain	63	42
FFA2 (See note 2)	Steering gain	63	42

Notes:

1. This memory address does not need to be updated or restored in case of an NVS erase.
2. This memory value must be set using diagnostic function switch position 5 (see Modify Steering Servo (Position 5)).

Read From or Write to Toner Control Program Memory (Position 2)

Check the toner part number for the printer.

If the toner is part number70X7425 or 1402822: Go to Read From or Write to Toner Control Program Memory (Position 2) - Standard Toner 1402822

If the toner is part number 1402833: Go to Read From or Write to Toner Control Program Memory (Position 2) - Toner 1402833

Read From or Write to Toner Control Program Memory (Position 2) - Standard Toner 1402822

With the diagnostic function switch set to position 2, you can Read from or Write to NVS to change the Toner Control Program or see what value is set in the Toner Control Program.

Attention: Use only the values indicated in this procedure, unless you are instructed otherwise by level 2 support.

Step 1	Set the diagnostic function switch to position 2.				
Step 2	Move the maintenance panel to the service position				
Step 3	Wait until the maintenance panel display looks like this:	F			_
Step 4	Press **5** followed by **Enter**.				
Step 5	The display shows: Where “XX” is the selected Toner Control Program for 229 PPM speed.	2	2	X	X
Step 6	For **Japan** printers toner P/N **1402822** key in **53** . All **other** printers toner P/N **1402822** key in **63** .For **Japan** printers toner P/N **70X7425** key in **51** (This value provided for reference only). All **other** printers toner P/N **70X7425** key in **61** (This value provided for reference only). Press **Enter**.				
Step 7	Press **Enter**.				
(continued on next page)					
Step 8	The display shows: Where “XX” controls the drum surface voltage and developer bias voltage.	2	H	X	X
Step 9	For **Japan** printers toner P/N **1402822** key in **A2** . All **other** printers toner P/N **1402822** key in **A4** .For **Japan** printers toner P/N **70X7425** key in **A1** (This value provided for reference only). All **other** printers toner P/N **70X7425** key in **A3** (This value provided for reference only). Press **Enter**.				

Step 10	Press **Enter**.				
Step 11	The display shows:	1	5	X	X
Step 12	Press **Enter** to accept the default value.				
Step 13	The display shows:	1	H	X	X
Step 14	Press **Enter** to accept the default value.				
Step 12	Press **Enter**.				
Step 13	The flashing display shows:	F			_
Step 15	Press **STOP** to complete this procedure.				
Step 16	Return the diagnostic function switch to position **0**.				

Read From or Write to Toner Control Program Memory (Position 2) - Toner 1402833

With the diagnostic function switch set to position 2, you can Read from or Write to NVS to change the Toner Control Program or see what value is set in the Toner Control Program.

Attention: Use only the values indicated in this procedure, unless you are instructed otherwise by level 2 support.

Step 1	Set the diagnostic function switch to position 2.				
Step 2	Move the maintenance panel to the service position				
Step 3	Wait until the maintenance panel display looks like this:	F			_
Step 4	Press **5** followed by **Enter** Keep selecting Enter until the display shows:.				
Step 5	The display shows: Where “YY” is **22** for OW1 and DW1/2 with 42xx. Where “XX” is the selected Toner Control Program. Key **FF** in the “XX”fields.	Y.	Y.	X	X
Step 6	Press **Enter** to advance to the next display. If the display comes up with **02** in the left windows, continue with the tables below. If the display comes up with **05** in the left windows, continue at step **7** on page 1625.				
Step 7	The display shows:	0	2	X	X
Step 8	Key **09** in the “XX” fields and press **Enter**.				
Step 9	The display shows:	0	4	X	X
Step 10	Key **09** in the “XX” fields and press **Enter**.				
Step 11	The display shows:	0	6	X	X
Step 12	Key **09** in the “XX” fields and press **Enter**.				
Step 13	The display shows:	0	8	X	X
Step 14	Key **09** in the “XX” fields and press **Enter**.				

Step 15	The display shows:	1	0	X	X
Step 16	Key **09** in the “XX” fields and press **Enter**.				
Step 17	The display shows:	1	5	X	X
Step 18	Key **09** in the “XX” fields and press **Enter**.				
Step 19	The display shows:	2	0	X	X
Step 20	Key **09** in the “XX” fields and press **Enter**.				
Step 21	The display shows:	3	0	X	X
Step 22	Key **09** in the “XX” fields and press **Enter**.				
Step 23	The display shows:	4	0	X	X
Step 24	Key **09** in the “XX” fields and press **Enter**.				
Step 25	The display shows:	5	0	X	X
Step 26	Key **09** in the “XX” fields and press **Enter**.				
Step 27	The display shows:	1	0.	X	X
Step 28	Key **0A** in the “XX” fields and press **Enter**.				
Step 29	The display shows:	1	5.	X	X
Step 30	Key **0A** in the “XX” fields and press **Enter**.				
Step 31	The display shows:	2	5.	X	X
Step 32	Key **0A** in the “XX” fields and press **Enter**.				
Step 33	The display shows:	3	5.	X	X
Step 34	Key **09** in the “XX” fields and press **Enter**.				
Step 35	The display shows:	4	5.	X	X
Step 36	Key **09** in the “XX” fields and press **Enter**.				
Step 37	The display shows:	6	0.	X	X

Step 38	Key **08** in the “XX” fields and press **Enter**.				
Step 39	The display shows:	7	0.	X	X
Step 40	Key **08** in the “XX” fields and press **Enter**.				
Step 41	The display shows:	8	0.	X	X
Step 42	Key **07** in the “XX” fields and press **Enter**.				
Step 43	The display shows:	9	0.	X	X
Step 44	Key **07** in the “XX” fields and press **Enter**.				
Step 45	The display shows:	1.	2	X	X
Step 46	Key **07** in the “XX” fields and press **Enter**.				
Step 47	The display shows:	1.	4	X	X
Step 48	Key **07** in the “XX” fields and press **Enter**.				
Step 49	The display shows:	F	F	X	X
Step 50	Key **07** in the “XX” fields and press **Enter**.				
Step 51	The display shows: Where “Z” is “2” for ID1/2 & IS1. Where “XX” controls the drum surface voltage and developer bias voltage.	Z.	H.	X	X
Step 52	For **Japan** printers toner P/N **1402833** key in **A2**. All **other** printers toner P/N **1402833** key in **A4**.				
Step 53	Press **ENTER**.				
Step 54	Press **STOP** to complete this procedure.				
Step 55	Return the diagnostic function switch to position **0**.				

For ID1/2 & IS1 when display shows **05**.					
Step 07	The display shows:	0	5	X	X
Step 08	Key **09** in the “XX” fields and press **Enter**.				
Step 09	The display shows:	1	0	X	X
Step 10	Key **09** in the “XX” fields and press **Enter**.				
Step 11	The display shows:	2	0	X	X
Step 12	Key **09** in the “XX” fields and press **Enter**.				
Step 13	The display shows:	3	0	X	X
Step 14	Key **09** in the “XX” fields and press **Enter**.				
Step 15	The display shows:	4	0	X	X
Step 16	Key **09** in the “XX” fields and press **Enter**.				
Step 17	The display shows:	5	0	X	X
Step 18	Key **09** in the “XX” fields and press **Enter**.				
Step 19	The display shows:	1	0.	X	X
Step 20	Key **0A** in the “XX” fields and press **Enter**.				
Step 21	The display shows:	1	5.	X	X
Step 22	Key **0A** in the “XX” fields and press **Enter**.				
Step 23	The display shows:	2	5.	X	X
Step 24	Key **0A** in the “XX” fields and press **Enter**.				
Step 25	The display shows:	3	5.	X	X
Step 26	Key **09** in the “XX” fields and press **Enter**.				
Step 27	The display shows:	4	5.	X	X
Step 28	Key **09** in the “XX” fields and press **Enter**.				

Step 29	The display shows:	6	0.	X	X
Step 30	Key **08** in the “XX” fields and press **Enter**.				
Step 31	The display shows:	7	0.	X	X
Step 32	Key **08** in the “XX” fields and press **Enter**.				
Step 33	The display shows:	8	0.	X	X
Step 34	Key **07** in the “XX” fields and press **Enter**.				
Step 35	The display shows:	9	0.	X	X
Step 36	Key **07** in the “XX” fields and press **Enter**.				
Step 37	The display shows:	1.	2	X	X
Step 38	Key **07** in the “XX” fields and press **Enter**.				
Step 39	The display shows:	1.	4	X	X
Step 40	Key **07** in the “XX” fields and press **Enter**.				
Step 41	The display shows:	F	F	X	X
Step 42	Key **07** in the “XX” fields and press **Enter**.				
Step 43	The display shows: Where “Z” is “2” for ID1/2 & IS1. Where “XX” controls the drum surface voltage and developer bias voltage.	Z.	H.	X	X
Step 44	For **Japan** printers toner P/N **1402833** key in **A2**. All **other** printers toner P/N **1402833** key in **A4**.				
Step 45	Press **ENTER**.				
Step 46	Press **STOP** to complete this procedure.				
Step 47	Return the diagnostic function switch to position **0**.				

Exerciser Routines (Position 3)

You run the exerciser routines from the maintenance panel.

The exerciser routines are divided into three types:

- Driver Routines which enable you to test the operation of components such as motors, corona drivers, fans, oil pumps and lamps.
- Sensor Routines enable you to test the operation of sensors, encoder boards and switches.
- Adjustment Routines allow you to adjust the AO modulators and drivers, drum surface voltage, toner concentration, retractor acceleration time, autoload drive, tension arm encoder, steering servo, and backup roll open/close times.

Preparing to Run Exerciser Routines

1. Remove all forms from the forms path if necessary.
2. Move the maintenance panel to the service position.
3. Set the diagnostic function switch to position 3.
4. Either power on the printer or toggle the reset switch.

At this point, you can select the run options and the routine you want to invoke.

Run Options

You can select different options for the routines you run.

These options enable you to:

- Change loop count
- Set buzzer on or off
- Read memory address
- Set optical sensor margin check on or off.

Selecting Run Options

Step 1	Remove all forms from the forms path if necessary.				
Step 2	Move the maintenance panel to the service position.				
Step 3	Set the diagnostic function switch to position 3.				
Step 4	Either power on the printer or toggle the reset switch.				
Step 5	The display shows: Where X can be one of the following: - No option selected. 0 A loop count has been selected. 1 Continuous looping has been selected 5 A margin check of the optical sensors has been selected.	F	X		_
Step 6	Enter the option number: (For example, **E 0**)				
Step 7	The display shows: with **E 0** flashing.	F	X	E	0
Step 8	Press **Enter**.				
Step 9	The display shows: The operation executes.	F	X	E	0
Step 10	The remaining displays depend on which routine was selected.				
Step 11	Press **Start/Stop**, to select a routine or to change the option that was selected.				
Step 12	After completing testing: 1. Set the diagnostic function switch to position 0. 2. Toggle the reset switch.				

Run Option E0 - Change Loop Count:

Use this function to set the number of times a driver routine will loop.

Valid values are 01 to FF (in hex).

Entering FF causes the routine to loop continuously.

This setting applies only to the next driver routine you select. After that routine completes the loop option is automatically reset to 01.

Note: See Hexadecimal-to-Decimal Conversion for conversion assistance.

Step 1	Follow the procedure in Selecting Run Options to start a run option.				
Step 2	Enter run option E0.				
Step 3	The display shows:	c	–		_
Step 4	Enter the loop count: (For example, **1 A** for 26 loops.)				
Step 5	The display shows: **1 A** flashing.	c	–	1	A
Step 6	Press **Enter**.				
Step 7	The display shows:	c	–	1	A
Step 8	Press **Start/Stop**.				
Step 9	Go to Driver Routines and select the desired routine.				

Run Option E2 - Set Buzzer On or Off:

Use this function to turn on or off the printer diagnostic buzzer.					
Step 1	Follow the procedure in Selecting Run Options to start a run option.				
Step 2	Enter run option E2.				
Step 3	The display shows: Where X can be one of the following: 0 Buzzer presently set off. 1 Buzzer presently set on.	b	X	-	_
Step 4	Change the setting if desired. (For example, enter **0** to turn the buzzer off.)				
Step 5	The display shows: with **- 0** flashing.	b	1	-	0
Step 6	Press **Enter**.				
Step 7	The display shows:	b	1	-	0
Step 8	Press **Start/Stop**				
Step 9	Go to Sensor Routines or Driver Routines and select the desired routine.				

Run Option E4 - Read Memory Address:

Use this function to read from printer memory. Use diagnostic function switch position 2 to write to the memory. **Note:** See Hexadecimal-to-Decimal Conversion for conversion assistance.					
Step 1	See Selecting Run Options for the procedure to start a run option.				
Step 2	Enter run option E4.				
Step 3	The display shows:				_
Step 4	Enter the memory address. (For example, **F 1 0 1**)				
Step 5	The display shows a flashing:	F	1	0	1
Step 6	Press **Enter**.				
Step 7	The display shows: Where 0 1. is the low order byte of the selected address, and X Y is the value at that address.	0	1.	X	Y
Step 8	Press **1** to go to the next memory address (FF02), or press **0** to go to the previous memory address (FF00).				
Step 9	Press **Start/Stop** when you are finished reading memory addresses.				

Run Option E5 - Set Optical Sensor Margin Check On or Off:

Use this function to check for optical sensors that may fail intermittently. Set the margin check to 1, then run the sensor routine for the sensor in question.					
Step 1	See Selecting Run Options for the procedure to start a run option.				
Step 2	Enter run option E5.				
Step 3	The flashing display shows:	5	o	-	_
Step 4	Enter 1 to turn on the margin check, or 0 to turn off the margin check. For example, enter **1**.				
Step 5	The display shows: with the **1** flashing.	5	o	-	1
Step 6	Press **Enter**.				
Step 7	The display shows:	5	o	-	1
Step 8	Press **Start/Stop**.				
Step 9	Go to Sensor Routines and run the desired routine.				

Driver Routines

Driver routines are used to test components such as motors, sensors, and switches. Table 292 lists the driver routines by number. Table 421 lists all the exerciser routines by part ID, for example, M101, M102.... The routines are described in more detail on the following pages. E1XX Error Codes to MAP Cross Reference lists the Driver Routine error codes.					
Step 1	Remove all forms from the forms path if necessary.				
Step 2	Move the maintenance panel to the service position.				
Step 3	Set the diagnostic function switch to position 3.				
Step 4	Either power on the printer or toggle the reset switch.				
Step 5	The display shows: Where X can be one of the following: - No option selected. 0 A loop count has been selected. 1 Continuous looping has been selected 5 A margin check of the optical sensors has been selected.	F	X		_
Step 6	Enter the routine number: for example, **0 1**				
Step 7	The display looks like this with **0 1** flashing.	F	X	0	1
Step 8	Press **Enter**.				
Step 9	The driver routine runs and the routine number appears:	F	X	0	1
(continued on next page)					

Step 10	The remaining displays depend on which routine was selected. The test number appears while the test is running. **The F - display flashes when the test is complete**.
Step 11	Press **Start/Stop**, to stop the driver routine or select another exerciser routine.
Step 12	After completing the routine you selected: 1. Set the diagnostic function switch to position 0. 2. Toggle the reset switch.

Table 292. Driver Routines by Number

Routine	Part ID	Part Name
01	M201	Mirror Motor
02	M104	Cyclone Blower Motor
03	M106	Cleaner Housing Motor
04	M108	Cleaner Brush Motor (Clockwise)
05	M108	Cleaner Brush Motor (Counterclockwise)
06	M103	Toner Control Motor
07	PL101	Secondary Erase Lamp
08	M107	Drum Motor
09	M101	Mag Brush Motor
0A	M102	Toner Feed Motor
0B	PL102	Primary Erase Lamp
0C	CH1	Charge Corona
0D	CH4	Preclean Corona
0E	CH3	Transfer Corona
0F	CH2	Developer Bias
10	M303	Tractor Motor
11	M304	Retractor Motor
12	M302	Capstan Roll Motor
13	M301	Capstan Pinch Roll Motor
18	M704	Pendulum Motor
19	M704	Pendulum Motor
1B	M803	Stacker Table Motor

Table 292. Driver Routines by Number (continued)

Routine	Part ID	Part Name
1C	M701 M702	Left Finger Belt Motor Right Finger Belt Motor
1F	CH5	Precharge Corona
20	M605	Bridge Feed Motor
21	M606	Bridge Lift Motor
22	M602	Shutter Control Motor
23	M601	Steering Motor
24	M105	Vacuum Blower
25	M603 M609	Backup-Roll Motor Backup Idler Roll Motor
26	M607	Hot Roll Motor
27	M607	Hot Roll Motor
28	M706	Oiler-Belt Motor
29	M604	Scuff Roll Motor
2A	L701	Oil Pump 1
2B	L702	Oil Pump 2
2C	L703	Oil Pump 3
2D	L704	Oil Pump 4
2E	L705	Oil Pump 5
2F	L706	Oil Pump 6
30	PH601 PH602	Preheat Platen
31	Fuser	Fuser

Table 292. Driver Routines by Number (continued)

Routine	Part ID	Part Name
32	B703	Paper Cooling Fans
34	M102	Toner Supply Motor
35	M112	ETL Supply Motor
39	LD091	Forms Width Display
3B	Laser	Laser Ready
3C	M707	Stacker Length Motor
3D	M707	Stacker Length Switch
3F	M202	Resolution Lens Motor
4D	M610	Backup Roll Lift Motor

Driver Routine Descriptions

Table 293. Driver Routine 01

Routine #	01
Routine Name	Mirror Motor (M201 Driver Routine
What happens during the Routine	This test activates the Mirror Motor (M201) for one minute to test the motor and driver operation.
Errors that can be detected	E148

Table 294. Driver Routine 02

Routine #	02
Routine Name	Cyclone Blower Motor (M104) Driver Routine
What happens during the Routine	This test activates the Cyclone Blower Motor (M104) for 5 seconds to test the motor and driver operation.
Error Free Results	If the test completes with no error, a number appears that shows the blower shaft rotation speed. A normal value is 1050 ± 100 RPM for 50 and 60 Hz. (Actual RPM is 10 times this value.)
Errors that can be detected	E1E2

Table 295. Driver Routine 03

Routine #	03
Routine Name	Cleaner Housing Motor (M106) Driver Routine
What happens during the Routine	This test activates the Cleaner Housing Motor (M106) to test the motor and driver operation. 1. The test first detects the initial home position of the Cleaner Housing Motor. 2. The motor continues to turn until the home position is detected again. 3. The buzzer sounds when the home position is detected.
Error Free Results	If the test completes with no error, a value appears in the display. The normal value is 0200 ±6.
Errors that can be detected	E143, E144, E109

Table 296. Driver Routine 04

Routine #	04
Routine Name	Cleaner Brush Motor (M108) Driver Routine
What happens during the Routine	This test operates the Cleaner Brush Motor (M108) in the *clockwise* direction, as seen from the front. The test runs for 5 seconds.
Error Free Results	If the test completes with no error, the display shows a number that indicates the speed of the Cleaner Brush Motor drive shaft. The normal value is 1100± 150 RPM or 1350 ±150 RPM for 310 PPM or 324 PPM
Errors that can be detected	E1E3

Table 297. Driver Routine 05

Routine #	05
Routine Name	Cleaner Brush Motor (M108) Driver Routine
What happens during the Routine	This test runs the Cleaner Brush Motor (M108) in the counter*clockwise* direction, as seen from the front. The test runs for 5 seconds.
Error Free Results	If the test completes with no error, the display shows a number that indicates the speed of the Cleaner Brush Motor drive shaft. The normal value is 1100± 150 RPM or 1350 ±150 RPM for 310 PPM or 324 PPM.
Errors that can be detected	E1E3

Table 298. Driver Routine 06

Routine #	06
Routine Name	Toner Motor Control (M103) Driver Routine
What happens during the Routine	This test runs the Toner Control Motor (M103) for 5 seconds to test the motor and driver operation.

Table 299. Driver Routine 07

Routine #	07
Routine Name	Secondary Erase Lamp (PL101) Driver Routine
What happens during the Routine	This test lights the Secondary Erase Lamp (PL101) for 5 seconds to test the lamp and lamp sensor.
Errors that can be detected	E1CC, E1Cd

Table 300. Driver Routine 08

Routine #	08
Routine Name	Drum Motor (M107) Driver Routine
What happens during the Routine	This test activates the Drum Motor (M107) for 5 seconds to test the motor and driver operation.
Actions you need to perform	Open the transfer station to verify that the drum rotates.

Table 301. Driver Routine 09

Routine #	09
Routine Name	Mag Brush Motor (M101) Driver Routine
What happens during the Routine	This test activates the Mag Brush Motor (M101) for 10 seconds to test the motor and driver operation.
Error Free Results	If the test completes with no error, a number appears that shows the conveyor roll shaft rotation speed. A normal value is280 ±50 RPM at 229 PPM.
Errors that can be detected	E1E1

Table 302. Driver Routine 0A

Routine #	0A
Routine Name	Toner Feed Motor (M102) Driver Routine
What happens during the Routine	This test activates the Toner Feed Motor (M102) for 5 seconds to allow a visual inspection of the toner feed driver operation (Motor turns in the forward direction).
Actions you need to perform	Watch the toner feed roll shaft and the toner hopper paddle shaft to verify that a toner feed operation is performed. **Note:** If the **Enhanced Toner Loading Feature** is **not** installed, the Toner Feed Motor (M102) operates in the forward direction to drive the toner feed shaft and in the reverse direction to drive the toner supply auger. If the **Enhanced Toner Loading Feature** is installed, the Toner Feed Motor (M102) operates in the forward direction to drive the toner feed shaft, but in the reverse direction does not drive the toner supply auger.

Table 303. Driver Routine 0B

Routine #	0B
Routine Name	Primary Erase Lamp (PL102) Driver Routine
What happens during the Routine	This test activates the Erase Lamp (PL102) for 5 seconds to test the lamp and the lamp sensor.
Errors that can be detected	E1d3, E1d4

Table 304. Driver Routine 0C

Routine #	0C
Routine Name	Charge Corona Driver Routine
What happens during the Routine	This test activates the charge corona high voltage power supply for 5 seconds to test the power supply and the corona.
Errors that can be detected	E138

Table 305. Driver Routine 0D

Routine #	0D
Routine Name	Preclean Corona Driver Routine
What happens during the Routine	This test activates the AC corona high voltage power supply for 5 seconds to test the power supply and corona operation.
Errors that can be detected	E136

Table 306. Driver Routine 0E

Routine #	0E
Routine Name	Transfer Corona Driver Routine
What happens during the Routine	This test activates the transfer corona high voltage power supply for 5 seconds to test the power supply and corona operation.
Errors that can be detected	E139

Table 307. Driver Routine 0F

Routine #	0F
Routine Name	Developer Bias Driver Routine
What happens during the Routine	This test activates the developer bias high voltage power supply for 5 seconds to test the developer bias supply and the developer bias.
Errors that can be detected	E137
	Note: Run routine C2 to measure the actual high voltage bias output.

Table 308. Driver Routine 10

Routine #	10
Routine Name	Tractor Motor (M303) Driver Routine
What happens during the Routine	**Note:** Paper must be loaded to run this routine. 1. This routine initializes the forms feed position. 2. Then feeds an 11 inch page at normal speed.
Errors that can be detected	E186

Table 309. Driver Routine 11

Routine #	11
Routine Name	Retractor Motor (M304) Driver Routine
What happens during the Routine	1. This routine initializes the Retractor Motor (M304) position, then the retractor is advanced and retracted. The buzzer sounds when the retractor reaches the forward or reverse position. 2. When the advance operation is completed, the Retractor Motor (M304) stays in position for 2 seconds. The retractor will stay in the same position if you press the **Enter** key. 3. The Retractor Motor (M304) retracts when you press the **Enter** key a second time.
Errors that can be detected	E18A, E18b

Table 310. Driver Routine 12

Routine #	12
Routine Name	Capstan Roll Motor (M302) Driver Routine
What happens during the Routine	This test activates the Capstan Roll Motor (M302) for 5 seconds to allow visual inspection of the motor and driver operation.

Table 311. Driver Routine 13

Routine #	13
Routine Name	Capstan Pinch Roll Motor (M301) Driver Routine
What happens during the Routine	1. Locate the upper position of the pinch roller. 2. Delay 1.2 seconds. 3. The lower limit of the buffer is detected, and the pinch roll is lowered. 4. The pinch roll pauses for 2 seconds. 5. The pinch roll is raised to the upper limit position.
Errors that can be detected	E121, E126, E129

Table 312. Driver Routine 18

Routine #	18
Routine Name	Pendulum Motor (M704) Driver Routine
What happens during the Routine	1. The Pendulum Motor (M704) is driven until the initial position of the pendulum is detected. 2. The buzzer sounds when the initial position is detected.
Errors that can be detected	E1C3, E1C5, E1DD

Table 313. Driver Routine 19

Routine #	19
Routine Name	Pendulum Motor (M704) Driver Routine
What happens during the Routine	1. The initial position of the pendulum is detected. 2. The pendulum operates continuously for 5 seconds.
Errors that can be detected	E1C3, E1C5, E1DD

Table 314. Driver Routine 1B

Routine #	1B
Routine Name	Stacker Table Motor (M803) Driver Routine
What happens during the Routine	1. The Stacker Table Motor (M803) raises the table to the upper limit position. 2. The table stays in the upper limit position for 2 seconds. 3. The table is lowered in 100-ms motor drive pulses, with a 500-ms pause between pulses. 4. When a stacker-full condition is detected, the buzzer sounds.
Error free results	A normal value is 50 (the number of times required to fill the stacker from the upper limit) when the stacker height adjustment knob is in the lower position. A normal value is 28 (the number of times required to fill the stacker from the upper limit) when the stacker height adjustment knob is in the upper position.
Errors that can be detected	E1Cb, E1C9 (thermal error (M803-TH)– turn power off when this error occurs).

Table 315. Driver Routine 1C

Routine #	1C
Routine Name	Left Finger Belt Motor (M701) and Right Finger Belt Motor (M702) Driver Routine
What happens during the Routine	This test operates the Left Finger Belt Motor (M701) and the Right Finger Belt Motor (M702) for approximately 5 seconds.

Table 316. Driver Routine 1F

Routine #	1F
Routine Name	Precharge Corona Driver Routine
What happens during the Routine	This test operates the Precharge Corona supply (precharger) for 5 seconds.
Errors that can be detected	E13A

Table 317. Driver Routine 20

Routine #	20
Routine Name	Bridge Feed Motor (M605) Driver Routine
What happens during the Routine	This routine operates the Bridge Feed Motor (M605) for approximately 5 seconds and allows visual checks of the motor drive operation.

Table 318. Driver Routine 21

Routine #	21
Routine Name	Bridge Lift Motor (M606) Driver Routine
What happens during the Routine	**Note:** The bridge is at its lower limit position. 1. Raise the bridge to the upper limit position. **Note:** Pressing the Enter key will stop the bridge in the upper position. 2. Stop the bridge for approximately 2 seconds; the buzzer sounds for approximately 1 second. 3. Lower the bridge to the lower-limit position. 4. The buzzer sounds for approximately 1 second.
Errors that can be detected	E122, E127, E12A

Table 319. Driver Routine 22

Routine #	22
Routine Name	Shutter Control Motor (M602) Driver Routine
What happens during the Routine	Before this routine starts, the maintenance panel displays the paper width. 1. Set the tractors for a paper width of 380 mm (15 in.). 2. Press **Enter** to move the shutter. 3. The vacuum shutter moves to the home position, if it is not already there. 4. The vacuum shutter moves to the position corresponding to the paper width. 5. The shutter stops for approximately 2 seconds; the buzzer sounds for approximately 1 second. 6. The shutter returns to the initial position. 7. The buzzer sounds for approximately 1 second.
Error free results	A normal value is 1430 to 1580 steps with the paper width set to 380 mm (15 in.).
Errors that can be detected	E192 E19d, E1C0

Table 320. Driver Routine 23

Routine #	23
Routine Name	Steering Motor (M601) Driver Routine
What happens during the Routine	This routine moves the Steering Motor (M601): 1. Counterclockwise 20 steps. 2. Clockwise 40 steps. 3. Counterclockwise 20 steps.
Errors that can be detected	E194

Table 321. Driver Routine 24

Routine #	24
Routine Name	Vacuum Blower (M105) Driver Routine
What happens during the Routine	This routine operates the vacuum blower for approzimately 5 seconds to test the vacuum.

Table 322. Driver Routine 25

Routine #	25
Routine Name	Backup-Roll Motor (M603) and Backup Idler Roll Motor (M609) Driver Routine
What happens during the Routine	Steps 1 to 4 are only performed when the backup idler roll is present in the printer. 1. Sense the open position of the backup idler roll (BIR) when present. 2. Move the backup idler roll (BIR) to the closed position. 3. Stop for approximately 2 seconds; the buzzer sounds for approximately 1 second. (Press the ENTER key to stop the backup idler roll at the closed position.) 4. Move the backup idler roll to the open position. 5. Move the backup roll (BUR) to the closed position. 6. Stop for approximately 2 seconds; the buzzer sounds for approximately 1 second. (Press the ENTER key to stop the backup roll at the closed position.) 7. Move the backup roll to the closed position; the buzzer sounds for approximately 1 second.
Errors that can be detected	E195, E196, E197, E198, E1EF, E1F0. If backup roll motor thermal error E1d1 (M603-TH) occurs or backup idler roll motor thermal error E1d2 (M609–TH) occurs, power off the failing printer.

Table 323. Driver Routine 26

Routine #	26
Routine Name	Hot Roll Motor (M607) Driver Routine
What happens during the Routine	This routine drives the Hot Roll Motor (M607) (with the backup roll open) for approximately 5 seconds.

Table 324. Driver Routine 27

Routine #	27
Routine Name	Hot Roll Motor (M607) Driver Routine
What happens during the Routine	This routine drives the Hot Roll Motor (M607) (with the backup roll closed) for approximately 5 seconds.
Errors that can be detected	E195, E196, E197, E198, E19d. If backup roll motor thermal error E1d1 (M607-TH) occurs, power off the failing printer.

Table 325. Driver Routine 28

Routine #	28
Routine Name	Oiler-Belt Motor (M706) Driver Routine
What happens during the Routine	**Note:** M706 is not present in 480/600 DPI printers. This routine operates the Oiler-Belt Motor (M706) for 200 steps, and checks the operation of motor and drive system (200 steps is 1 revolution of the motor shaft).
Actions you need to perform	Locate the Oiler-Belt Motor (M706) and remove the motor cover. Mark the end of the motor shaft with a pencil as a reference point to check for motor rotation.
Errors that can be detected	E18F

Table 326. Driver Routine 29

Routine #	29
Routine Name	Scuff Roll Motor (M604) Driver Routine
What happens during the Routine	This routine drives the scuff roll motor for approximately 5 seconds to check the operation of the motor and drive system.

Table 327. Driver Routine 2A

Routine #	2A
Routine Name	Oil Pump 1 (L701) Driver Routine
What happens during the Routine	This routine runs the oil pump which feeds oil to the front third of the oiler belt
Actions you need to perform	You can make a visual check while this routine is running to verify that oil is being fed to the oiler belt. Remove the oiler belt and use Run Option E0 - Change Loop Count with loop count FF for continuous operation while this routine runs.
Error free results	Oil should feed through the oil holes on the front third of the oiler belt.
Errors that can be detected	E199, E19b

Table 328. Driver Routine 2B

Routine #	2B
Routine Name	Oil Pump 2 (L702) Driver Routine
What happens during the Routine	This routine runs the oil pump which feeds oil to the middle third of the oiler belt.
Actions you need to perform	You can make a visual check while this routine is running to verify that oil is being fed to the oiler belt. Remove the oiler belt and use Run Option E0 - Change Loop Count with loop count FF for continuous operation while this routine runs.
Error free results	Oil should feed through the oil holes on the middle third of the oiler belt, except on 324 PPM printers.
Errors that can be detected	E199, E19b

Table 329. Driver Routine 2C

Routine #	2C
Routine Name	Oil Pump 3 (L703) Driver Routine
What happens during the Routine	This routine runs the oil pump which feeds oil to the rear third of the oiler belt.
Actions you need to perform	You can make a visual check while this routine is running to verify that oil is being fed to the oiler belt. Remove the oiler belt and use Run Option E0 - Change Loop Count with loop count FF for continuous operation while this routine runs.
Error free results	Oil should feed through the oil holes on the rear third of the oiler belt, except on 324 PPM printers.
Errors that can be detected	E199, E19b

Table 330. Driver Routine 2D

Routine #	2D
Routine Name	Oil Pump 4 (L704) Driver Routine
What happens during the Routine	This routine runs the oil pump which feeds oil to the middle third of the oiler belt on 324 PPM printers.
Actions you need to perform	You can make a visual check while this routine is running to verify that oil is being fed to the oiler belt. Remove the oiler belt and use Run Option E0 - Change Loop Count with loop count FF for continuous operation while this routine runs.
Error free results	Oil should feed through the oil holes on the middle third of the oiler belt on 324 PPM printers.
Errors that can be detected	E199, E19b

Table 331. Driver Routine 2E

Routine #	2E
Routine Name	Oil Pump 5 (L705) Driver Routine
What happens during the Routine	This routine runs the oil pump which feeds oil to the rear third of the oiler belt, except on 324 PPM printers.
Actions you need to perform	You can make a visual check while this routine is running to verify that oil is being fed to the oiler belt. Remove the oiler belt and use Run Option E0 - Change Loop Count with loop count FF for continuous operation while this routine runs.
Error free results	Oil should feed through the oil holes on the rear third of the oiler belt on 324 PPM printers.
Errors that can be detected	E199, E19b

Table 332. Driver Routine 2F

Routine #	2F
Routine Name	Oil Pump 6 (L706) Driver Routine
What happens during the Routine	This routine runs the oil pump which feeds oil to the rear third of the oiler belt, except on 324 PPM printers.
Actions you need to perform	You can make a visual check while this routine is running to verify that oil is being fed to the oiler belt. Remove the oiler belt and use Run Option E0 - Change Loop Count with loop count FF for continuous operation while this routine runs.
Error free results	Oil should feed through the oil holes on the rear third of the oiler belt on 324 PPM printers.
Errors that can be detected	E199, E19b

Table 333. Driver Routine 30

Routine #	30
Routine Name	Preheat Platen Driver Routine
What happens during the Routine	This routine starts the preheater and measures the time it takes the preheat platen to reach the ready state. The buzzer sounds for approximately 1 second when the heater is ready. **Note:** You can set the length of time the Preheat Platen remains ON after becoming READY by setting Run Option E0 - Change Loop Count to (unit = minute).
Error free results	If the test completes with no error, the display shows a number that indicates the time it took the preheat platen to become READY. The first 2 digits are minutes, and the second 2 digits are seconds. A normal value is 15 minutes or less.
Errors that can be detected	E1AE, E1AF, E1b0

Table 334. Driver Routine 31

Routine #	31
Routine Name	Fuser Driver Routine
What happens during the Routine	This routine rotates the fuser roll and energizes the heater lamps to measure the time it takes the hot roll to reach operating temperature. The buzzer sounds for approximately 1 second when the fuser roll reaches operating temperature. **Note:** You can set the length of time the Fuser Drive remains ON after becoming READY by setting Run Option E0 - Change Loop Count to (unit = minute).
Error free results	If the test completes with no error, the display shows a number that indicates the time it took the fuser roll to become READY. The first 2 digits are minutes, and the second 2 digits are seconds. A normal value is 15 minutes or less.
Errors that can be detected	E1A4, E1A7

Table 335. Driver Routine 32

Routine #	32
Routine Name	Paper Cooling Fans Driver Routine
What happens during the Routine	This routine operates the following paper cooling fans B603, B623, B624, B625, B626 and B703 for 5 seconds. Setting Run Option E0 - Change Loop Count to FF for continuous operation aids in checking the fans while this driver routine is running.

Table 336. Driver Routine 34

Routine #	34
Routine Name	Toner Supply Motor (M102) Driver Routine
What happens during the Routine	This test activates the Toner Feed Motor (M102) for 5 seconds to allow a visual inspection of the toner feed driver operation (Motor turns in the reverse direction). **Notes:** 1. Toner Supply Motor (M102) is called ″Toner Feed Motor (M102)″ in routine **0A**. 2. If **Enhanced Toner Loading Feature** is installed, Driver Routine 35. If the **Enhanced Toner Loading Feature** is **not** installed, this test activates the Toner Supply Motor (M102) for 5 seconds to allow a visual inspection of the motor and toner supply driver operation.
Actions you need to perform	Watch the toner supply auger to verify that a toner supply operation is performed.
Error free results	The Toner Feed Motor (M102) operates in the forward direction to drive the toner feed shaft and in the reverse direction to drive the toner supply auger.

Table 337. Driver Routine 35

Routine #	35
Routine Name	ETL Supply Motor (M112) Driver Routine
What happens during the Routine	This routine activates the toner supply motor (M112) for 5 seconds to allow visual inspection of the motor. The toner supply auger is not activated.
Actions you need to perform	Test the toner supply function by pressing the **Toner Supply** pushbutton.

Table 338. Driver Routine 39

Routine #	39
Routine Name	Forms Width Display (LD091) Driver Routine
What happens during the Routine	This routine displays the forms width beginning with 18.0 in. and decrementing 0.5 in. every second until it reaches 9.0 inches.

Table 339. Driver Routine 3B

Routine #	3B
Routine Name	Laser Ready Driver Routine
What happens during the Routine	**Note:** The printer must be powered on for at least 10 seconds before you run this routine.This routine measures the time it takes for the laser to reach maximum output. When the laser is READY, the buzzer sounds for approximately 1 second. **Note:** You can set the length of time the Laser remains ON after becoming READY by setting Run Option E0 - Change Loop Count to (unit = minute).
Error free results	If the routine completes with no error, a number appears that shows the time it took for the laser to become READY (unit = 100 ms). A normal value is 10 seconds or less.
Errors that can be detected	E135

Table 340. Driver Routine 3C

Routine #	3C
Routine Name	Stacker Length Motor (M707) Driver Routine
What happens during the Routine	This routine: 1. Operates the Stacker Length Motor (M707) until the stacker forms length reaches 7 inches. 2. Stops the motor for 2 seconds; the buzzer sounds for 1 second. **Note:** If you press **Enter**, the motor stops at the 7–in. form-length position. 3. Operates the Stacker Lengtht Motor (M707) until the stacker forms length reaches 14 inches. 4. The buzzer sounds for 1 second 5. The forms length display changes to show the stacker movement while the test is running. 6. The test completes and the display shows 14.0 .
Errors that can be detected	E11C, E12d, E1CF

Table 341. Driver Routine 3D

Routine #	3D
Routine Name	Stacker Length Switch Driver Routine
What happens during the Routine	This routine tests the stacker forms lengrh mechanism.
Actions you need to perform	1. Press and hold the right (wide) arrow switch on the Stacker Control Panel (SW511). The forms length mechanism should move to the 14.0–in. position 2. Press and hold the left (narrow) arrow switch on the Stacker Control Panel (SW511). The forms length mechanism should move to the 7.0–in. position.
Error free results	If the test completes with no error, the display shows a number that indicates the forms length.
Errors that can be detected	E12d, E1CF, E11C

Table 342. Driver Routine 3F

Routine #	3F
Routine Name	Resolution Lens Motor (M202) Routine
What happens during the Routine	This routine tests the resolution lens motor. It does the following: 1. Moves the resolution lens into the 240/480 DPI position. 2. Stops the motor for 2 seconds; the buzzer sounds for 1 second. **Note:** If you press **Enter**, the motor stops at the 240/480 DPI position. 3. Moves the resolution lens to the 300/600 DPI position. 4. Stops the motor for 2 seconds; the buzzer sounds for 1 second.
Errors that can be detected	E154

Table 343. Driver Routine 4D

Routine #	4D
Routine Name	Backup Roll Lift Motor (M610) (Bloom Motor) Driver Routine
What happens during the Routine	This routine activates the backup roll lift motor (M610) and moves the motor through the operating cycle. 1. Counterclockwise 2. Clockwise (press the `Start/Stop` key two times quickly to stop the motor in this position. The backup roll will move slightly away from the hot roll) 3. Counterclockwise 4. Clockwise 5. Counterclockwise when `Start/Stop` key is pressed.
Errors that can be detected	E0D5

Sensor Routines

Sensor routines are used to test components such as sensors and switches. Table 344 lists the sensor routines by number. Table 421 lists all the exerciser routines by part ID, for example, S617, S624. The routines are described in more detail on the following pages.					
Step 1	Remove all forms from the forms path if necessary.				
Step 2	Move the maintenance panel to the service position.				
Step 3	Set the diagnostic function switch to position 3.				
Step 4	Either power on the printer or toggle the reset switch.				
Step 5	The display shows: Where X can be one of the following: - No option selected. 0 A loop count has been selected. 1 Continuous looping has been selected 5 A margin check of the optical sensors has been selected.	F	X		_
Step 6	Enter the routine number: for example, **5 0**				
Step 7	The display looks like this with **5 0** flashing.	F	X	5	0
Step 8	You will perform different actions at this point depending on which routine has been selected. Follow the instructions for the particular routine you wish to run.				
Step 09	Press **Start/Stop**, to stop the routine or select another exerciser routine.				
Step 10	After completing the routine you selected: 1. Set the diagnostic function switch to position 0. 2. Toggle the reset switch.				

Table 344. Sensor Routines by Number

Routine	Part ID	Part Name
50	S116	Cyclone Blower Rotation Sensor
51	S114	Cleaner Brush Rotation Sensor
52	S103	Cleaner Housing Position Switch
53	S118	Toner Collector Bottle Switch
54	S108	Fine Filter Switch
55	S102	Filter Pressure Switch
57	S113	Conveyor Roll Rotation Sensor
58	S106	Toner Empty Sensor
59	S122	PC Drum Cover Interlock Switch
5A	S112	Developer Drain Lever Switch
5B	S107	Developer Run Switch
5C	Q101	Primary Erase Lamp Sensor
5D	Q103	EOF Sensor
60	S302	Transfer Station Open Sensor
62	Q301	Upper Tractor Jam Sensor
64	EN122 EN123	Tension Arm Encoder Board
65	PW091	Form Width Sensor Board
66	S301	Capstan Pinch Roll Open Switch
67	SW721	Printer Control Panel
68	S101	Splice Lever Switch
69	PW091	Form Width Sensor Board Circuit Breaker

Table 344. Sensor Routines by Number (continued)

Routine	Part ID	Part Name
6A	S608	Bridge Up Switch
6B	S609	Bridge Down Switch
6D	S604	Vacuum Shutter Home Sensor
6E	D603	Skew Sensor
70	S617	Fuser Front Wrap Sensor
70	S618	Fuser Rear Wrap Sensor
70	S620	Fuser Wrap Sensor
71	EN131	BUR Position Encoder Board
72	EN131	BUR Position Encoder Board
74	FL041	Stacker Length Rotary Board & Forms Length Sensor Board
74	FL061	Stacker Length Rotary Board & Forms Length Sensor Board
75	PL701	Stacker Jam Sensor & Stacker Jam LED
75	Q701	Stacker Jam Sensor & Stacker Jam LED
76	S713 S714	Stacker Gate Safety Switch
77	S712	Stacker Gate Open Switch
78	S704	Stacker Table Upper Limit Switch
7A	S701	Stacker Table Lower Limit Switch
7B	EN131	BIR Position Encoder Board
7C	EN131	BIR Position Encoder Board
7D	S619	Pendulum Position Sensor
7E	SW511	Stacker Control Panel

Table 344. Sensor Routines by Number (continued)

Routine	Part ID	Part Name
80	S605	Oiler Gate Open Switch
81	S610	Oiler Belt End Switch
82	S702	Oiler Empty Sensor
83	S606	Vacuum Switch
85	B602 B604 B605	Hot Roll Motor Blower
86	Q102	Secondary Erase Lamp Sensor
87	SW721	Forms Select Switch
88	SW721	Contrast Control Button
89	Thermals	Thermal Switch
8B	S121	Toner Supply Switch
8D	Q702	Right Stacker Height Sensor
8E	Q703	Left Stacker Height Sensor
9C	S624	Backup Roll Lift Motor Sensor
9D	S202	Lens Position Sensor

Sensor Routine Descriptions

Table 345. Sensor Routine 50

Routine #	50				
Routine Name	Cyclone Blower Rotation Sensor (S116) Routine				
Action 1	Rotate the pulley so that the magnet is opposite the Cyclone Blower Rotation Sensor (S116).				
Result 1	The buzzer should be on, and the display should show:	o	n	5	0
Action 2	Rotate the pulley so that the magnet is more than 90° from the Cyclone Blower Rotation Sensor (S116).				
Result 2	The buzzer should be off, and the display should show:	o	F	5	0

Table 346. Sensor Routine 51

Routine #	51				
Routine Name	Cleaner Brush Rotation Sensor (S114) Routine				
Action 1	Rotate the pulley so that the magnet is opposite the Cleaner Brush Rotation Sensor (S114).				
Result 1	The buzzer should be on, and the display should show:	o	n	5	1
Action 2	Rotate the pulley so that the magnet is away from the Cleaner Brush Rotation Sensor (S114).				
Result 2	The buzzer should be off, and the display should show:	o	F	5	1

Table 347. Sensor Routine 52

Routine #	52				
Routine Name	Cleaner Housing Position Switch (S103) Routine				
Action 1	Ensure that the cleaner housing is in the print position. **Note:** Use driver routine 03 to change the cleaner housing position.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	2
Action 2	Move the cleaner housing away from the print position.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	2

Table 348. Sensor Routine 53

Routine #	53				
Routine Name	Toner Collector Bottle Switch (S118) Routine				
Action 1	Lower the toner collector assembly.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	3
Action 2	Raise the toner collector assembly.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	3

Table 349. Sensor Routine 54

Routine #	54				
Routine Name	Fine Filter Switch (S108) Routine				
Action 1	Remove the fine filter.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	4
Action 2	Reinstall the fine filter.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	4

Table 350. Sensor Routine 55

Routine #	55				
Routine Name	Filter Pressure Switch (S102) Routine				
Result 1	The cyclone blower is not running during this test. Correct operation of the Filter Pressure Switch (S102) is indicated by a display of:	o	F	5	5

Table 351. Sensor Routine 57

Routine #	57				
Routine Name	Conveyor Roll Rotation Sensor (S113) Routine				
Action 1	Rotate the pulley so that the magnet is opposite the Conveyor Roll Rotation Sensor (S113).				
Result 1	The buzzer should be on, and the display should show:	o	n	5	7
Action 2	Rotate the pulley so that the magnet is more than 90° from the Conveyor Roll Rotation Sensor (S113).				
Result 2	The buzzer should be off, and the display should show:	o	F	5	7

Table 352. Sensor Routine 58

Routine #	58				
Routine Name	Toner Empty Sensor (S106) Routine				
Action 1	Clean all toner from the Toner Empty Sensor (S106).				
Result 1	The buzzer should be on, and the display should show:	o	n	5	8
Action 2	Cover the Toner Empty Sensor (S106) with toner.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	8

Table 353. Sensor Routine 59

Routine #	59				
Routine Name	PC Drum Cover Interlock Switch (S122) Routine				
Action 1	Open the drum cover.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	9
Action 2	Close the drum cover.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	9

Table 354. Sensor Routine 5A

Routine #	5A				
Routine Name	Developer Drain Lever Switch (S112) Routine				
Action 1	Pull out the drain lever knob. **Note:** Do not raise the lever.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	A
Action 2	Release the drain lever knob.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	A

Table 355. Sensor Routine 5B

Routine #	5B				
Routine Name	Developer Run Switch (S107) Routine				
Action 1	Press the developer run switch.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	b
Action 2	Release the developer run switch.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	b

Table 356. Sensor Routine 5C

Routine #	5C				
Routine Name	Primary Erase Lamp Sensor (Q101) Routine				
Action 1	Shine a flashlight directly on the sensor.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	c
Action 2	Remove the flashlight beam from the sensor.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	c

Table 357. Sensor Routine 5D

Routine #	5D				
Routine Name	EOF Sensor (Q103) Routine				
Action 1	Cover the EOF Sensor (Q103) with paper.				
Result 1	The buzzer should be on, and the display should show:	o	n	5	d
Action 2	Expose the EOF Sensor (Q103) to light.				
Result 2	The buzzer should be off, and the display should show:	o	F	5	d

Table 358. Sensor Routine 60

Routine #	60				
Routine Name	Transfer Station Open Sensor (S302) Routine				
Action 1	Move the transfer station release lever to the left.				
Result 1	The buzzer should be on, and the display should show:	o	n	6	0
Action 2	Latch the transfer station in the print position.				
Result 2	The buzzer should be off, and the display should show:	o	F	6	0

Table 359. Sensor Routine 62

Routine #	62				
Routine Name	Upper Tractor Jam Sensor (Q301) Routine				
Action 1	Cover the Upper Tractor Jam Sensor (Q301) with paper.				
Result 1	The buzzer should be on, and the display should show:	o	n	6	2
Action 2	Remove the paper from the Upper Tractor Jam Sensor (Q301).				
Result 2	The buzzer should be off, and the display should show:	o	F	6	2

Table 360. Sensor Routine 64

Routine #	64				
Routine Name	Tension Arm Encoder Board Routine				
Action 1	Remove the paper from the machine and allow the tension arm to raise to its uppermost position.				
Result 1	The buzzer should be off, and the display should show:	-	-	6	4
Action 2	Move the tension arm slowly to its lowest position.				
Result 2	The buzzer should remain off, and the display should show: **(This is the upper limit.)**	U	L	6	4
			3	6	4
			6	6	4
			0	6	4
	Between this point (064) and the next point (–664) the blue stripe on the front of the tension arm should be centered in the cutout on the tension arm position indicator.				
		-	6	6	4
		-	3	6	4
	(This is the lower limit.)	L	L	6	4

Table 361. Sensor Routine 65

Routine #	65				
Routine Name	Form Width Sensor Board (PW091) Routine				
Action	When you initiate this test, the display should show the paper width setting of the tractors. As the width changes, the display should change accordingly.				
Result	The buzzer should be on, and the display should show: where XX.X = 08.0, 08.5, 09.0, 09.5, 10.0, 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 14.5, 15.0, 15.5, 16.0, 16.5, 17.0, 17.5, or 18.0	X	X.	X	

Table 362. Sensor Routine 66

Routine #	66				
Routine Name	Capstan Pinch Roll Open Switch (S301) Routine				
Action 1	Cycle the flag away from the Pinch Roll Open Switch (S301). **Note:** Use Driver Routine 13 to change the flag position.				
Result 1	When the Pinch Roll is open, the buzzer should be on and the display should show:	o	n	6	6
Action 2	Cycle the flag to the Pinch Roll Open Switch (S301). **Note:** The Pinch Roll should be closed.				
Result 2	When the Pinch Roll is closed, the buzzer should be off, and the display should show:	o	F	6	6

Table 363. Sensor Routine 67

Routine #	67				
Routine Name	Printer Control Panel (SW721) Routine				
Action 1	With no control panel button pressed.				
Result 1	The buzzer should be off, and the display should show:	o	F	-	
Action 2	Press the control panel buttons. **Note:** The LEDs on the panel flash on and off.				
Result 2	The buzzer should be on, and the display should show:				
	When the Load button is pressed	o	n	-	1
	When the Stop button is pressed	o	n	-	2
	When the Up–perf button is pressed	o	n	-	3
	When the Down–perf button is pressed	o	n	-	4
	When the Paper Forward button is pressed	o	n	-	5
	When the Paper Reverse button is pressed	o	n	-	6

Table 364. Sensor Routine 68

Routine #	68				
Routine Name	Splicing Lever Switch (S101) Routine				
Action 1	Move the splice vacuum lever to **SPLICE**.				
Result 1	The buzzer should be on, and the display should show:	o	n	6	8
Action 2	Move the splice vacuum lever to **RUN**.				
Result 2	The buzzer should be off, and the display should show:	o	F	6	8

Table 365. Sensor Routine 69

Routine #	69				
Routine Name	Forms Width Sensor Board (PW091) Circuit Breaker Routine				
Action 1	Turn CB1 on the YS011 Card to **Off**.				
Result 1	The buzzer should be on, and the display should show:	o	n	6	9
Action 2	Turn CB1 on the YS011 Card to **On**.				
Result 2	The buzzer should be off, and the display should show:	o	F	6	9

Table 366. Sensor Routine 6A

Routine #	6A				
Routine Name	Bridge Up Switch (S608) Routine				
Action 1	Raise the bridge to the autoload position **Note:** Use driver routine 21 to raise and lower the bridge..				
Result 1	The buzzer should be on, and the display should show:	o	n	6	A
Action 2	Lower the bridge to the print position.				
Result 2	The buzzer should be off, and the display should show:	o	F	6	A

Table 367. Sensor Routine 6B

Routine #	6B				
Routine Name	Bridge Down Switch (S609) Routine				
Action 1	Lower the bridge to the print position. **Note:** Use driver routine 21 to raise and lower the bridge.				
Result 1	The buzzer should be on, and the display should show:	o	n	6	b
Action 2	Raise the bridge from the print position (or to the autoload position).:				
Result 2	The buzzer should be off, and the display should show:	o	F	6	b

Table 368. Sensor Routine 6D

Routine #	6D				
Routine Name	Vacuum Shutter Home Sensor (S604) Routine				
Action 1	Ensure that the vacuum shutter is in its initial (home) position. **Note:** Use driver routine 22 to move the shutter.				
Result 1	the buzzer should be on, and the display should show:	o	n	6	d
Action 2	Move the vacuum shutter from its initial position.				
Result 2	The buzzer should be off, and the display should show:	o	F	6	d

Table 369. Sensor Routine 6E

Routine #	6E				
Routine Name	Skew Sensor (D603) Routine				
Action 1	Completely uncover the sensor. **Note:** Shield the sensor from room light during the following test.				
Result 1	The buzzer should be off, and the display should show:			6	E
Action 2	Cover the rear half of the sensor with white paper.				
Result 2	The buzzer should be off, and the display should show:		L	6	E
Action 3	Cover the front half of the sensor with white paper.				
Result 3	The buzzer should be off, and the display should show:	r		6	E
Action 4	Completely cover the sensor with white paper.				
Result 4	The buzzer should be on, and the display should show:	r	L	6	E

Table 370. Sensor Routine 70

Routine #	70				
Routine Name	Fuser Front Wrap Sensor (S617) Routine				
Action 1	Operate the wrap sensor actuator.				
Result 1	The buzzer should be on, and the display should show:	o	n	7	0
Action 2	With the wrap sensor actuator in the normal operating position.				
Result 2	The buzzer should be off, and the display should show:	o	F	7	0

Table 371. Sensor Routine 70

Routine #	70				
Routine Name	Fuser Rear Wrap Sensor (S618) Routine				
Action 1	Operate the wrap sensor actuator.				
Result 1	The buzzer should be on, and the display should show:	o	n	7	0
Action 2	With the wrap sensor actuator in the normal operating position.				
Result 2	The buzzer should be off, and the display should show:	o	F	7	0

Table 372. Sensor Routine 70

Routine #	70				
Routine Name	Fuser Wrap Sensor (S620) Routine				
Action 1	Operate the wrap sensor actuator.				
Result 1	The buzzer should be on, and the display should show:	o	n	7	0
Action 2	With the wrap sensor actuator in the normal operating position.				
Result 2	The buzzer should be off, and the display should show:	o	F	7	0

Table 373. Sensor Routine 71

Routine #	71				
Routine Name	Backup Roll (BUR) Position Encoder Board (EN131) Routine				
Action 1	**Note:** Use driver routine 25 to close and open the backup roll. With the backup roll in the closed position				
Result 1	The buzzer should be on, and the display should show:	o	n	7	1
Action 2	With the backup roll in the open position:				
Result 2	The buzzer should be off, and the display should show:	o	F	7	1

Table 374. Sensor Routine 72

Routine #	72				
Routine Name	Backup Roll (BUR) Position Encoder Board (EN131) Routine				
Action 1	Remove the encoder board (EN131). Insert a piece of paper to block and unblock the rear sensor. With the sensor unblocked				
Result 1	the buzzer should be on, and the display should show:	o	n	7	2
Action 2	With the optical sensor light path blocked.				
Result 2	The buzzer should be off, and the display should show:	o	F	7	2

Table 375. Sensor Routine 74

Routine #	74				
Routine Name	Stacker Length Rotary Board (FL041) and Forms Length Sensor Board (FL061) Routine				
Result	The current forms length is shown on the display.				
	For example, the 8.5-in. form length displays:		8.	5	
	And the 11.0-in. form length displays:	1	1.	0	

Table 376. Sensor Routine 75

Routine #	75				
Routine Name	Stacker Jam Sensor (Q701) and Stacker Jam LED (PL701) Routine				
Action 1	Block the light of the stacker jam sensor with paper.				
Result 1	The buzzer should be on, and the display should show:	o	n	7	5
Action 2	Remove the paper from the stacker jam sensor.				
Result 2	The buzzer should be off, and the display should show:	o	F	7	5

Table 377. Sensor Routine 76

Routine #	76				
Routine Name	Stacker Gate Safety Switch (S713) and (S714) Routine				
Action 1	Press the Stacker Gate Safety Switch bail.				
Result 1	The buzzer should be on, and the display should show:	o	n	7	6
Action 2	Release the Stacker Gate Safety Switch bail.				
Result 2	The buzzer should be off, and the display should show:	o	F	7	6

Table 378. Sensor Routine 77

Routine #	77				
Routine Name	Stacker Gate Open Switch (S712) Routine				
Action 1	Open the stacker gate.				
Result 1	The buzzer should be on, and the display should show:	o	n	7	7
Action 2	Close the stacker gate.				
Result 2	The buzzer should be off, and the display should show:	o	F	7	7

Table 379. Sensor Routine 78

Routine #	78				
Routine Name	Stacker Table Upper Limit Switch (S704) Routine				
Action 1	Run driver routine 1B. Press **Start/Stop** when the stacker table is at the upper limit.				
Action 2	Run sensor routine 78.				
Result 2	The buzzer should be on, and the display should show:	o	n	7	8
Action 3	Run driver routine 1B to move the stacker table down.				
Result 3	The buzzer should be off, and the display should show:	o	F	7	8

Table 380. Sensor Routine 7A

Routine #	7A				
Routine Name	Stacker Table Lower Limit Switch (S701) Routine				
Action 1	Insert a feeler gauge blade or screwdriver in the Stacker Table Lower Limit Switch (S701).				
Result 1	The buzzer should be on, and the display should show:	o	n	7	A
Action 2	Remove the feeler gauge blade or screwdriver from the Stacker Table Lower Limit Switch (S701).				
Result 2	The buzzer should be off, and the display should show:	o	F	7	A

Table 381. Sensor Routine 7B

Routine #	7B				
Routine Name	BIR Position Encoder Board (EN131) Routine				
Action 1	**Note:** Run driver routine 25 to close and open the backup idler roll.				
Result 1	When the stop trigger plate for the backup idler roll (BIR) is detected, the buzzer should be on, and the display should show:	o	n	7	b
Result 3	When the stop trigger plate for the backup idler roll is not detected, the buzzer should be off, and the display should show:	o	F	7	b

Table 382. Sensor Routine 7C

Routine #	7C				
Routine Name	BIR Position Encoder Board (EN131) Routine				
Action 1	**Note:** Run driver routine 25 to close and open the backup idler roll.				
Result 1	When the backup idler roll (BIR) is closed, the buzzer should be on, and the display should show:	o	n	7	C
Result 2	When the backup idler roll (BIR) is open, the buzzer should be off, and the display should show:	o	F	7	C

Table 383. Sensor Routine 7D

Routine #	7D				
Routine Name	Pendulum Position Sensor (S619) Routine				
Action 1	**Note:** The pendulum is in the home position when it is vertical. Pivot the pendulum slowly toward the extreme rear of its travel.				
Result 1	When the home position of the pendulum is detected, the buzzer should go off and remain off, and the display should show:	o	F	7	d
Action 2	Pivot the pendulum toward the front of the stacker.				
Result 2	the buzzer should go on and remain on when the home position is sensed, and the display should show:	o	n	7	d

Table 384. Sensor Routine 7E

Routine #	7E				
Routine Name	Stacker Control Panel (SW511) Routine				
Action 1	With no stacker panel button pressed				
Result 1	The buzzer should be off, and the Maintenance Panel display should show:	o	F	-	
	The stacker panel display should show:			.0	
Action 2	Press the stacker panel buttons. **Note:** While this test is running, the page length LEDs on the stacker panel flash on and off.				
Result 2	The buzzer should be on, and the maintenance panel display should show:	o	n	-	**X**
	The stacker panel display should show: where **X** =		**X**	.0	
	When the Table Up button is pressed		**3**		
	When the Table Stop button is pressed		**4**		
	When the Table Down button is pressed		**5**		
	When the Increase Page Length button is pressed		**6**		
	When the Decrease Page Length button is pressed		**7**		

Table 385. Sensor Routine 80

Routine #	80				
Routine Name	Oiler Gate Open Switch (S605) Routine				
Action 1	Open the oiler gate.				
Result 1	The buzzer should be on, and the display should show:	o	n	8	0
Action 2	Close the oiler gate.				
Result 2	The buzzer should be off, and the display should show:	o	F	8	0

Table 386. Sensor Routine 81

Routine #	81				
Routine Name	Oiler Belt End Switch (S610) Routine				
Action 1	**Note:** This switch (S610) is not present in 600 DPI printers. Move the Oiler Belt End Switch (S610) actuator down.				
Result 1	The buzzer should be on, and the display should show:	o	n	8	1
Action 2	Return the Oiler Belt End Switch (S610) actuator to its normal position.				
Result 2	The buzzer should be off, and the display should show:	o	F	8	1

Table 387. Sensor Routine 82

Routine #	82				
Routine Name	Oiler Empty Sensor (S702) Routine				
Action 1	When the oil supply is empty				
Result 1	The buzzer should be on, and the display should show:	o	n	8	2
Action 2	When oil is in the reservoir				
Result 2	The buzzer should be off, and the display should show:	o	F	8	2

Table 388. Sensor Routine 83

Routine #	83				
Routine Name	Vacuum Switch (S606) Routine				
Action 1	Press the Vacuum Switch.				
Result 1	The buzzer should be on, and the display should show:	o	n	8	3
Action 2	Release the Vacuum Switch.				
Result 2	The buzzer should be off, and the display should show:	o	F	8	3

Table 389. Sensor Routine 85

Routine #	85
Routine Name	Hot Roll Motor Blower (B602) Routine
Result 1	The maintenance panel display shows blower motor speed (RPM). Fans B604 and B605 also turn on.

Table 390. Sensor Routine 86

Routine #	86				
Routine Name	Secondary Erase Lamp Sensor (Q102) Routine				
Action 1	Shine a flashlight on the Secondary Erase Lamp Sensor (Q102).				
Result 1	The buzzer should be on, and the display should show:	o	n	8	6
Action 2	Remove the flashlight from the Secondary Erase Lamp Sensor (Q102).				
Result 2	The buzzer should be off, and the display should show:	o	F	8	6

Table 391. Sensor Routine 87

Routine #	87				
Routine Name	Forms Select Switch (on SW721)				
Action 1	Press the forms select switch.				
Result 1	The printer control panel LEDs cycle through the form types. The buzzer should be on, and the display should show: Where **X** = A, B, C.	o	n	–	X
Result 2	Release the forms select switch. The buzzer should be off, and the display should show: Where **X** = A, B, C.	o	F	–	X

Table 392. Sensor Routine 88

Routine #	88				
Routine Name	Contrast Control Buttons (on SW721) Routine				
Action 1	Press the ▲ contrast button.				
Result 1	The printer control panel LEDs cycle up to 7. The buzzer should be on, and the display should show: Where **X** = 1, 2, 3, 4, 5, 6 ,7.	U	P	–	X
Action 2	Press the ▼ contrast button.				
Result 2	The printer control panel LEDs cycle down to 0. The buzzer should be on, and the display should show: Where **X** = 1, 2, 3, 4, 5, 6 ,7.	d	n	–	X
Action 3	Release the contrast buttons.				
Result 3	The buzzer should be off, and the display should show: Where **X** = 1, 2, 3, 4, 5, 6 ,7.	o	F	–	X

Table 393. Sensor Routine 89

Routine #	89				
Routine Name	Thermal Switch (Thermals) Routine				
Result 1	When all thermals are closed (good), the display should show:	o	F	–	
Result 2	When a thermal is open, the display should show: Where**X** =	o	n	–	X
	Mag Brush Motor Thermal	**0**			
	Cyclone Blower Motor Thermal	**1**			
	Vacuum Blower Motor Thermal	**2**			
	Cleaner Brush Motor Thermal	**3**			
	Scuff Roll Motor Thermal	**4**			
	Soft Start Resistor Thermal (S601/S602)	**5**			
	Preheat A/B Thermal (S1)	**6**			
	Preheat C/D Thermal (S2)	**7**			
	Hot Roll Thermal (S613) **Note: ON** in the display indicates that the thermal shown is open.	**8**			

Table 394. Sensor Routine 8B

Routine #	8B				
Routine Name	Toner Supply Switch (S121) Routine				
Action 1	Press the Toner Supply Switch (S121).				
Result 1	The buzzer should be on, and the display should show:	o	n	8	b
Action 2	Release the Toner Supply Switch (S121).				
Result 2	The buzzer should be off, and the display should show:	o	F	8	b

Table 395. Sensor Routine 8D

Routine #	8D				
Routine Name	Right Stacker Height Sensor (Q702) Routine				
Action 1	Interrupt the beam on the Right Stacker Height Sensor (Q702) with a piece of paper.				
Result 1	The buzzer should be on, and the display should show:	o	n	8	d
Action 2	Remove the paper from the beam path.				
Result 2	The buzzer should be off, and the display should show:	o	F	8	d

Table 396. Sensor Routine 8E

Routine #	8E				
Routine Name	Left Stacker Height Sensor (Q703) Routine				
Action 1	Interrupt the beam on the left Stacker Height Sensor (Q703) with a piece of paper.				
Result 1	The buzzer should be on, and the display should show:	o	n	8	E
Action 2	Remove the paper from the beam path.				
Result 2	The buzzer should be off, and the display should show:	o	F	8	E

Table 397. Sensor Routine 9C

Routine #	9C				
Routine Name	Backup Roll Lift Motor Sensor (S624)				
Action 1	**Note:** Use driver routine 4D to move the backup roll lift motor shaft.				
Result 1	When the backup roll lift motor has returned the backup roll to its normal position, the buzzer should be on, and the display should show:	o	n	9	C
Result 2	When the backup roll lift motor has returned the backup roll to its normal position, the buzzer should be off, and the display should show: Where **X** = A, B, C.	o	F	9	C

Table 398. Sensor Routine 9D

Routine #	9D				
Routine Name	Resolution Lens Position Sensor (S202) Routine				
Action 1	**Note:** Use driver routine 3F to move the resolution switching lens.				
Result 1	When the lens is in position, the buzzer should be on, and the display should show:	o	n	9	d
Result 2	When the lens is not in position, the buzzer should be off, and the display should show:	o	F	9	d

Adjustment Routines

Adjustment routines are used to make adjustments to various devices. Table 399 lists the adjustment routines by number. Table 421 lists all the exerciser routines by part ID, for example, LD1, M102.... The routines are described in more detail on the following pages.					
Step 1	Remove all forms from the forms path if necessary.				
Step 2	Move the maintenance panel to the service position.				
Step 3	Set the diagnostic function switch to position 3.				
Step 4	Either power on the printer or toggle the reset switch.				
Step 5	The display shows: **Note:** The X values are not used for these routines.	F	X		_
Step 6	Enter the routine number: for example, **C 6**				
Step 7	The display looks like this with **C 6** flashing.	F	X	C	6
Step 8	Press **Enter**.				
Step 9	The routine executes and the routine number appears:	F	X	C	6
Step 10	The remaining displays depend on which routine was selected.				
Step 11	Press **Start/Stop**, to stop the driver routine or select another exerciser routine.				
Step 12	After completing the routine you selected: 1. Set the diagnostic function switch to position 0. 2. Toggle the reset switch.				

Table 399. Adjustment Routines by Number

Routine	Part ID	Part Name
C0	AM201 AM202 AM203 AM204 AM205 AM206	AO Modulator and AOM Drivers. Number of referenced AOM Drivers is dependent upon the number of beams.
C1	AM201 AM202 AM203 AM204 AM205 AM206	AO Modulator and AOM Drivers. Number of referenced AOM Drivers is dependent upon the number of beams.
C2	Charge	Drum Surface Voltage Adjustment Routine
C3	Toner Feed	Increase the Toner Concentration
C4	Retractor	Retractor Acceleration Time
C5	Autoload	Autoload Drive Adjustments
C6	Tension Arm	Tension Arm Encoder Adjustment
C7	Charge	Drum Surface Voltage Adjustment
C8	AM202	AO Modulator (AM201) and AOM Driver (AM202) Adjustment
C9	AM203	AO Modulator (AM201) and AOM Driver (AM203) Adjustment
CA	AM204	AO Modulator (AM201) and AOM Driver (AM204) Adjustment
CB	AM205	AO Modulator (AM201) and AOM Driver (AM205) Adjustment
CD	AM206	AO Modulator (AM201) and AOM Driver (AM206) Adjustment

Adjustment Routine Descriptions

Table 400. Adjustment Routine C0

Routine #	C0
Routine Name	AO Modulator (AM201), and AOM Driver (AM202), (AM203), (AM204), (AM205), and (AM206) Adjustment Routine
Use this test to turn off and on the Mirror Motor (M201). The primary beams are always on (AO Modulator (AM201) will be driven). **Note:** Depending on the number of beams your printhead has, there are from one to five AO drivers.	
Action 1	Cover the return mirror with paper to prevent damage to the photoconductor drum. **Note:** The primary beams for all beams are turned on immediately. The mirror motor (M201) is off at first.
Action 2	Press Enter repeatedly to turn the mirror motor, on and off .

Table 401. Adjustment Routine C1

Routine #	C1
Routine Name	AO Modulator (AM201), and AOM Driver (AM202), (AM203), (AM204), (AM205), and (AM206) Adjustment Routine Adjustment Routine
Use this test to identifiy the primary beams. The Mirror Motor (M201) is always on. The AO Modulator (AM201) is turned off and on. **Note:** Depending on the number of beams your printhead has, there are from one to five AO drivers.	
Action 1	Cover the return mirror with paper to prevent damage to the photoconductor drum. **Note:** The mirror motor is turned on immediately.
Action 2	The AO Modulator (AM201) is off at first. Press **Enter** repeatedly to turn on and off the pirmary beam (s).

Table 402. Adjustment Routine C2

Routine #	C2				
Routine Name	Drum Surface Voltage Measurement Routine				
Use this test to perform the Drum Surface Voltage measurements. It charges and rotates the PC Drum and operates the developer, but no toner feeds take place.					
Action 1	The print process turns on immediately.				
Result 1	While the routine is running the display shows:	r	A	d	y

Table 403. Adjustment Routine C3

Routine #	C3				
Routine Name	Increase the Toner Concentration				
Use this test after a Toner Underfeed error (SRC 0235), has occurred. The toner has been removed from the mix and must be restored to the correct level.					
Action	While this routine is running it alternately feeds toner for 1.5 seconds, and then pauses for 1.5 seconds, until the normal value is reached. **Note:** The toner feeding begins immediately.				
Result	The buzzer is off, the display shows: Where X is the toner control voltage measurement, and ranges from 0 thru 6, C, and E.			L	X
	If voltage level is below 1, the buzzer is off, and the display shows:			L	0
	The display will continue to change until the actual voltage measurement is ≥ to the reference voltage. The toner feed stops and the buzzer beeps.				
	If the actual voltage measurement is < the reference voltage, toner feed starts again for 1.5 seconds then pauses for 1.5 seconds, until the actual voltage measurement is ≥ to the reverence voltage.				
	If the actual voltage measurement is too high, a toner overfeed condition is indicated by the display:	_	_	L	C
	If the actual voltage measurement is below 1, a toner under feed condition is indicated by the display:	_	_	L	E

Table 404. Adjustment Routine C4

Routine #	C4				
Routine Name	Retractor Acceleration Time Adjustment Routine				
Use this test to set the digital switch (SW1) on the B1J10 Card. The correct reading should be between 18.00 and 22.00 ms.					
Action 1	The retractors move immediately.				
Result 1	While the routine is running the display shows: Where W X. Y Z is the acceleration time in milliseconds.	W	X.	Y	Z

Table 405. Adjustment Routine C5

Routine #	C5
Routine Name	Autoload Drive Adjustment Routine
Use this test to adjust the bridge position, the scuff roll tension, the feed roll, and the capstan roll. **Note:** The forms feed keys work during this routine.	
Action 1	When you press **Enter**, the following parts are driven: • Bridge • Scuff roll • Feed roll • Capstan roll
Action 2	When you press **Enter**, a second time, the bridge is lowered and the rolls stop turning.
Action 3	You may repeat the routine by repeatedly pressing **Enter**.

Table 406. Adjustment Routine C6

Routine #	C6				
Routine Name	Tension Arm Encoder Adjustment Routine				
Use this routine to adjust the position of Tension Arm Encoder Board (EN123) and Tension Arm Encoder Board (EN122). See Tension Arm Encoder Position for the adjustment procedure. **Note:** The forms feed keys work during this routine.					
Action 1	Ensure that forms are installed; use the forms feed keys to set the tension of the forms. Keep your fingers clear of the forms (they will move), and press the tension arm to its full lower-limit position. Press the **Vacuum** button.				
Result 1	The buzzer sounds, and the forms are fed. The display shows:	X	Y.	c	6
Action 2	Release the tension arm.				
Result 2	The tension arm should rise.				
Action 3	Press down slightly on the tension arm. Set the adjustment at the point where the display changes from **UL** to **3**.				

Table 407. Adjustment Routine C7

Routine #	C7
Routine Name	Drum Surface Voltage Adjustment Routine
Use this routine to initialize the high voltage power supply before you adjust the drum surface voltage. See PC Drum Surface Voltage	

Table 408. Adjustment Routine C8

Routine #	C8
Routine Name	AO Modulator (AM201) and AOM Driver (AM202) Adjustment Routine
Use this test to turn on the AOM Driver (AM202). The upper primary beam (AO Modulator (AM201) will be driven.	
Action 1	Cover the return mirror with paper to prevent damage to the photoconductor drum. **Note:** The upper primary beam is turned on immediately.
Action 2	The Mirror Motor (M201) is off at first. Press **Enter** repeatedly to turn off and on the Mirror Motor (M201).

Table 409. Adjustment Routine C9

Routine #	C9
Routine Name	AO Modulator (AM201) and AOM Driver (AM203) Adjustment Routine
Use this test to turn on the AOM Driver (AM203). The primary beam 2 (AO Modulator (AM201) will be driven. This routine is for use with two, four, or five beam printheads.	
Action 1	Cover the return mirror with paper to prevent damage to the photoconductor drum. **Note:** The primary beam 2 is turned on immediately.
Action 2	The Mirror Motor (M201) is off at first. Press **Enter** repeatedly to turn off and on the Mirror Motor (M201).

Table 410. Adjustment Routine CA

Routine #	CA
Routine Name	AO Modulator (AM201) and AOM Driver (AM204) Adjustment Routine
Use this test to turn on the AOM Driver (AM204). The primary beam 3 (AO Modulator (AM201) will be driven. This routine is for use with four, or five beam printheads.	
Action 1	Cover the return mirror with paper to prevent damage to the photoconductor drum. **Note:** The primary beam 3 is turned on immediately.
Action 2	The Mirror Motor (M201) is off at first. Press **Enter** repeatedly to turn off and on the Mirror Motor (M201).

Table 411. Adjustment Routine CB

Routine #	CB
Routine Name	AO Modulator (AM201) and AOM Driver (AM205) Adjustment Routine
Use this test to turn on the AOM Driver (AM205). The primary beam 4 (AO Modulator (AM201) will be driven. This routine is for use with four, or five beam printheads.	
Action 1	Cover the return mirror with paper to prevent damage to the photoconductor drum. **Note:** The primary beam 4 is turned on immediately.
Action 2	The Mirror Motor (M201) is off at first. Press **Enter** repeatedly to turn off and on the Mirror Motor (M201).

Table 412. Adjustment Routine CD

Routine #	CD
Routine Name	AO Modulator (AM201) and AOM Driver (AM206) Adjustment Routine
Use this test to turn on the AOM Driver (AM206). The primary beam 5 (AO Modulator (AM201) will be driven. This routine is for use with five beam printheads.	
Action 1	Cover the return mirror with paper to prevent damage to the photoconductor drum. **Note:** The primary beam 5 is turned on immediately.
Action 2	The Mirror Motor (M201) is off at first. Press **Enter** repeatedly to turn off and on the Mirror Motor (M201).

Encoder Routines

Encoder routines are used to check the rotation of, and the rotation timing of various motors. Table 413 lists the encoder routines by number. Table 421 lists all the exerciser routines by part ID, for example, LD1, M102.... The routines are described in more detail on the following pages.					
Step 1	Remove all forms from the forms path if necessary.				
Step 2	Move the maintenance panel to the service position.				
Step 3	Set the diagnostic function switch to position 3.				
Step 4	Either power on the printer or toggle the reset switch.				
Step 5	The display shows: **Note:** The X values are not used for these routines.	F	X		_
Step 6	Enter the routine number: for example, **A 3**				
Step 7	The display looks like this with **A 3** flashing.	F	X	A	3
Step 8	Press **Enter**.				
Step 9	The routine executes and the routine number appears:	F	X	A	3
Step 10	The remaining displays depend on which routine was selected.				
Step 11	Press **Start/Stop**, to stop the driver routine or select another exerciser routine.				
Step 12	After completing the routine you selected: 1. Set the diagnostic function switch to position 0. 2. Toggle the reset switch.				

Table 413. Encoder Routines by Number

Routine	Part ID	Part Name
A0	M107	Drum Motor Encoder (M107)
A1	M304	Retractor Motor (M304)
A2	M303	Tractor Motor (M303)
A3	M607	Hot Roll Motor (M607)
A7	S116	Cyclone Blower Rotation Encoder (S116)
A8	S114	Cleaner Brush Rotation Encoder (S114)
A9	S113	Conveyor Roll Rotation Encoder (S113)

Encoder Routine Descriptions

Table 414. Encoder Routine A0

Routine #	A0
Routine Name	Drum Motor (M107) Encoder Routine
What happens during the Routine	This routine drives the Drum Motor (M107) for 5 seconds to check the timing of the encoder pulses.
Error free results	If the test completes successfully, a series of numbers appear continuously. These numbers are for engineering use but have little use in diagnosing a problem.
Errors that can be detected	E1EA

Table 415. Encoder Routine A1

Routine #	A1
Routine Name	Retractor Motor (M304) Encoder Routine
What happens during the Routine	This routine drives the Retractor Motor (M304) to check the timing of the encoder pulses.
Error free results	If the test completes successfully, a series of numbers appear continuously. These numbers are for engineering use but have little use in diagnosing a problem.
Errors that can be detected	E1Eb

Table 416. Encoder Routine A2

Routine #	A2
Routine Name	Tractor Motor (M303) Encoder Routine
What happens during the Routine	This routine drives the Tractor Motor (M303) for 5 seconds to check the timing of the encoder pulses.
Error free results	If the test completes successfully, a series of numbers appear continuously. These numbers are for engineering use but have little use in diagnosing a problem.
Errors that can be detected	E1EC

Table 417. Encoder Routine A3

Routine #	A3
Routine Name	Hot Roll Motor (M607) Encoder Routine
What happens during the Routine	This routine drives the Hot Roll Motor (M607) for 5 seconds to check the timing of the encoder pulses.
Error free results	If the test completes successfully, a series of numbers appear continuously. These numbers are for engineering use but have little use in diagnosing a problem.
Errors that can be detected	E1Ed

Table 418. Encoder Routine A7

Routine #	A7
Routine Name	Cyclone Blower Rotation Sensor (S116) Encoder Routine
What happens during the Routine	This routine drives the Cyclone Blower Motor (M104) for 5 seconds to check the timing of the Cyclone BlowerRotation Sensor (S116) pulses.
Error free results	If the test completes successfully, a series of numbers appear continuously. These numbers are for engineering use but have little use in diagnosing a problem.
Errors that can be detected	E1E2

Table 419. Encoder Routine A8

Routine #	A8
Routine Name	Cleaner Brush Rotation Sensor (S114) Encoder Routine
What happens during the Routine	This routine drives the Cleaner Brush Motor (M108) for 5 seconds to check the timing of the Cleaner Brush Rotation Sensor (S114) pulses.
Error free results	If the test completes successfully, a series of numbers appear continuously. These numbers are for engineering use but have little use in diagnosing a problem.
Errors that can be detected	E1E3

Table 420. Encoder Routine A9

Routine #	A9
Routine Name	Conveyor Roll Rotation Sensor (S113) Encoder Routine
What happens during the Routine	This routine drives the Mag Brush Motor (M101) for 5 seconds to check the timing of the Conveyor Roll Rotation Sensor (S113) pulses.
Error free results	If the test completes successfully, a series of numbers appear continuously. These numbers are for engineering use but have little use in diagnosing a problem.
Errors that can be detected	E1E1

Table 421. Exerciser Routines by Part ID

Part ID	Routine	Part Name
AM201	C0	AO Modulator (AM201) and AOM Driver (AM202), AOM Driver (AM203, AOM Driver (AM204), AOM Driver (AM205), AOM Driver (AM206)
AM201	C1	AO Modulator (AM201) and AOM Driver (AM202), AOM Driver (AM203, AOM Driver (AM204), AOM Driver (AM205), AOM Driver (AM206)
AM202	C8	AO Modulator (AM201) and AOM Driver (AM202) Adjustment Routine
AM203	C9	AO Modulator (AM201) and AOM Driver (AM203) Adjustment Routine
AM204	CA	AO Modulator (AM201) and AOM Driver (AM204) Adjustment Routine
AM205	CB	AO Modulator (AM201) and AOM Driver (AM205) Adjustment Routine
AM206	CD	AO Modulator (AM201) and AOM Driver (AM206) Adjustment Routine
Autoload	C5	Autoload Drive Adjustments
B602	85	Hot Roll Motor Blower Routine
B603	32	Paper Cooling Fans Driver Routine
B604	85	Hot Roll Motor Blower Routine
B605	85	Hot Roll Motor Blower Routine
B623	32	Paper Cooling Fans Driver Routine
B624	32	Paper Cooling Fans Driver Routine
B625	32	Paper Cooling Fans Driver Routine
B626	32	Paper Cooling Fans Driver Routine
B703	32	Paper Cooling Fans Driver Routine
Charge	C7	Drum Surface Voltage Adjustment
CH1	0C	Charge Corona Driver Routine
CH2	0F	Developer Bias Driver Routine

Table 421. Exerciser Routines by Part ID (continued)

Part ID	Routine	Part Name
CH3	0E	Transfer Corona Driver Routine
CH4	0D	Preclean Corona Driver Routine
CH5	1F	Precharge Corona Driver Routine
D603	6E	Skew Sensor Routine
EN122	64	Tension Arm Encoder Board Routine
EN123	64	Tension Arm Encoder Board Routine
EN131	71	BUR Position Encoder Board Routine
EN131	72	BUR Position Encoder Board Routine
EN131	7B	BUR Position Encoder Board Routine
EN131	7C	BUR Position Encoder Board Routine
FL041	74	Stacker Length Rotary Board and Forms Length Sensor Board Routine
FL061	74	Stacker Length Rotary Board and Forms Length Sensor Board Routine
Fuser	31	Fuser Driver Routine
Laser	3B	Laser Ready Driver Routine
M112	35	ETL Supply Motor Driver Routine
LD091	39	Forms Width Display Driver Routine
L701	2A	Oil Pump 1 Driver Routine
L702	2B	Oil Pump 2 Driver Routine
L703	2C	Oil Pump 3 Driver Routine
L704	2D	Oil Pump 4 Driver Routine
L705	2E	Oil Pump 5 Driver Routine
L706	2F	Oil Pump 6 Driver Routine

Table 421. Exerciser Routines by Part ID (continued)

Part ID	Routine	Part Name
M101	09	Mag Brush Motor Driver Routine
M102	0A	Toner Feed Motor Driver Routine
M102	34	Toner Supply Motor Driver Routine
M103	06	Toner Control Motor Driver Routine
M101	09	Mag Brush Motor
M104	02	Cyclone Blower Motor Driver Routine
M105	24	Vacuum Blower Driver Routine
M106	03	Cleaner Housing Motor Driver Routine
M107	08	Drum Motor Driver Routine
M107	A0	Drum Motor Encoder Routine
M108	04	Cleaner Brush Motor Driver Routine (Clockwise)
M108	05	Cleaner Brush Motor Driver Routine (Counter Clockwise)
M112	35	ETL Supply Motor Driver Routine
M201	01	Mirror Motor Driver Routine
M202	3F	Resolution Lens Motor Driver Routine
M301	13	Capstan Pinch Roll Motor Driver Routine
M302	12	Capstan Roll Motor Driver Routine
M303	10	Tractor Motor Driver Routine
M303	A2	Tractor Motor Encoder Routine
M304	11	Retractor Motor Driver Routine
M304	A1	Retractor Motor Encoder Routine
M601	23	Steering Motor Driver Routine

Table 421. Exerciser Routines by Part ID (continued)

Part ID	Routine	Part Name
M602	22	Shutter Control Motor Driver Routine
M603	25	Back-up Roll Motor and Backup Idler Roll Motor Driver Routine
M604	29	Scuff Roll Motor Driver Routine
M605	20	Bridge Feed Motor Driver Routine
M606	21	Bridge Lift Motor Driver Routine
M607	26	Hot Roll Motor Driver Routine
M607	27	Hot Roll Motor Driver Routine
M607	A3	Hot Roll Motor Encoder Routine
M609	25	Backup-Roll Motor and Backup Idler Roll Motor Driver Routine
M610	4D	Backup-Roll Lift Motor (Bloom Motor) Driver Routine
M701	1C	Left Finger Belt Motor and Right Finger Belt Motor Driver Routine
M702	1C	Left Finger Belt Motor and Right Finger Belt Motor Driver Routine
M704	18	Pendulum Motor Driver Routine
M704	19	Pendulum Motor Driver Routine
M706	28	Oiler Belt Motor Driver Routine
M707	3C	Stacker Length Motor Driver Routine
M707	3D	Stacker Length Switch Driver Routine
M803	1B	Stacker Table Motor Driver Routine
PH601	30	Preheat Platen Driver Routine
PH602	30	Preheat Platen Driver Routine
PL101	07	Secondary Erase Lamp Driver Routine
PL102	0B	Primary Erase Lamp Driver Routine

Table 421. Exerciser Routines by Part ID (continued)

Part ID	Routine	Part Name
PL701	75	Stacker Jam Sensor and Stacker Jam LED Routine
PW091	65	Forms Width Sensor Board Routine
PW091	69	Forms Width Sensor Board Circuit Breaker Routine
Q101	5C	Primary Erase Lamp Sensor Routine
Q103	5D	EOF Sensor Routine
Q301	62	Upper Tractor Jam Sensor Routine
Q701	75	Stacker Jam Sensor and Stacker Jam LED Routine
Q702	8D	Right Stacker Height Sensor Routine
Q703	8E	Left Stacker Height Sensor Routine
Retractor	C4	Retractor Acceleration Time
S1	89	Thermal Switch Routine
S2	89	Thermal Switch Routine
SW511	7E	Stacker Control Panel Routine
SW521	67	Printer Control Panel Routine
SW721	87	Forms Select Switch Routine
SW721	88	Contrast Control Buttons Routine
S101	68	Splice Lever Switch Routine
S102	55	Filter Pressure Switch Routine
S103	52	Cleaner Housing Position Switch Routine
S106	58	Toner Empty Sensor Routine
S107	5B	Developer Run Switch Routine
S108	54	Fine Filter Switch Routine

Table 421. Exerciser Routines by Part ID (continued)

Part ID	Routine	Part Name
S112	5A	Developer Drain Lever Switch Routine
S113	57	Conveyor Roll Rotation Sensor Routine
S113	A9	Conveyor Roll Rotation Encoder Routine
S114	51	Cleaner Brush Rotation Sensor Routine
S114	A8	Cleaner Brush Rotation Encoder Routine
S116	50	Cyclone Blower Rotation Sensor Routine
S116	A7	Cyclone Blower Rotation Encoder Routine
S118	53	Toner Collector Bottle Switch Routine
S121	8B	Toner Supply Switch Routine
S122	59	PC Drum Cover Interlock Switch Routine
S202	9D	Lens Position Sensor Routine
S301	66	Capstan Pinch Roll Open Switch Routine
S302	60	Transfer Station Open Sensor Routine
S601	89	Thermal Switch Routine
S602	89	Thermal Switch Routine
S604	6D	Vacuum Shutter Home Sensor Routine
S605	80	Oiler Gate Open Switch Routine
S606	83	Vacuum Switch Routine
S608	6A	Bridge Up Switch Routine
S609	6B	Bridge Down Switch Routine
S610	81	Oiler Belt End Switch Routine
S613	89	Thermal Switch Routine

Table 421. Exerciser Routines by Part ID (continued)

Part ID	Routine	Part Name
S617	70	Fuser Front Wrap Sensor Routine
S618	70	Fuser Rear Wrap Sensor Routine
S619	7D	Pendulum Postition Sensor Routine
S620	70	Fuser Wrap Sensor Routine
S624	9C	BUR Lift Motor Sensor Routine
S701	7A	Stacker Table Lower Limit Switch Routine
S702	82	Oil Empty Sensor Routine
S704	78	Stacker Table Upper Limit Switch Routine
S712	77	Stacker Gate Open Switch Routine
S713 S714	76	Stacker Gate Safety Switch Routine
Tension Arm	C6	Tension Arm Encoder Adjustment Routine
Toner Feed	C3	Increase the Toner Concentration Routine
Thermals	89	Thermal Switch Routine

Read Memory Address String (Position 5)

Use this function to read a continuous string of printer memory addresses. It is most useful for support purposes, which require the reading of logged data. Use diagnostic function switch position 2 to write to the memory. **Note:** See Hexadecimal-to-Decimal Conversion for conversion assistance.					
Step 1	Press **Stop** on the Operator Panel if **Ready** appears.				
Step 2	Set the diagnostic function switch to position 5.				
Step 3	The maintenance panel display is flashing and looks like this:	F			_
Step 4	Press **0** followed by **Enter.**				
Step 5	The display changes to a flashing:				_
Step 6	Enter the memory address, for example, **F 1 0 1**.				
Step 7	The display shows a flashing:	F	1	0	1
Step 8	Press **Enter**.				
Step 9	The display shows: Where 0 1. is the low-order byte of the selected address, and X Y is the value at that address.	0	1.	X	Y
Step 10	Press **Enter** to go to the next memory address (F102).				
Step 11	Press **Start/Stop** when you are finished reading memory addresses.				

Modify Steering Servo (Position 5)

Table 422. Modify Steering Servo

Use this function to improve steering performance.					
Step 1	Set the diagnostic function switch to position 2.				
Step 2	Follow the instructions in Writing to Memory to set memory address FF23 to 37and FF25 to FF.				
Step 3	Set the diagnostic function switch to position 5. **Note:** If E02C appears, continue to wait.				
Step 4	The display looks like this:	F			_
Step 5	Press **7** and then **Enter.**				
Step 6	The display is flashing and looks like this:				_
Step 8	Enter the memory address, **F F A 1**				
Step 9	The flashing display looks like this:	F	F	A	1
Step 10	Press **Enter.**				
Step 11	The display shows: Where A 1. is the low-order byte of the selected address, and X Y is the value at that address. The default value is 63.	A	1.	X	Y
Step 12	Enter **4 2**				
(continued on next page)					

Table 422. Modify Steering Servo (continued)

Step 13	The display looks like this:	A	1	4	2
Step 14	Press **Enter.**				
Step 15	The display changes to: Where A 2. is the next address, and X Y is the value at that address.	A	2.	X	Y
Step 16	Enter **4 2**				
Step 17	The display changes to:	A	2.	4	2
Step 18	Press **Enter.**				
Step 19	The display changes to: Where A 3. is the next address, and X Y is the value at that address.	A	3.	X	Y
Step 20	Press **Start/Stop**				
Step 21	Set the diagnostic function switch to position 0.				

Modify Backup Roll Lift Motor Open/Close Timing (Position 5)

Use this function to set up the correct backup roll lift motor timing.					
Step 1	Set the diagnostic function switch to position 5.				
Step 2	The display looks like this:	F			_
Step 3	Press **7** and then **Enter.**				
Step 4	The display is flashing and looks like this:				_
Step 5	Enter the memory addresses, as shown in Table 423 and Table 424 and insert the default values shown, or the values determined when performing the procedure under Backup Roll Lift Motor Timing Adjustment Procedure for Bloom Improvement.				
Step 6	Press **Enter** to advance to the next memory address.				
Step 7	Press **Start/Stop**				
Step 8	Set the diagnostic function switch to position 0.				

Table 423. Backup Roll Lift Motor Open/Close Timings

Memory Address (Hex)	Description	Default Value (Hex)	Value Range (Hex)
FFC9 (high) FFC8 (low)	BR Lift Motor Close Timing at 229 PPM	5CC6 Where 5C (high) C6 (low)	6B6C (Maximum) 4E20 (Minimum)
FFCB (high) FFCA (low)	BR Lift Motor Open Timing at 229 PPM	21FF Where 21 (high) FF (low)	249F (Maximum) 1E84 (Minimum)

Table 424. Memory Addresses for Saving Backup Roll Lift Motor Open/Close Timings

Address	Description	Values
FFD0	Flag to save BR Lift Motor Control Data	00 = Restore default values at Power-on FF = Saves the CE modified values

Backup Roll Lift Motor Timing Adjustment Procedure for Bloom Improvement

Note: The objective of this adjustment is to minimize bloom or unfused areas caused by the engaging and disengaging timing of the Backup Roll

To make adjustments for **(reducing bloom)**, the CLOSE timing value should be increased (delayed) and/or the OPEN timing value should be decreased.

To make adjustments for **(reducing unfused areas**, the CLOSE timing value should be decreased and/or the OPEN timing value should be increased. However, changing the values too much can cause poor fuse grade and/or forms motion errors.

Keep in mind that the initial values are already changed from previous values. Therefore, changes should be made carefully and possible problems, such as areas left unfused, should be looked for.

Step 1. If this procedure has been done before and optimum OPEN/CLOSE timing values have been determined for your printer, then begin with those values, otherwise begin with the default values in Table 423.

Step 2. Start with the CLOSE (Low Data) timing value

Step 3. Increase the value

Step 4. Record the value and print several **Text 2** samples of five pages with stops between runs, marking the area near the backup roll or hot roll at each stop in order to identify bloom regions.

- If you get a error or if bloom gets worse, return to **the starting point** or some intermediate value.
- If no change is observed or bloom is improved, increase the value again.

This is an iterative process, and it might be desirable to return to the initial setting if no improvement is observed. Record values at each step and keep samples in order to track any improvement or worsening of bloom.

Step 5. Adjust OPEN (Low Data) timing value

Step 6. Decrease the value.

Step 7. Follow the same process as adjusting the close value, to determine whether any improvement can be gained by changing the value.

Step 8. Record values and keep samples at each step to track changes

Step 9. After completing the adjustment, run a large number of samples with multiple stops and starts to ensure that no problems were created in the paper path as a result of this adjustment.

Step 10. Save the new values by entering **FF** in the memory address appropriate for your printer as shown in Table 424.

Clear Memory (Position 8)

With the diagnostic function switch set to position 8, you can clear the contents of nonvolatile storage (NVS) in the printer.

Attention: Use this setting only when instructed to by the MAPs.

1. Move the maintenance panel to the service position.
2. Set the diagnostic function switch to position 8.
3. Either toggle the reset switch or power on the printer.

The contents of memory are now cleared.

4. Allow 3 minutes for the printer to initialize.
5. Follow the procedures in
   - 1) Writing to Memory to restore the default values. (Default values appear in Table 290.)
   - 2) Read From or Write to Toner Control Program Memory (Position 2).
   - 3) Modify Backup Roll Lift Motor Open/Close Timing (Position 5) and Modify Steering Servo (Position 5)

Optical Sensor Margin Tests (Position 9)

With the diagnostic function switch set to position 9, you can test the following optical sensors in the printer:

- EOF sensor
- Erase lamp 1 & 2 sensors
- Stacker jam sensors
- Skew sensor
- Upper tractor jam sensor.

With age and use, deterioration, contamination, and misalignment of the optical sensors can cause form jams and background.

To test the optical sensors:

1. Move the maintenance panel to the service position.
2. Set the diagnostic function switch to position 9 .
3. Load forms in the printer.
4. Print several copies of a print sample.
5. Watch the Display/Touch Screen for an SRC to appear.
   - If no SRC appears, all sensors are within specification. Go to step 6.
   - If an SRC appears, do one of the following:
     – Clean sensor and lamp, check their alignment, and do steps 3 through 5.
     – Replace the lamp and do steps 3 through 5.
     – Replace the sensor and do steps 3 through 5.
6. Set the diagnostic function switch to position 0.

Side 1/Side 2 Diagnostics

Note: How you invoke the Side 1/Side 2 Diagnostics is dependant on the Code Level of your printer. If your code level is **9.6 or higher use the following procedure**. If your code level is **below 9.6 go to** Special Services Function Mode.

This section of Side 1/Side 2 Diagnostics is for machines which are at Code level 9.6 or higher.

There are two Side 1/Side 2 diagnostic tests available. They are as follows:

- MIC Side 2 Verification Test
- MIC Side 2 Sensor Test

To run Side 1/Side 2 Diagnostics:

- Select **Analyze** and then select **Service Actions.**
- Select **Mechanism Diagnostics**
- Then select one of the following:
  - MIC Side 2 Verification Test
  - MIC Side 2 Sensor Test

MIC Side 2 Verification Test

To perform the side 2 verification test do the following:

Note: Side 2 Verify must be enabled and the printer must be printing.

1. Select **Analyze** and then select **Service Actions**.
2. Select **Diagnostics**.
3. Select **Mechanism Diagnostics**.
4. Select printer **2**.
5. Select **MIC Side 2 Verification Test**.
6. Press **Run**. Nothing appears on the display until prints are run.
7. Run 250 primary print samples.

Note: Side 1/side 2 verification SRCs (D71F, D720, D721, D724) are NOT reported while running in side 1/side 2 verification check mode.

The printer will remain in test mode for 250 prints after **each** press of run, and will ignore side 1/side 2 errors for those 250 prints.

8. Return to the Side 1/Side 2 Verification Test screen and press **Run**.
9. The display shows the following:
   - WHITE BLACK POSITION

   New values appear after each title when **run** is pressed, while running.
10. The verification function is adjusted correctly when:
    - POSITION = 0
    - BLACK/WHITE > 2
11. If the black-to-white ratio is less than two, check the print quality of the verification marks to ensure that they are not light, smeared, or missing.
12. If the value of POSITION is not zero (0) or a value in the list below, you must adjust the process direction registration.
    - 480 DPI = –10
    - 600 DPI = –15

    The POSITION value indicates the amount that the sensor card is out of adjustment, however, the sensor card is not adjustable. The value shown corresponds to the number of pels of adjustment required. A positive number means that the Process Factory Adjust value for Printer 1 should be increased.

    If the Process Factory Adjust had to be misadjusted so that the process registration is off by more than ±1.2 mm (to allow Side 2 Verify to work), contact your next level support.

MIC Side 2 Sensor Test

Note: Side 2 Verify must be enabled and the printer engine stopped.

To adjust the Side 1/Side 2 sensor:

1. Select **Analyze** and then select **Service Actions**.
2. Select **Print**.
3. Select **Print Samples**.
4. Select **Printhead power**.

Print enough Printhead Power samples to reach into printer 2. Note that this sample will not print side 1/side 2 verify marks. It should also be noted that this test must be done with the forms stopped.

1. Select **MIC Side 2 Sensor Test**
2. Press **Run**
3. The display shows **SENSOR OUTPUT** (and a value):

   If the sensor output is 0 or 255, the Side 1/Side 2 Sensor may be dirty or the control circuit may have failed.

   Note: It is very important that print registration has been accurately set (factory adjustment) before adjusting the Side 1/Side 2 Verify hardware. An example of good sensor output numbers are 60 with white paper under the Side 2 Verify sensor and 150 with the black bar under the sensor.

Special Services Function Mode

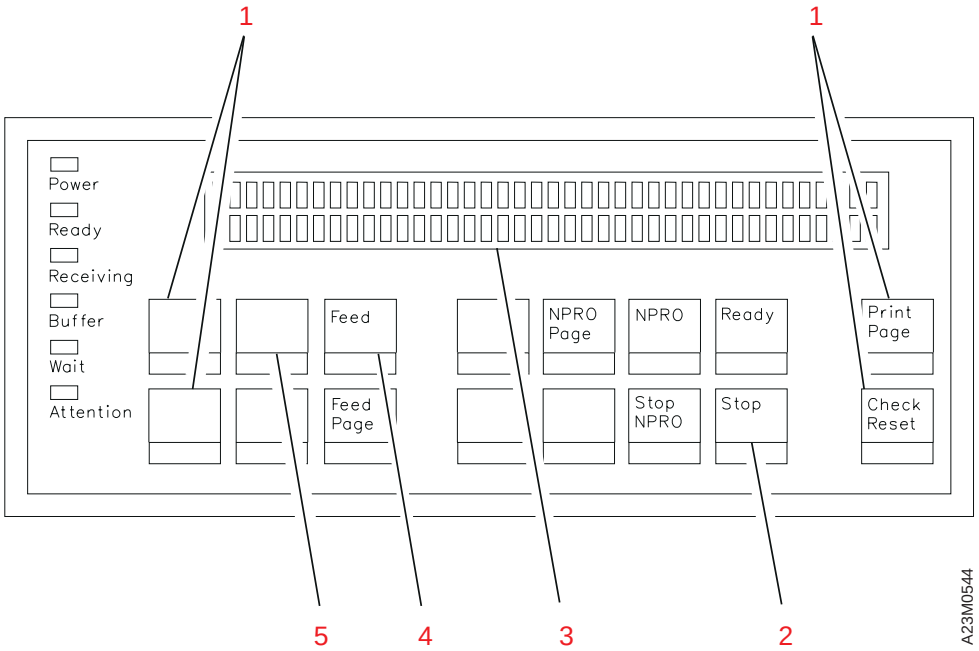
This section of Side 1/Side 2 Diagnostics is for machines which are at a Code level below 9.6.

Some special services are available to service personnel, who can invoke them by using the operator panel. The services include:

- Side1/Side2 Verification Check
- Side1/Side 2 Sensor Alignment

To place the printer in Special Services Function Mode:

- Press and hold the four outside keys **1** on the operator panel on printer 2. Then release all four keys simultaneously.



Exit Special Services Function Mode at any time by pressing the STOP key **2**.

Side 1/Side 2 Verification Test: To perform the side 1/side 2 verification check do the following:

1. Press the key **5** that is located directly below the display characters **S2V**. The side1/side2 verification check is now active.
2. The display **3** shows the following on the second line:
   - WHITE: BLACK: POSITION
3. Values appear after each title when prints are run.
4. Run 50 text print samples. See Print Samples for more details.
5. Press **Run**. Nothing appears on the display until prints are run.

Note: Side1/Side2 verification SRCs (D71F, D720, D721, D724) are NOT reported while running in side1/side 2 verification check mode.

(continued on next page)

6. Watch the display during printing.
7. The verification function is adjusted correctly when:
   - POSITION = 0
   - BLACK/WHITE > 2
8. If the black-to-white ratio is less than two, check the print quality of the verification marks to ensure that they are not light, smeared, or missing.
9. If the value of POSITION is not zero (0) or a value in the list below, you must adjust the verification sensor card in the process direction.
   - 240 DPI = –6
   - 300 DPI = –8
   - 480 DPI = –12
   - 600 DPI = –16

   The POSITION value indicates the amount that the sensor card is out of adjustment. The value shown corresponds to the number of pels of adjustment required. A positive number means that the sensor should be moved to the right, towards the transfer station.

   If the Process Factory Adjust had to be misadjusted so that the process registration is off by more than ±1.2 mm (to allow Side 2 Verify to work), contact your next level support.

MIC Side 2 Sensor Alignment:

Note: Side 2 Verify must be enabled and the printer engine stopped.

To adjust the Side 1/Side 2 sensor:

1. Select **Analyze** and then select **Service Actions**.
2. Select **Print**.
3. Select **Print Samples**.
4. Select **Printhead power**.

Print enough Printhead Power samples to reach into printer 2. Note that this sample will not print side 1/side 2 verify marks. It should also be noted that this setup procedure can be done with the forms stopped.

1. Press the key **4** that is located directly below the display characters **SNS**. The display will now show the current sensor output.
2. The display **3** shows the following on the second line: **SENSOR OUTPUT:**Values will appear until **Stop** is pushed or the printer attempts to print.

   Note: It is very inportant that print registration has been accurately set (factory adjustment) before adjusting the side 1/side 2 verify hardware.
3. Verify that the thin line printed in the carrier strip margin on the Printhead Power sample is located beneath the side 1/side 2 verify sensor hardware. Using the sensor output as a guide (higher numbers mean darker print), adjust the sensor hardware in the direction of front to rear of the machine until the sensor output is at its haghest point. This will indicate that the sensor is properly located front to rear.

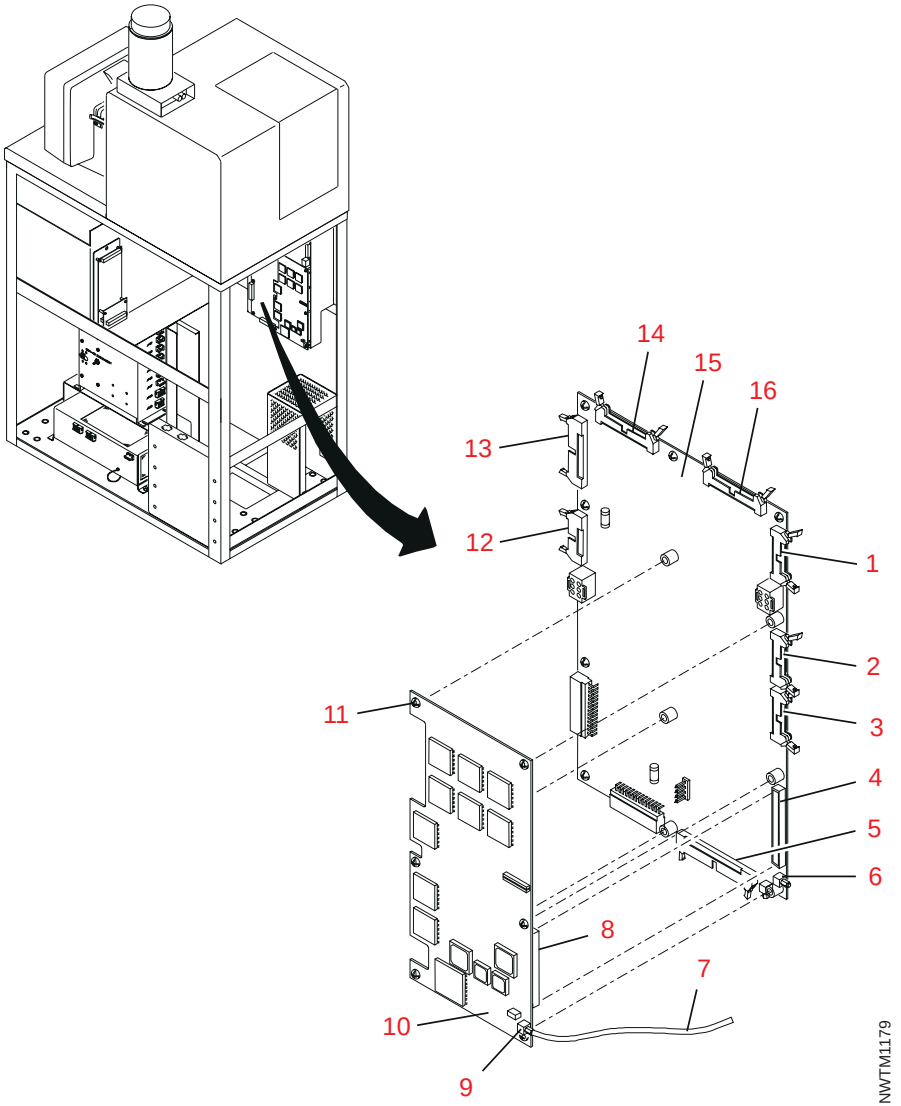
Mechanism Interface Card (MIC) Isolation Wrap Test

This section provides procedures for testing the MIC card. The tests are differentiated by the type of printhead installed.

Single Beam Printhead

Use this test to diagnose mechanism interface card (MIC) problems in a standalone mode.

Table 425. MIC Isolation Wrap Test One Beam Printhead



Required Tools:

- MIC PJ1 wrap plug
- MIC PJ6 wrap plug
- MIC PJ2–PJ3–PJ12 wrap Y-cable
- Coaxial union connector

Perform the following steps:

1. Shutdown and power off the printer.
2. Disconnect the video data coax cable from connector **(7)** from connector CD1 **(9)** on the PQE card **(10)**.
3. Remove the 6 screws **(11)** holding the PQE card to the MIC **(15)**
4. Disconnect connector J01 **(8)** on the PQE card from connector PJJ04 **(4)** on the MIC and lift off the PQE card..
5. Disconnect the following connectors on the MIC:
6. Connect the video cable **(7)** that was removed in step 2 to connector PJU1 on the MIC.
7. Disconnect the following connectors (some may not be present):
   - PJJ01 **(1)**, PJJ02 **(2)**, PJJ03**(3)**
   - PJJ06 **(5)**, PJJ07 **(16)**, PJJ09 **(14)**
   - PJJ011 **(13)**, PJJ12 **(12)**
   - PJ203 coax at the printer tailgate
   - PJ204 coax at the printer tailgate

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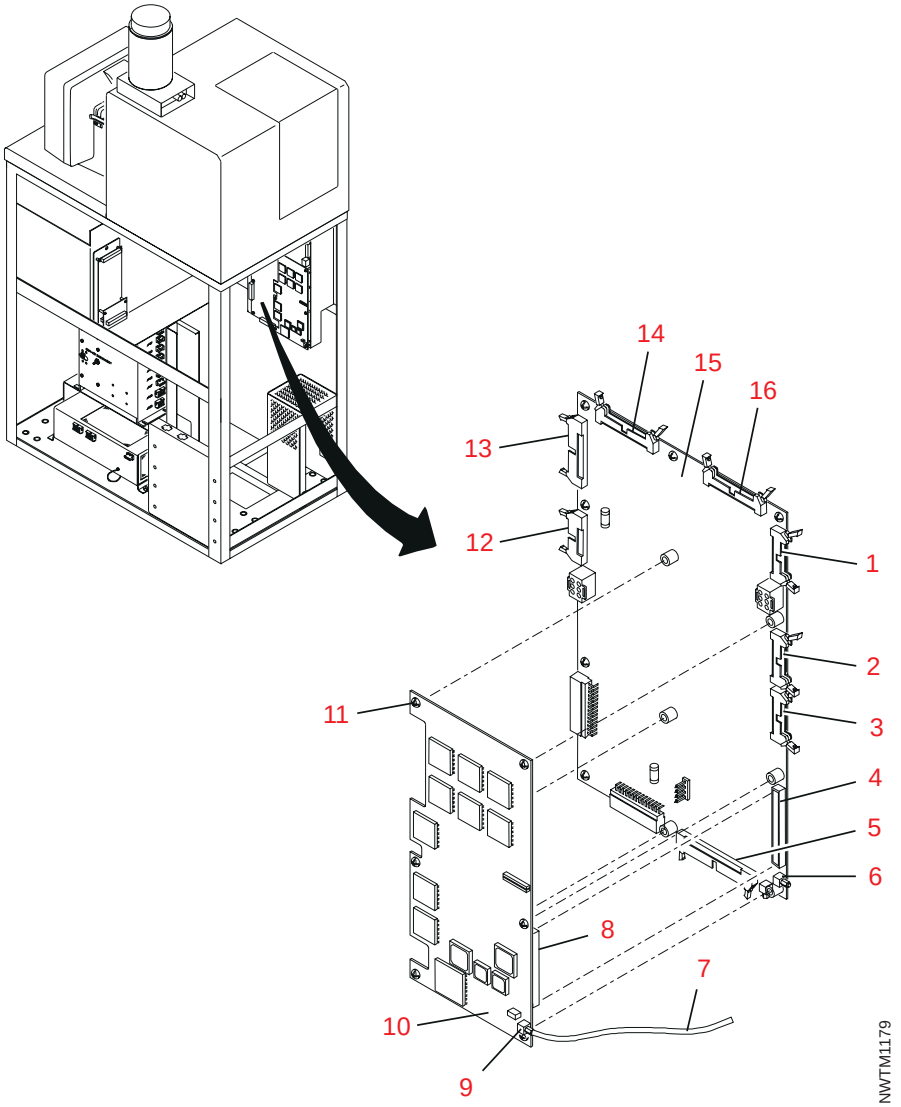
Table 425. MIC Isolation Wrap Test One Beam Printhead (continued)



8. Do not disconnect the power connectors, PJJ05 and PJJ10.
9. Disconnect the SCSI cable(s) from the MIC.
   Note: You can run the MIC wrap test with the SCSI cable connected, but if an error occurs, the source of the error could also be the SCSI cable or the SCSI connection. If a SCSI error is occurring, run the wrap test with and without the SCSI cable attached to determine if the source is the MIC or the SCSI cable.
10. Leave the SCSI terminator attached if present.
11. Use the coax union to connect cables J203 and J204 at the printer interface.
12. Connect the wrap plug labeled MIC PJ1 to the J01 connector **(1)** on the MIC.
13. Connect the wrap plug labeled MIC PJ6 to the J06 connector **(5)** on the MIC.
14. Connect the wrap plug labeled MIC PJ2 to the J02 connector **(2)** on the MIC.
15. Connect the wrap plug labeled MIC PJ3 to the J03 connector **(3)** on the MIC.
16. Connect the wrap plug labeled MIC PJ12 to the J12 connector **(12)** on the MIC.
17. Set the RS/6000 controller power switch to Off to prevent the microcode from loading.
18. **Power On the printer**.

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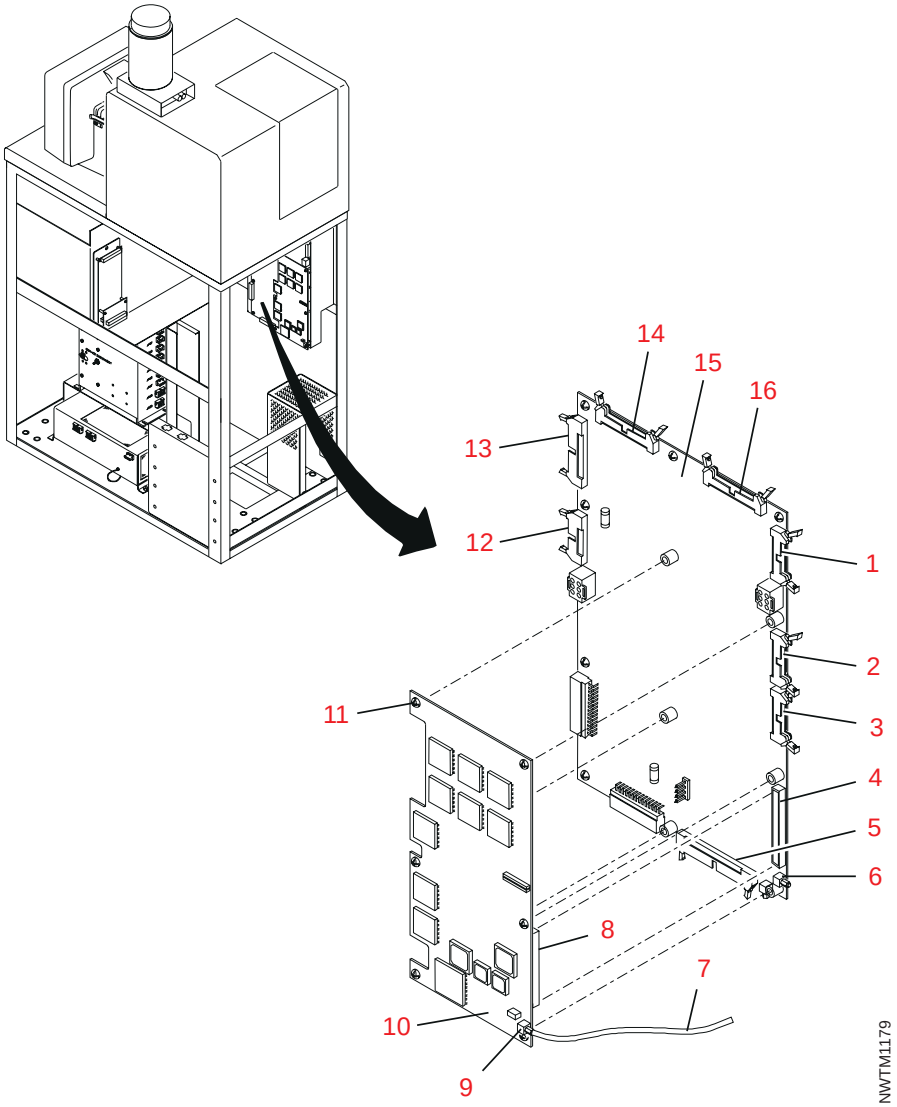
Table 425. MIC Isolation Wrap Test One Beam Printhead (continued)



Step 19. Watch the single-digit LED display on the MIC for the following results:

- Because of the testing of the memory, the test can take up to 6 minutes to complete.
- The letter **P** displayed for 5 seconds indicates that the test completed successfully. The test then repeats. The numbers displayed are progress indicators.
- Three horizontal bars indicate that an error occurred. The error codes appear following the horizontal bars. Record all the numbers that appear and report them to your technical support. In general they indicate that the MIC failed. The sequence of numbers is repeated endlessly.
- If you run the wrap test without a terminator and get the following errors, **D082—1005E0 or D083—0CXXXX** (where XXXX = error data that varies), locate and attach a SCSI terminator to either PJJ08 or PJJ13 and run the wrap test again. If the MIC runs successfully with the added terminator , then the MIC is good.

Step 20. **You may Power Off the printer at any time**.

Step 21. Remove the 5 wrap plugs that were installed in step 12 through step 16.

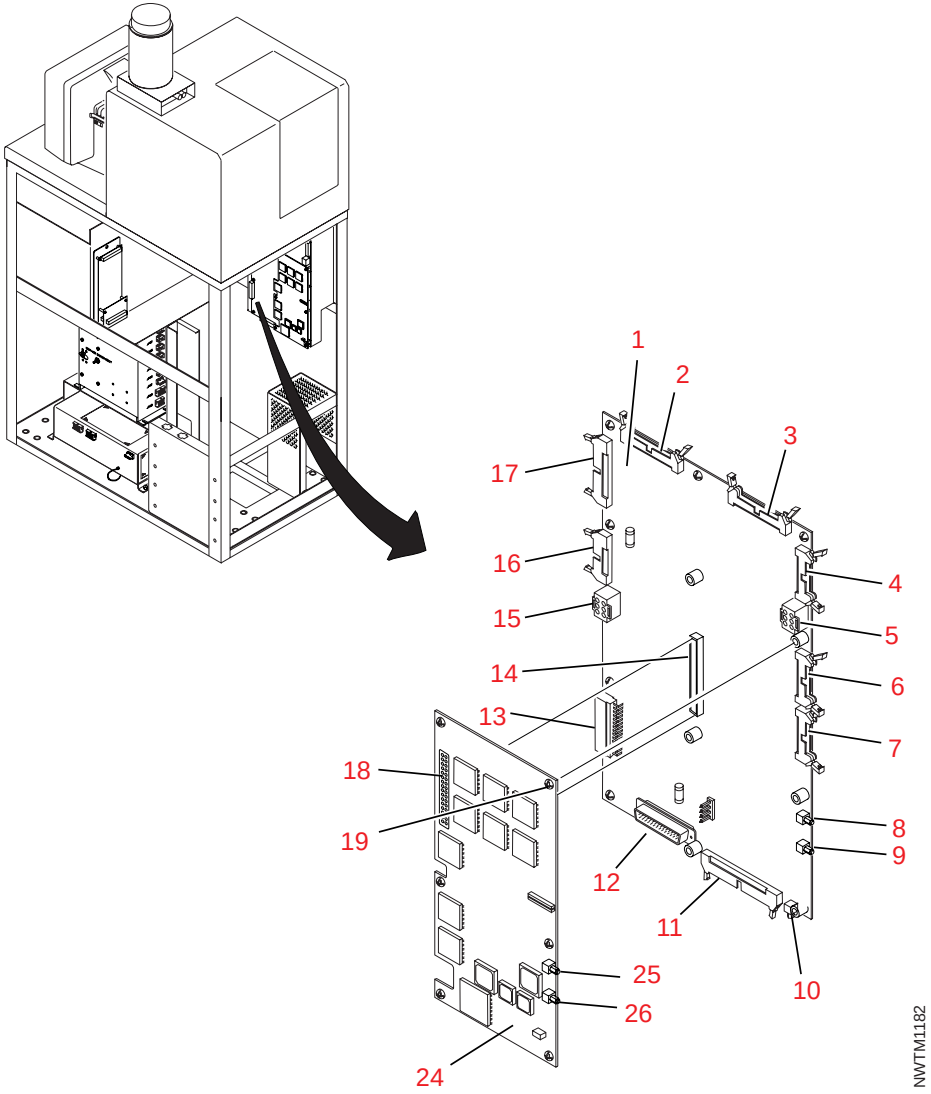
Step 22. Reverse the procedures in step 2 through step 11.

Step 23. Set the RS/6000 controller power switch to On.

Two Beam Printhead

Use this test to diagnose mechanism interface card (MIC) problems in a standalone mode.

Table 426. MIC Isolation Wrap Test Two Beam Printhead



Required Tools:

- MIC PJ1 wrap plug
- MIC PJ6 wrap plug
- MIC PJ2–PJ3–PJ12 wrap Y-cable

Perform the following steps:

1. Shutdown and power off the printer.
2. Disconnect the video data coax cables from connectors
   - VD1 **(26)**
   - VD2 **(25)**

   on the PQE card **(24)**.
3. Remove the screws **(19)** holding the PQE card to the MIC **(1)**.
4. Disconnect connector J01 **(18)** on the PQE card from connector PJJ04 **(14)** on the MIC and lift off the PQE card.
5. Disconnect the following connectors (some may not be present):
   - PJJ01 **(4)**
   - PJJ02 **(6)**
   - PJJ03 **(7)**
   - PJJ06 **(11)**
   - PJJ07 **(3)**
   - PJJ09 **(2)**
   - PJJ11 **(17)**
   - PJJ12 **(16)**

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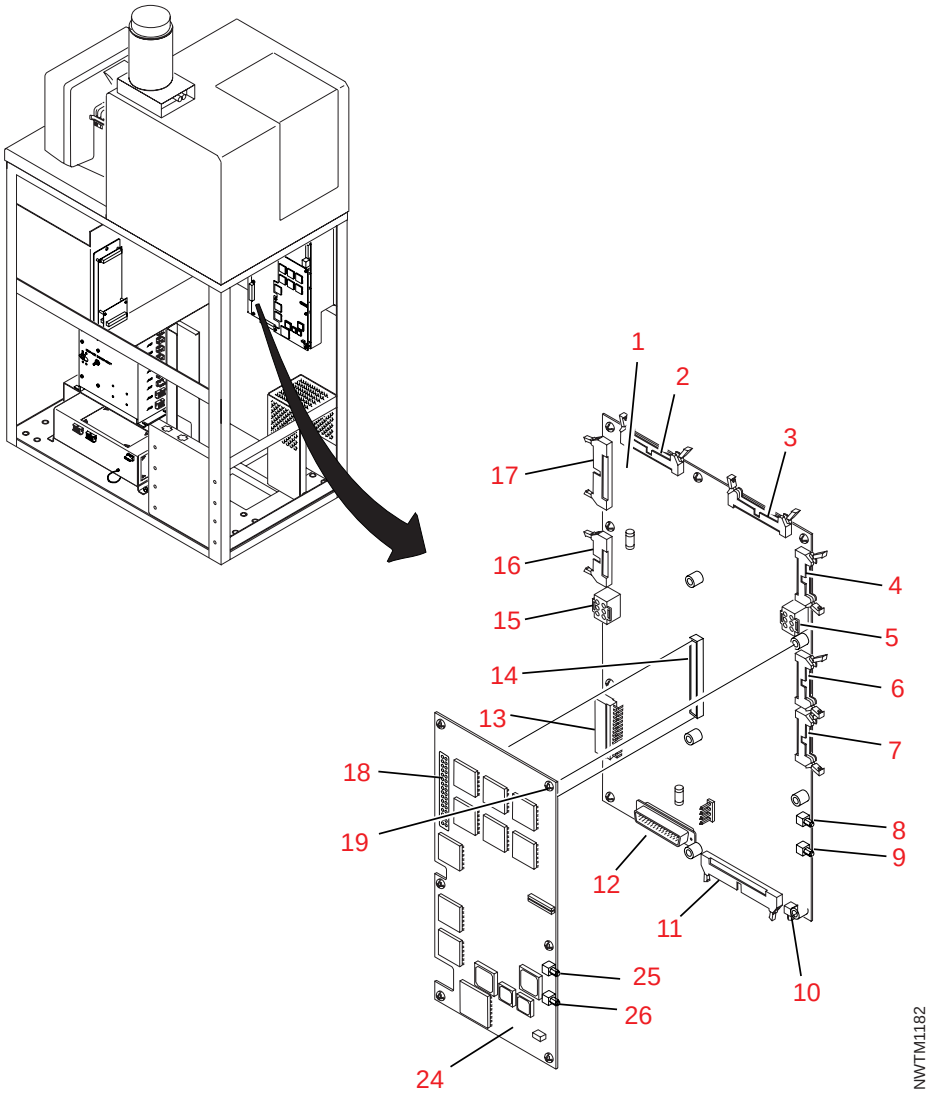
Table 426. MIC Isolation Wrap Test Two Beam Printhead (continued)



6. Do not disconnect the power connectors, PJJ05 and PJJ10.
7. Disconnect the SCSI cable(s) from the MIC.
8. Leave the SCSI terminator attached if present.
9. Use the coax union to connect cables J203 and J204 at the printer interface.
10. Connect the wrap plug labeled MIC PJ1 to the J01 connector **(4)** on the MIC.
11. Connect the wrap plug labeled MIC PJ6 to the J06 connector **(11)**.
12. Connect the wrap plug labeled MIC PJ2 to the J02 connector **(6)**.
13. Connect the wrap plug labeled MIC PJ3 to the J03 connector **(7)**.
14. Connect the wrap plug labeled MIC PJ12 to the J12 connector **(16)**.
15. Set the RS/6000 controller power switch to Off to prevent the microcode from loading.
16. **Power On the printer**.

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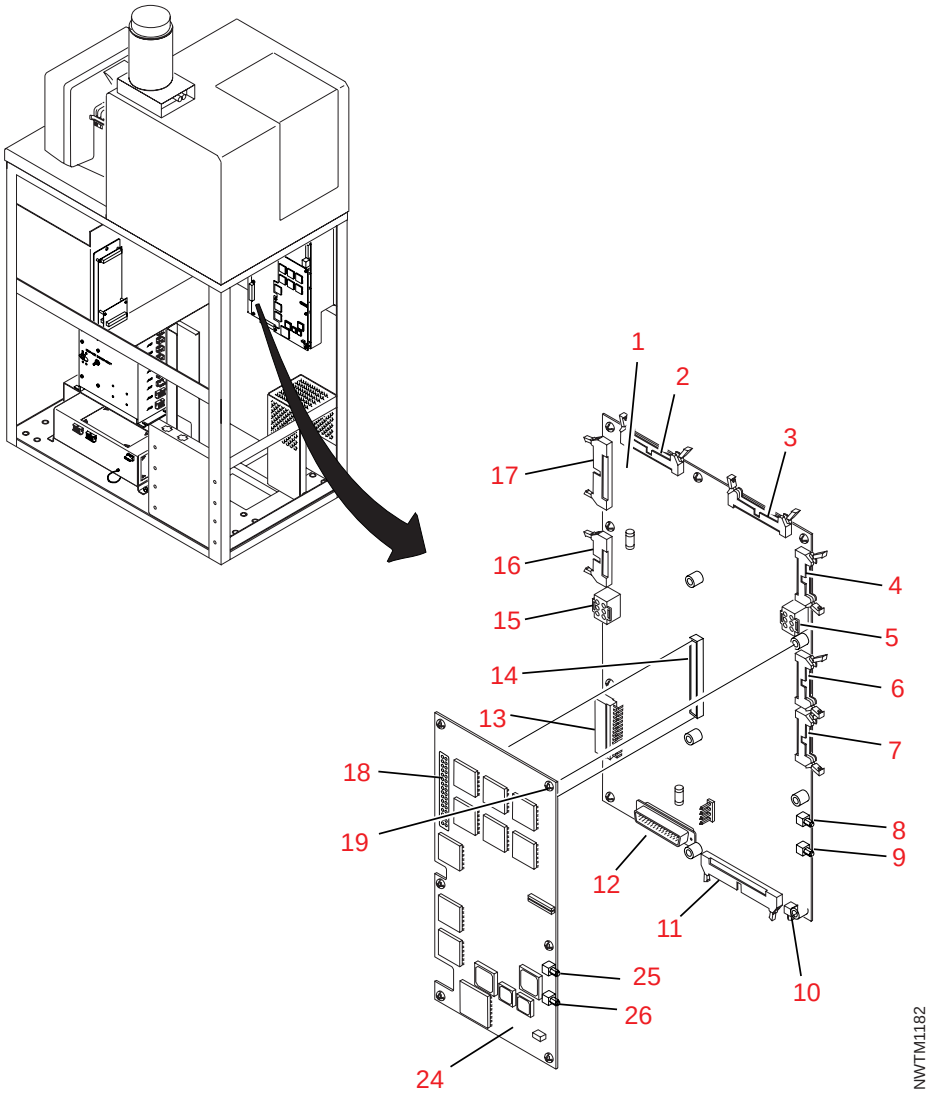
Table 426. MIC Isolation Wrap Test Two Beam Printhead (continued)



Step 17. Watch the single-digit LED display on the MIC for the following results:

- Because of the testing of the memory, the test can take up to 6 minutes to complete.
- The letter **P** displayed for 5 seconds indicates that the test completed successfully. The test then repeats. The numbers displayed are progress indicators.
- Three horizontal bars indicate that an error occurred. The error codes appear following the horizontal bars. Record all the numbers that appear and report them to your technical support. In general they indicate that the MIC failed. The sequence of numbers is repeated endlessly.
- If you run the wrap test without a terminator and get the following errors, **D082—1005E0 or D083—0CXXXX** (where XXXX = error data that varies), locate and attach a SCSI terminator to either PJJ08 or PJJ13 and run the wrap test again. If the MIC runs successfully with the added terminator , then the MIC is good.

Step 18. **You may Power Off the printer at any time**.

Step 19. Remove the 5 wrap plugs that were installed in step 10 through step 14.

Step 20. Reverse the procedures in step 2 through step 7.

Step 21. Set the RS/6000 controller power switch to On.

RS/6000 Controller

Automatic Tests

The automatic diagnostic tests run after the RS/6000 Controller is turned on and before the AIX operating system is loaded. These tests also run when the system is reset. The following features are used during hardware problem determination.

Power On Light

The power on light indicates that all voltages in the power supply are present and within limits and that the fans are running. If a fan that is controlled by this power supply stops or does not start, the power supply turns the RS/6000 Controller off.

Mode Switch for all 7009 - 7012 and 7013 Controllers

The mode switch is non-locking and is operated with a key or similarly shaped tool. It has three positions.

- In the Normal position, the AIX operating system loads from a disk after the power-on self-test (POST) and configuration programs run.
- In the Secure position, the system cannot do an initial program load (IPL). The **Reset** button is disabled to prevent resetting the RS/6000 controller. If an IPL is attempted, the number **200** appears in the 3-digit display. This mode switch position does not lock the keyboard or block system network communication.
- In the Service position, the diagnostic controller program searches for the diagnostic programs on the load devices in the following order:
  1. Any diskette drive
  2. A non-disk SCSI load device
  3. Any hard disk drive
  4. The network server

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Diagnostics for all 7009 - 7012 and 7013 Controllers

Do the following to run diagnostics:

1. Power off the printer and control unit using the appropriate shutdown procedures.
2. Power on the RS/6000 controller.
3. Toggle the controller Mode Switch key from **Normal** to **Service** and back to **Normal** position.
4. Wait until the controller LED display stops on the same three digits for at least 5 minutes.
5. If diagnostic routines complete successfully, the LED display shows **c99**. All FRU tests were successful.
6. If the LED display shows anything other than **c99** follow the MAP procedures for the number in the display to fix the problem.

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Diagnostics for 7025 and 7043 Controllers

Because there is no mode switch on these controllers, do the following to run diagnostics.

Use your laptop computer and the CE Tool Kit that is shipped with the controller to perform diagnostics on these types of controllers.

Ensure that the following laptop functions are active when you perform either ONLINE or STANDALONE diagnostic routines:

- Thinkpad functions
- Thinkpad configuration
- Serial Port

Run ONLINE Diagnostics in CONCURRENT Mode

1. Ensure that the laptop serial port is enabled by going to **Thinkpad Features**.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. SHUTDOWN AND POWER OFF THE PRINTER.
4. Power off the laptop computer.
5. Plug the Null Modem Cable (P/N 62H4857) into the Serial Port jack on the laptop.
6. Connect the other end of this cable to the controller Serial Port 1.
7. Insert the Laptop Communications Diskette (P/N 90H1644) into the laptop diskette drive.
8. Power on the laptop.
9. When the ***Enter New Date*** message appears on the laptop, enter the time and date.

   Press the **Enter** key twice.
10. At the ***a:\>*** prompt, type ***ftterm***.

    Press the **Enter** key.
11. At the IBM screen, press the **Enter** key.
12. At the FTTERM main menu, press **ALT-F10**.

    `***Establish Connection If Necessary***` appears at the bottom of the screen
13. Power on the printer.
14. Wait until `login` appears on the laptop screen.

Note: The laptop may enter Screensaver mode. Press the **Enter** key periodically. If ***login*** does not appear within 10 minutes, go to Run Standalone Diagnostics.

15. When ***login*** appears, type **root** and press the **Enter** key.

    If a ***password request*** message appears, press **CTRL-D** to log off from `root`. Return to Step 14.
16. When ***afccutok#*** appears on the laptop screen, type **diag** and press the **Enter** key.
17. Follow the displayed instructions and select **Diagnostic Routines**.
18. Type **VT100** to define the terminal.
19. Select “System Verification” or “Problem Determination.”.
20. Select the resources for testing.
21. Press **ESC+7** for “Commit”. (F7 does not work.)
22. When testing is complete, use **F3** as many times as necessary to return to the AIX prompt ***afccutok#***.
23. Press **CTRL-D** to log off from “root”.
24. Shutdown and power off the printer.
25. Power off the laptop.
26. Disconnect the Serial Port cable from the laptop and the controller.
27. Remove the Communications Diskette from the laptop.
28. Power on the printer.

Run STANDALONE Diagnostics

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. SHUTDOWN AND POWER OFF THE PRINTER.
3. Power off the laptop computer.
4. Plug the Null Modem Cable (P/N 62H4857) into the Serial Port jack on the laptop.
5. Connect the other end of this cable to the controller Serial Port 1.
6. Insert the Laptop Communications Diskette (PN 90H1644) into the laptop diskette drive.
7. Power on the laptop.
8. When the ***Enter New Date*** message appears on the laptop, enter the time and date.

   Press the **Enter** key twice.
9. At the ***a:\>*** prompt, type ***ftterm***.

   Press the **Enter** key.
10. At the IBM screen, press the **Enter** key.
11. At the FTTERM main menu, press **ALT-F10**.

    `***Establish Connection If Necessary***` appears at the bottom of the screen
12. Power on the printer.
13. Install the RS/6000 Diagnostics CD-ROM in the controller as soon as possible. (The RS/6000 CD is shipped with the controller.)

Note: The laptop may enter Screensaver mode. Press the **Enter** key periodically.

14. If prompted, press **0** to make the laptop the active console.

    Wait several minutes until the ***please define the system console*** message appears.
15. Press either the **1** key or the **2** key, as appropriate, followed by **ENTER** to define the system console.
16. Follow the displayed instructions and select **Diagnostic Routines**.
17. Type in **VT100** to define the terminal.
18. If New Resource screen appears scroll down to continue... The resource list should appear
19. Select “System Verification” or “Problem Determination.”.
20. Select the resources for testing.
21. Press **ESC+7** for “Commit”. (F7 does not work.)
22. Follow the displayed instructions
23. When testing is complete, press **ESC+0**.
24. Remove the CD-ROM from the controller.
25. Shutdown and power off the printer.
26. Power off the laptop.
27. Disconnect the Serial Port cable from the laptop and the controller.
28. Remove the Communications Diskette from the laptop.
29. Power on the printer.

Redirect Systems Management Services (SMS) Screen

After you have installed or replaced a card in the controller, a Systems Management Services (SMS) window may appear on the Display/Touch Screen prior to the normal printer windows. The (SMS) window contains two icons for a short time. This does not interfere with normal printer operations.

If you wish, use the following procedure to stop the SMS window from appearing:

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. SHUTDOWN AND POWER OFF THE PRINTER.
3. Power off the laptop computer.
4. Plug the Null Modem Cable (P/N 62H4857) into the Serial Port jack on the laptop.
5. Connect the other end of this cable to the controller Serial Port 1.
6. Insert the Laptop Communications Diskette (P/N 90H1644) into the laptop diskette drive.
7. Power on the laptop.
8. When the ***Enter New Date*** message appears on the laptop, enter the time and date.

   Press the **Enter** key twice.
9. At the ***a:\>*** prompt, type ***ftterm***.

   Press the **Enter** key.
10. At the IBM screen, press the **Enter** key.
11. At the FTTERM main menu, press **ALT-F10**.

    `***Establish Connection If Necessary***` appears at the bottom of the screen
12. Power on the printer.
13. If ***Press 0 to select this console as the active console*** appears on the screen, immediately press **0** and then press the **Enter** key.
14. When the IML is complete, SHUTDOWN AND POWER OFF THE PRINTER.
15. Power off the laptop.
16. Disconnect the Serial Port cable from the laptop and the controller.
17. Remove the Communications Diskette from the laptop.
18. Power on the printer.

Maintenance Panel Display

The Maintenance Panel display does the following:

- Tracks and controls the progress of the built-in self-test (BIST), POST, and configuration programs
- Displays a unrecoverable-error message when the system control program ends abnormally
- Displays a diagnostic program message when there is no Display/Touch Screen

To form a service request number (SRN) from any steady number that appears during system power-on testing, put **101–** in front of the displayed number.

When a flashing **888** appears, an unrecoverable-error message is waiting to be read.

See RS/6000 documentation shipped with your controller to decode SRN codes, and procedures for dealing with flashing 888.

Reset Button

Note: The Reset Button is not useable on the 7025 and 7043 controllers.

Use the **Reset** button to:

- Reset the RS/6000 controller and cause an IPL of the:
  - AIX operating system when the mode switch is in the Normal position.
  - Diagnostic controller program when the mode switch is in the Service position.
  - Read out an unrecoveraable-error message or a diagnostic message after a flashing **888** appears on the 3-digit display.
  - Start the dump program when a dump is needed.

Host Error Reporting

The printers operate under the Print Services Facility (PSF) of the IBM Advanced Function Presentation (AFP) software application. This software drives the printer during normal operation and manages the error recovery and logging in SYS1.LOGREC.

Two types of host-supported diagnostics for problem determination are provided:

- System tests
- Environmental Record Editing and Printing (EREP) program

System Tests

System tests for each family of host systems are provided as a system installation tool when you install or relocate a system. The tests verify that the system is configured correctly and is functional.

An interface test and a print test are provided for the printer. Refer to the applicable host system user's guide or tutorial for more information on the use and running of the tests.

Environmental Record Editing and Printing (EREP) Program

The EREP program is provided for each IBM operating system to format and print the error information recorded in the error-recording data set. This program is usually run by the customer once a day and is used as a tool to aid system management.

The general device-type designation, AFP1, is used for the EREP DEV (device type) selection parameter and appears in the Device Type1 field in the header of the reports. Unique Type/Model information is provided in the body of each report.

A summary report and a detail report are provided for the AFP1 printers.

EREP Summary Report

Table 427. EREP Summary Report

The summary report provides statistical data on the errors that have occurred on a machine during a period, usually one day. It is identified by the title, **Report: Outboard Summary**. This report contains some of the information also found in the error log.

Error Conditions

This information is common to both the summary and the detail reports and includes the following fields:

- **SCP** - shows the release level of the operating system or System Control Program.
- **Mode** - the mode of operation of the operating system.
- **Record Is** - interpreted as either a temporary or a permanent error by the software recovery program.

Machine Identification

Information about the failing machine is common to both the summary and the detail reports and includes the following fields:

- **Device Number** - the channel address of the printer.
- **Device Type** - AFP1
- **Model** - the model number of the host CPU.
- **Serial** - the number found on the printer's control unit.
- **Type/Model** - 4000 followed by the model number of the printer.

Report Events

The following fields describe the period to which this report applies:

- **Report Date** - the date the EREP is run, shown as the number of the day (1–366) and the year.
- **Period From/To** - the dates of the first and last outboard records, shown as the number of the day (1–366) and the year.
- **Usage Start/Last** - the usage counts in feet of paper at the time of the first and last outboard records.

Statistical Data

This field shows the number of errors from which recovery was successful.

Sense Data Summary

This field shows the number of errors for which an SRC was logged. The errors may be permanent or temporary, although most SRCs indicate a permanent, or unrecoverable, failure of the printer.

EREP Detail Report

Table 428. EREP Detail Report

The detail report is printed in either long form or short form and provides detailed information on one error that occurred on one machine. The detail report uses the same header as the summary report to identify the machine, the time, and the conditions when the error occurred.

Machine Identification

Information about the failing machine is common to both the summary and the detail reports and includes the following fields:

- **Device Number** - the channel address of the printer.
- **Device Type** - AFP1 for all Infoprint 4000 printers.
- **Model** - the model number of the host CPU.
- **Serial** - the number found on the printer's control unit.
- **Type/Model** - 4000 followed by the model number of the printer.

Time Stamp

The time the error occurred is identified by the date and time fields:

- **Date** - the date on which the error occurred, shown as the number of the day (1–366) and the year.
- **Time** - the time at which the error occurred, using a 24-hour clock.

Error Conditions

This information is common to both the summary and the detail reports and includes the following fields:

- **SCP** - shows the release level of the operating system or System Control Program.
- **Mode** - the mode of operation of the operating system.
- **Record Is** - interpreted as either a temporary or a permanent error by the software recovery program.

Table 428. EREP Detail Report (continued)

Entries in the Long Form

The long form of the detail report is identified by the header, Report: Outboard (Long). In addition to the common data found on both forms of the detail report, the long form also has the following fields:

- **Statistical Data:** This field shows the number of errors from which recovery was successful. The channel errors may be from earlier, unrelated errors, but the paper-jam and temporary-error counts apply to the error that initiated this report.
- **Sense Byte Data:** This field shows the 24 bytes of sense information sent by the printer when the error occurred.
- **Device-Dependent Data:** This field is 4000 followed by the model number.
- **Error Environment:** The following fields provide details of the environment outside the Infoprint 4000 printer at the time of the error:
  - Job identification
  - Error path
  - Failing CCW (channel control word)
  - Channel status and flags
  - Hex dump of record (OBR).

Entries in the Short Form

The short form of the detail report is identified by the header, Report: Outboard (Short). The short form does not describe an error. In addition to the common data found on both forms of the detail report, the short form also has the following fields:

- **Statistical Data:** This field shows the unformatted form of the counters in the statistical data area of the long form.
- **Hex Dump of Record:** This field shows the unformatted data from which the header and the statistical data fields of the form are created.

Interpretation of EREP Sense Bytes

Table 429. Interpretation of EREP Sense Bytes

When a failure occurs, 24 sense bytes (numbered 0 to 23) are sent to the host system. The print services facility (PSF) software uses these sense bytes print to recover from data stream or hardware errors. The recovery action by PSF may be to resend lost pages or to wait for the operator to correct the printer problem.

When the problem is in the printer hardware, interpreting the sense bytes when reading the long form of the detail report may be helpful.

Pay close attention to the SRCs and the usage count at the time of the error because this information is contained in the sense bytes but is not printed by the EREP program in the detail report. By matching the SRC and the usage count from the sense bytes with the values in the error log, you can:

- Determine the date, time, and job identification of errors that appear in the log.
- Collect the following information from the log to analyze the SRC found in the long form of the detail report:
  - Engineering support
  - Microcode EC level
  - PM counter values.

Sense Byte 5 - Format Information

Sense byte 5 identifies the format of the bytes 0–23. (For example, if sense byte 5 is X'02' (that is, 2), use format 2 to interpret the other sense bytes). See Hexadecimal-to-Decimal Conversion for help with converting hexadecimal (X) values.

Check Sense Byte 5 and identify the proper format of the sense information.

- Format 0 - data check, specification check, and command reject errors.
- Format 1 - data stream positioning errors.
- Format 2 - intervention required and equipment check errors.
- Format 3 - errors detected by the controller.
- Format 4 - printer errors that are detected by the printer.
- Format 5 - errors detected by ESCON channel attachment.

Format 0

This format applies to all data check, specification check, and command reject errors.

Table 430. EREP Sense Bytes - Format 0

Byte	Explanation
0	Defines the error group for a specific error. The error can be a hardware or a programming error. Sense byte 0 is the first byte of the 3-byte error code. See Sense Byte 0.
1	Defines the status code for a specific error and identifies the cause for the unit check. The error can be a hardware or a programming error. This byte and byte 19 define a specific error for an error group. Sense byte 1 is the second byte of the 3-byte error code.
2	Contains the error-recovery action code for the condition the printer senses. See Sense Byte 2 - Action Code.
3	Defines the printer environment. See Sense Byte 3.
4	Data error, X'DE'
5	X'00', identifies format 0.
6–7	Count of occurrences of the error
8–9	Overlay ID that has an error.
10–11	Segment ID that has an error.
12–13	Command in process when the error occurred.
14–15	Object identifier (other than segment or overlay that has an error; for example, font).
16–17	Element identifier; identifies a part within the object that has the error.
18	Reserved.
19	Byte 3 of the 3-byte error code.
20–23	Page identifier for the page that has the error as defined in the Begin Page command.

Format 1

This format applies to all data stream positioning errors.

Table 431. EREP Sense Bytes - Format 1

Byte	Explanation
0	Defines the error group for a specific error. The error can be a hardware or a programming error. Sense byte 0 is the first byte of the 3-byte error code. See Sense Byte 0.
1	Defines the status code for a specific error and identifies the cause for the unit check. The error can be a hardware or a programming error. This byte and byte 19 define a specific error for an error group. Sense byte 1 is the second byte of the 3-byte error code.
2	Contains the error-recovery action code for the condition the printer senses. See Sense Byte 2 - Action Code.
3	Indicates the printer-ready state at the time of the error.
4	Data error, X'DE'
5	X'01', identifies format 1.
6–7	Count of occurrences of the error
8–9	Overlay ID that has an error.
10–11	Segment ID that has an error.
12–13	Command in process when the error occurred.
14	Text position error, count maximum 255, no wrap.
15	Image position error, count maximum 255, no wrap.
16	Rule position error, count 255, no wrap.
17	Graphic position error, count 255.
18	Reserved.
19	Byte 3 of the 3-byte error code.
20–23	Page identifier for the page that has the error as defined in the Begin Page command.

Format 2

This applies to all intervention required and equipment check errors.

Table 432. EREP Sense Bytes - Format 2

Byte 0	Byte 1	Byte 2	Explanation
01	E4	15	Cancel selected.
10	10	02	Printer hardware error.
10	F1	18	Transparent permanent hardware exception (retry successful).
10	10	18	Channel or file adapter temporary error.
10	F2	09	Print overrun.
10	F2	18	Transparent print overrun (retry successful).
40	E4	08	Paper jam recovery needed.
50	10	02	Printer hardware error.
Byte 3			See Sense Byte 3.
Byte 4			Device sense format identification.
Byte 5			X'02', identifies format 2.
Byte 6 –7			System reference code.
Byte 8–18			Sense detail.
Byte 19			Byte 3 of the 3-byte error code.
Byte 20–23			Usage count in sides of paper in hex.

Format 3

This applies to errors detected by the controller.

Byte 0	Byte 1	Byte 2	Explanation
80	05	04	Invalid channel command.
80	05	1C	Invalid channel command sequence or “Sense extended” expected but not received by the printer.
20	11	04	Channel command parity error.
20	12	04	Channel data parity error.
10	E0	04	Channel adapter check.
04	01	04	Channel overrun
Byte 3			See Sense Byte 3
Byte 4			Reserved
Byte 5			X'03', identifies format 3.
Byte 6 - 7			Reserved
Byte 8–9			Reserved
Byte 10			Channel adapter error log register.
Byte 11			Reserved.
Byte 12			Data transfer protocol.
Byte 13			Data streaming rate.
Byte 14			Channel command register.

(continued on next page)

	Explanation
Byte 15	Channel (host) status register.
Byte 16	Channel adapter (request) wait register.
Byte 17	Command table.
Byte 18 – 19	Reserved.
Byte 20	Storage control block number.
Byte 21	Data transfer byte count.
Byte 22–23	Reserved.

Format 4

This applies to printer errors that are detected by the printer.

Table 433. EREP Sense Bytes - Format 4

Byte 0	Byte 1	Byte 2	Explanation
40	00	03	Printer not ready.
40	01	03	Out of paper.
40	02	03	Stacker full.
40	04	03	Toner supply empty.
40	E2	03	Operator intervention needed.
Byte 3			See Sense Byte 3
Byte 4			X'00'
Byte 5			X'04', identifies format 4.
Byte 6 – 23			X'00'

Format 5

This applies to errors that are detected by ESCON channel attachment.

Table 434. EREP Sense Bytes - Format 5

Byte 0	Byte 1	Byte 2	Explanation
80	05	04	Invalid Channel Command
80	05	1C	Invalid Channel Command Sequence
80	06	24	Printer Not Assigned
20	01	04	Link Adapter A/B Device-Level Error
20	02	04	Link Adapter A/B Link-Level Error
10	E2	04	Link Adapter A/B Check
04	01	04	Link Adapter A/B Overrun
01	A0	25	Printer Assigned Elsewhere
01	A1	04	Sense Reset due to Reset Allegiance
01	A2	04	Operation Terminated due to Reset Allegiance
01	A3	4D	Resetting Event
Byte 2			See Sense Byte 2 - Action Code
Byte 3			See Sense Byte 3
Byte 4			Reserved.
Byte 5			X'05', identifies format 5.

(continued on next page)

Table 434. EREP Sense Bytes - Format 5 (continued)

Byte 6	Physical Interface Identifier — Preceded by an implied byte of all zero to form the standard two byte interface ID of the link adapter on which these sense bytes are being transmitted. This is the same interface ID that is defined in the Node Element Descriptor (ND). Set to X'01' if the sense bytes are returned on link adapter A Set to X'02' if the sense bytes are returned on link adapter B
	Explanation
Byte 7 – 8	Link Adapter A Basic Status Reg.
Byte 9	Link Adapter A Error Log Reg Byte 1.
Byte 10–12	Link Adapter A Link Error Log.
Byte 13–14	Link Adapter B Basic Status Reg.
Byte 15	Link Adapter B Error Log Reg Byte 1.
Byte 16–18	Link Adapter B Link Error Log.
Byte 19	Set to 01 for Link Adapter A. Set to 02 for Link Adapter B. Set to 00 for a condition not related to Link Adapter A or B.
Byte 20	Reserved.
Byte 21	VCU ID (0-15 Link A, 16-31 Link B).
Byte 22–23	Virtual Error Log for VCU ID.

Sense Byte 0

With the sense byte expressed in binary bits, numbered from left to right, a 1 in a given position is defined as:

Table 435. EREP Sense Byte 0 - Explanation

Bit On	Hex	Explanation
0	X'80'	Channel command reject
1	X'40'	Intervention required
2	X'20'	Bus-out parity check
3	X'10'	Equipment check
4	X'08'	Data check
5	X'04'	Channel overrun
6	X'02'	Specification check
7	X'01'	Condition requiring host notification

Sense Byte 1

This byte contains code which identifies the failure. Byte 1 definitions are found in the format tables.

Sense Byte 2 - Action Code

The hex value of the byte is defined as follows:

Table 436. EREP Sense Byte 2 - Explanations

Hex Value	Explanation
01	Data stream error. A syntax error has been detected in the printer data stream. The specific recovery actions depend on host support requirements.
02	Operator intervention. Equipment check and OBR record. No pages resent.
03	Operator intervention. No OBR record (that is, EOF; not ready).
08	Paper jam. Host software should retransmit all pages and associated resources that have not passed the printer-defined jam-recovery point.
09	Data-related print error. Host software should retransmit all pages and associated resources that have not been committed for printing except the first one, which cannot be printed.
0C	Resource storage error. Host software should delete resources (overlays, page segments, and fonts) and retransmit them. If this fails, the recovery action depends on host support requirements.
0D	Printer restart. All pages, fonts, overlays, and page segments have been lost. Host software should retransmit all fonts, overlays, and page segments needed to reestablish the environment and retransmit pages that have not been committed for printing.
15	Cancel. Host recovery should cancel the job containing the page at the host-defined canceling point.
16	Hardware-related print error. Host software should retransmit all pages and associated resources that have not been committed for printing.
17	Printer down. A printer condition has occurred from which the printer cannot recover. Host software should take appropriate action.
1A	Redrive buffered pages. Host software should retransmit all pages and associated resources that have not been committed for printing.

(continued on next page)

Table 436. EREP Sense Byte 2 - Explanations (continued)

Hex Value	Explanation
1D	Redrive buffered pages. Host software should obtain printer characteristics and then retransmit all pages and associated resources that have not been committed for printing.
1F	Data stream error. This error is the same as X'01', but it occurs in a secure environment.
22	Communication inoperative. A printer condition has occurred from which the printer cannot recover. Host software should terminate the conversation and session.
The following actions codes are for ESCON attachment only.	
24	Printer Not Assigned. Reissue this command following the successful execution of an Assign command.
25	The printer is assigned to another host. Issue an Assign command at a later time or when the printer is known to be available.
4D	Resetting Event. Re-establish path group ID and path mode and re-issue failing command.

Sense Byte 3

Table 437. EREP Sense Byte 3 Explanations

Sense Byte 3 - ESCON attached This defines the printer environment at the time of the error for all action codes ***other*** than X'01', X'0C', X'0D', X'15', and X'18'. For these five exceptions, this byte defines the printer environment at the time the error is reported to the host.	
Bit	**Explanation**
0	• If one - indicates that the printer is in the ready state. • If zero - indicates that the printer is in the not-ready state.
1–2	The dynamic partitioning status will be encoded in these two bits (for all sense formats). • Bit 1 - if set indicates Multiple Host • Bit 2 - if set indicates that the code is activated to generate an interrupt for assignment change.
3–6	Reserved.
7	Set to one to indicate that the printer operate in page mode only.
Sense Byte 3 - non-ESCON attached This defines the printer environment at the time of the error, not at the time the error is reported to the host. But there are two exceptions: Sense byte 3 for action codes X'15' and X'0D' defines the printer environment at the time the error is reported to the host.	
Bit	**Explanation**
0	If one - indicates that the printer is in the ready state.
1–6	Reserved.
7	Set to one to indicate that the printer operate in page mode only.

E0XX Codes and SRC Cross-References

This list cross references the E0XX codes that appear on the maintenance panel with the system reference codes (SRCs) that appear on the Display/Touch Screen.

Use this list when an E0XX code appears but no SRC appears. This may occur when there is an error following a power on and the controller is still initializing.

You can go directly to the MAP with the same number as the SRC. If you do not find a MAP with that number, go to MAP 0010, step 3, to find the appropriate MAP for that SRC.

The Maintenance Panel displays **b** and **d** in place of **B** and **D**; do not confuse **b** with **6**.

E0XX Code	Description	MAP Link	SRC Code
E001	End of Forms Sensor 1	1064	078A
E004	Stacker Full	1112	0796
E005	Toner Collector Full	1044	0785
E006	Add Toner	1048	0786
E007	Change Developer Mix	1055	0788
E009	End of Oiler Belt Reached	1098	0793
E00A	Fuser Oil Empty	1093	0792
E00C	Change Fine Filter	1086	0791
E00E	Toner Collector Not Set	1051	0787
E00F	Developer Drain Open	1059	0789
E010	Transfer Station Open	1036	0783
E011	Splice Station Vacuum Switch	1032	0782
E015	Stacker Safety Switch On	437	0174
E016	Stacker Table Down	1123	0798
E018	Fine Filter Not Installed	1132	0799
E019	Forms Loading	1074	078C

E0XX Code	Description	MAP Link	SRC Code
E01A	Tension Arm Position Incorrect	1136	079A
E01b	Vacuum is Off	1040	0784
E01C	Stacker Gate Open	1119	0797
E01d	Toner Loading	1078	078D
E01E	Oiler Gate Open	1103	0794
E01F	Developer Running	1069	078B
E021	Capstan Pinch Roll Cannot Be Lowered (Autoload)	472	0182
E022	Bridge Cannot Be Raised (Autoload)	479	0183
E024	Transfer Station Forms Jam During (Autoload)	484	0184
E025	Upper Fuser Jam (Autoload)	505	0185
E026	Capstan Pinch Roll Cannot Be Raised (Autoload)	523	0186
E027	Bridge Cannot Be Lowered (Autoload)	531	0187
E029	Capstan Pinch Roll Initial Position Error (Autoload)	536	0188
E02A	Bridge Home Position Error (Autoload)	543	0189
E02b	Autoload Reset Error	548	018A
E02C	Set Forms Direction	1107	0795
E02d	Stacker Length Motor Timeout	459	0177
E030	Drum Rotation Error		0121
E031	Drum Overspeed	223	0124
E032	Drum Position Error	226	0125
E033	Drum Timeout Error	218	0123
E035	PC Drum Cover Is Open	620	022A
E036	Preclean Corona Voltage Error	567	0213

E0XX Code	Description	MAP Link	SRC Code
E037	Mag Brush Bias Error	639	0231
E038	Charge Corona Voltage Error	553	0211
E039	Transfer Corona Voltage Error	561	0212
E03A	Precharge Corona Voltage Error	572	0214
E03b	Conveyor Roll Rotation Error	644	0232
E03C	Toner Over-Feed Error	656	0234
E03d	Toner Under-Feed Error	664	0235
E03E	Mag Roll Motor Thermal	651	0233
E040	Cleaner Brush Rotation Error	701	0251
E041	Cyclone Blower Rotation Error	738	0266
E043	Cleaner Housing Always At Home	716	0256
E044	Cleaner Housing Never Homes	712	0253
E045	Cyclone Blower Motor Thermal	730	0264
E046	Cleaner Brush Motor Thermal	706	0252
E048	Mirror Motor (M201) Operating Error	579	0221
E04A	Mirror Motor (M201) Drive Error	589	0223
E04b	Mirror Motor (M201) Start-Up Error	602	0224
E04d	Video Data Active	584	0222
E054	Resolution Lens Initial Position Error	614	0225
E055	Resolution Lens Motor (M202) Overcurrent	617	0226
E056	Laser Power Dropped	624	022B
E057	Laser Power-Up Error	628	022C
E058	Laser Power Supply Error	632	022D

E0XX Code	Description	MAP Link	SRC Code
E05A	Forms Width Sensor Fuse	180	0118
E05b	Cancel received at PRINT=0	1026	0631
E05C	ACT is received during COOL	1026	0632
E05d	CHK RESET received at PRINT=1	1026	0632
E05E	DORMANT received at PRINT/WAIT=1	1026	0632
E05F	CPF/CNP received when COOL/WAIT|DORM=1	1026	0633
E060	CNP received without PH DRV	1026	0633
E074	CPF and CNP both on	1026	0634
E075	CPF or CNP on too long	1026	0634
E077	Tension Arm Up	235	0132
E078	Tension Arm Down	229	0131
E07b	Upper Tractor Forms Jam	185	0119
E07d	Skew Error	244	0133
E07E	Fuser Wrap	264	0134
E080	Stacker Jams (light never sensed)	375	0161
E081	Stacker Jams (light always sensed)	400	0164
E082	Tractor Drive Signal Always On	202	011B
E083	Tractor Detent Signal Error	204	011C
E084	Tractor Motor Encoder Phase Error	160	0113
E085	Tractor Motor Overspeed	208	011D
E086	Tractor Motor Initial Position Error	211	011E
E088	Retractor Speed Error	148	0102
E089	Retractor is Extended During NPRO	152	0103

E0XX Code	Description	MAP Link	SRC Code
E08A	Retractor is Retracted During Print	156	0104
E08b	Retractor Seek Error	169	0115
E08d	Hot Roll Overspeed	292	0138
E08F	Felt Oiler Belt Driver Error	324	0141
E090	Felt Oiler Belt Motor Always Driven	332	0143
E091	Felt Oiler Belt Motor Never Driven	336	0144
E092	Vacuum Shutter Always Home	734	0265
E093	Vacuum Shutter Cannot Home	725	0263
E094	Steering Motor Driver	291	0137
E095	Backup Roll Over-Travel Error	295	0139
E096	Backup Roll Drive Signal On	299	013A
E097	Backup Roll Open Error	305	013B
E098	Backup Roll Position Error	285	0136
E099	Oil Pump Driver Error	328	0142
E09A	Oil Pump Always Driven	340	0145
E09b	Oil Pump Never Driven	343	0146
E09C	Hot Roll Underspeed	311	013C
E09d	Shutter Control Motor Driver	724	0262
E09E	Hot Roll Lamp 1 Relay Always Off	826	0296
E09F	Hot Roll Lamp 1 Filament Open	832	0297
E0A0	Hot Roll Lamp 2 Relay Always Off	837	0298
E0A1	Hot Roll Lamp 2 Filament Open	843	0299
E0A2	Fuser Soft Start Thermal Open	813	0293

E0XX Code	Description	MAP Link	SRC Code
E0A3	Hot Roll Over-Temperature	803	0291
E0A4	Hot Roll Lamp Drive On Too Long	810	0292
E0A5	Hot Roll Lamp Drive Signal Off Too Long	848	029A
E0A6	Hot Roll Does Not Reach Operating Temperature	823	0295
E0A8	Thermistor 1 Under-Temperature	793	028D
E0A9	Thermistor 2 Under-Temperature	795	028E
E0AA	Thermistor 3 Under-Temperature	799	028F
E0Ab	Preheat A/B Over-Temperature	744	0281
E0AC	Preheat C/D Over-Temperature	754	0283
E0AE	Preheat A/B Under-Temperature	750	0282
E0AF	Preheat C/D Under-Temperature	760	0284
E0b0	Preheat Control Signal Disconnected	764	0285
E0b1	Preheat Element ’D’ Lost Temperature	776	0289
E0b2	Preheat Element ’C’ Lost Temperature	773	0288
E0b4	Preheat Element ’B’ Lost Temperature	770	0287
E0b8	Preheat Element ’A’ Lost Temperature	767	0286
E0bA	Thermistor 1 Over-Temperature	779	028A
E0bb	Thermistor 2 Over-Temperature	783	028B
E0bC	Thermistor 3 Over-Temperature	787	028C
E0bE	Hot Roll lamp 4 Filament Open	866	029E
E0bF	Hot Roll Lamp 4 Relay Always Off	875	029F
E0C0	Hot Roll Lamp 3 Filament Open	853	029C
E0C1	Hot Roll Lamp 3 Relay Always Off	860	029D

E0XX Code	Description	MAP Link	SRC Code
E0C2	Pendulum Control Error	410	0165
E0C3	Pendulum Interface Error	413	0166
E0C4	Pendulum Motor Overcurrent	416	0167
E0C5	Pendulum Initial Position Error	394	0163
E0C6	Stacker Length Motor Driver Error	469	0178
E0C7	Scuff Roll Motor Thermal	346	0152
E0C9	Stacker Table Motor Thermal	424	0171
E0CA	Stacker Table Timeout	428	0172
E0Cb	Stacker Table Motor Runs Too Long	441	0175
E0CC	Secondary Erase Lamp Never On	683	0242
E0Cd	Secondary Erase Lamp Always On	695	0244
E0CE	Forms Width Sensor	177	0117
E0CF	Stacker Forms Length Sensor	453	0176
E0d0	Vacuum Blower Thermal	720	0261
E0d1	Backup Roll Motor Thermal	280	0135
E0d2	Backup Idler Roll Motor Thermal	366	0155
E0d3	Primary Erase Lamp Never On	677	0241
E0d4	Primary Erase Lamp Always On	689	0243
E0d5	Backup Roll Lift Motor (M610) Overcurrent	373	0157
E0d6	Hot Roll Motor Blower Stopped	318	013D
E0d8	Tractor Motor Overcurrent	166	0114
E0d9	Retractor Motor Overcurrent	173	0116
E0dA	Drum Motor Overcurrent	216	0122

E0XX Code	Description	MAP Link	SRC Code
E0db	Cleaning Housing Motor Driver	715	0254
E0dC	Hot Roll Overcurrent	820	0294
E0dd	Pendulum Motor Overcurrent	391	0162
E0dE	B1 Logic Gate Thermal Problem	1015	0514
E0dF	24 VD Power Supply Is Off	1018	0515
E0E0	PJ 136 Disconnected	1024	0516
E0E1	Upper Tractor Forms Jam (Autoload)	550	0191
E0E2	Stacker Forms Jam (Autoload).	550	0192
E0E3	Developer Running (Autoload)	550	0193
E0E5	Check Reset Pressed (Autoload)	550	0195
E0E6	Splice Lever Down (Autoload)	550	0196
E0E7	Transfer Station Open (Autoload)	550	0197
E0E8	End Of Forms (Autoload)	550	0198
E0E9	Stacker Table Down (Autoload)	550	0199
E0EA	Stacker Gate Open (Autoload)	550	019C
E0Eb	Stacker Safety Switch On (Autoload)	550	019A
E0EC	Autoload Stopped	550	019B
E0EE	Backup Roll Lift Motor (M610) Position Error	371	0156
E0EF	Backup Idler Roll Not Open	359	0154
E0F0	Backup Idler Roll Not Closed	351	0153
E0F2	End Of Forms Always Displayed	1064	0847
E0F3	Postprocessor Not Ready	1155	0841
E0F4	Postprocessor STOP Line Active	1155	0842

E1XX Error Codes to MAP Cross Reference

- This list cross references E1xx (Driver Routine) Error Codes to the MAPs.When the driver tests are running, error codes can appear on the maintenance panel.
- The Maintenance Panel displays **b** and **d** in place of **B** and **D**; do not confuse **b** with **6**.

See MAP 0070: Printer Logic Unit Map for a table of error codes that can appear during a power-on sequence.

Table 438. Driver Routine Error Codes

Error Code	Description	MAP Link
E109	The home position of the Cleaner Housing Position Switch (S103) has not been detected after the Cleaner Housing Motor (M106) has been driven.	712
E11C	The Stacker Gate is open.	1119
E121	The home position of the Pinch Roll has not been detected after the Capstan Pinch Roll Motor (M301) has been driven.	472
E122	The upper position of the Bridge has not been detected after the Bridge Lift Motor (M606) has been driven.	479
E126	The upper position of the Pinch Roll has not been detected after the Capstan Pinch Roll Motor (M301) has been driven.	523
E127	The lower position of the Bridge has not been detected after the Bridge Lift Motor (M606) has been driven.	531
E129	The home position of the Pinch Roll has not been detected after the Capstan Pinch Roll Motor (M301) has been driven.	536
E12A	The home position of the Bridge has not been detected after the Bridge Lift Motor (M606) has been driven.	543
E12d	One of the Hall Sensors on the Forms Length Sensor Board (FL061) has failed.	459
E135	The Drum Cover is open.	620
E136	The Pre-Clean Corona is arcing or shorted.	567

Table 438. Driver Routine Error Codes (continued)

Error Code	Description	MAP Link
E137	The Developer Bias is arcing or shorted.	639
E138	The Charge Corona is open, arcing, or shorted.	553
E139	The Transfer Corona is open, arcing, or shorted.	561
E13A	The Pre-Charge Corona is open, arcing, or shorted.	572
E143	The home position of the Cleaner Housing is always detected by the Cleaner Housing Position Switch (S103) after the Cleaner Housing Motor (M106) has been driven.	716
E144	The home position of the Cleaner Housing is never detected by the Cleaner Housing Position Switch (S103) after the Cleaner Housing Motor (M106) has been driven.	712
E148	A speed error occurred after the Mirror Motor (M201) has been driven.	579
E150	No Beam Detect signal is detected when channel 1 of the AO Modulator is driven.	1509
E151	No Beam Detect signal is detected when channel 2 of the AO Modulator is driven.	1525
E152	No Beam Detect signal is detected when channel 3 of the AO Modulator is driven.	1525
E153	No Beam Detect signal is detected when channel 4 of the AO Modulator is driven.	1525
E154	The initial position of the Lens Assembly Motor (M202) can not be detected.	614
E157	The Laser Power did not rise within the specified time.	628

Table 438. Driver Routine Error Codes (continued)

Error Code	Description	MAP Link
E158	An error occurred in the Laser or the Laser Power Supply. **DANGER** **Abnormally high laser power may be present.** **Do not open the printhead cover if the laser power supply current meter reading is 12 Amps. or greater at operating power.**	632
E159	The Laser Power did not rise within the specified time.	628
E186	The home position of the Tractor Motor (M303) is never detected.	211
E18A	The Retractor Motor (M304) cannot rotate.	148
E18b	The home position of the Retractor Motor (M304) is never detected.	169
E192	The home position of the Vacuum Shutter is always detected by the Vacuum Shutter Home Sensor (S604)	734
E195	The Backup-Roll Motor (M603) turned too far after it was commanded to stop.	295
E196	The Backup-Roll Motor (M603) does not reach the closed position in the specified time.	299
E197	Backup Roll does not open.	305
E198	Backup Roll does not close.	285
E19A	Oil Pump Driver is never on.	343

Table 438. Driver Routine Error Codes (continued)

Error Code	Description	MAP Link
E19b	Oil Pump Driver is always on.	“MAP 0145: Oil Pump Always Driven” on page 340
E1A4	The temperature of Hot Roll does not rise within the specified time.	823
E1A7	The connector of Preheater Temperature Controller signal is disconnected.	764
E1AE	The temperature of the Ppreheater (upper preheater plate) does not rise within the specified time.	750
E1AF	The temperature of the Preheater (lower preheater plate) does not rise within the specified time.	760
E1b0	The temperature of the Preheater (both plates) does not rise within the specified time.	764
E1C0	An error occurred on the Forms Width Sensor Board (PW091).	177
E1C5	The initial position of the Pendulum is not detected.	394
E1C9	The Stacker Table Motor (M803) overheated.	424
E1Cb	The Stacker Table Motor (M803) continued to drive over the specified time.	441
E1CC	The Secondary Erase Lamp (PL101) is never on.	683
E1Cd	The Secondary Erase Lamp (PL101) is always on.	695
E1CF	An error occurred on the Forms Length Data.	453
E1d1	The Backup-Roll Motor (M603) overheated.	280
E1d2	The Backup Idler Roll Moter (M609) overheated.	366
E1d3	The Primary Erase Lamp (PL102) is never on.	677
E1d4	The Primary Erase Lamp (PL102) is always on.	689
E1E0	The rotation sensor signal of the Hot Roll Motor Blower (B602) cannot be detected within the specified time.	

Table 438. Driver Routine Error Codes (continued)

Error Code	Description	MAP Link
E1E1	The rotation sensor signal of the Mag Brush Motor (M101) cannot be detected within the specified time.	644
E1E2	The rotation sensor signal of Cyclone Blower Motor (M104) cannot be detected with the specified time.	738
E1E3	The rotation sensor signal of the Cleaner Brush Motor (M108) cannot be detected within the specified time.	701
E1EA	The encoder signal of the Drum Motor (M107) cannot be detected within the specified time.	218
E1Eb	The encoder signal of the Retractor Motor (M304) cannot be detected within the specified time.	148
E1EC	The encoder signal of the Tractor Motor (M303) cannot be detected within the specified time.	160
E1ED	The encoder signal of the Hot Roll Motor (M607) cannot be detected within the specified time.	311
E1EF	The Backup Idler Roll does not open when it should.	359
E1F0	The Backup Idler Roll does not close when it should.	351

Hexadecimal-to-Decimal Conversion

Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec
00	000	19	025	32	050	4B	075	64	100
01	001	1A	026	33	051	4C	076	65	101
02	002	1B	027	34	052	4D	077	66	102
03	003	1C	028	35	053	4E	078	67	103
04	004	1D	029	36	054	4F	079	68	104
05	005	1E	030	37	055	50	080	69	105
06	006	1F	031	38	056	51	081	6A	106
07	007	20	032	39	057	52	082	6B	107
08	008	21	033	3A	058	53	083	6C	108
09	009	22	034	3B	059	54	084	6D	109
0A	010	23	035	3C	060	55	085	6E	110
0B	011	24	036	3D	061	56	086	6F	111
0C	012	25	037	3E	062	57	087	70	112
0D	013	26	038	3F	063	58	088	71	113
0E	014	27	039	40	064	59	089	72	114
0F	015	28	040	41	065	5A	090	73	115
10	016	29	041	42	066	5B	091	74	116
11	017	2A	042	43	067	5C	092	75	117
12	018	2B	043	44	068	5D	093	76	118
13	019	2C	044	45	069	5E	094	77	119
14	020	2D	045	46	070	5F	095	78	120
15	021	2E	046	47	071	60	096	79	121
16	022	2F	047	48	072	61	097	7A	122
17	023	30	048	49	073	62	098	7B	123
18	024	31	049	4A	074	63	099	7C	124

(continued on next page)

Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec
7D	125	97	151	B1	177	CB	203	E5	229
7E	126	98	152	B2	178	CC	204	E6	230
7F	127	99	153	B3	179	CD	205	E7	231
80	128	9A	154	B4	180	CE	206	E8	232
81	129	9B	155	B5	181	CF	207	E9	233
82	130	9C	156	B6	182	D0	208	EA	234
83	131	9D	157	B7	183	D1	209	EB	235
84	132	9E	158	B8	184	D2	210	EC	236
85	133	9F	159	B9	185	D3	211	ED	237
86	134	A0	160	BA	186	D4	212	EE	238
87	135	A1	161	BB	187	D5	213	EF	239
88	136	A2	162	BC	188	D6	214	F0	240
89	137	A3	163	BD	189	D7	215	F1	241
8A	138	A4	164	BE	190	D8	216	F2	242
8B	139	A5	165	BF	191	D9	217	F3	243
8C	140	A6	166	C0	192	DA	218	F4	244
8D	141	A7	167	C1	193	DB	219	F5	245
8E	142	A8	168	C2	194	DC	220	F6	246
8F	143	A9	169	C3	195	DD	221	F7	247
90	144	AA	170	C4	196	DE	222	F8	248
91	145	AB	171	C5	197	DF	223	F9	249
92	146	AC	172	C6	198	E0	224	FA	250
93	147	AD	173	C7	199	E1	225	FB	251
94	148	AE	174	C8	200	E2	226	FC	252
95	149	AF	175	C9	201	E3	227	FD	253
96	150	B0	176	CA	202	E4	228	FE	254
								FF	255

Chapter 3. Wiring, Circuit & Block Diagrams

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Wiring Diagrams

Wiring Diagrams 1780
Wiring Diagrams - Introduction 1780
Safety Ground Path Schematics 1785
AC Circuits 1789
DC Circuits And Channel Attach Electronics 1821

Wiring Diagrams

Wiring Diagrams - Introduction

The primary purpose of this section is to support the MAPs by providing a way to locate, service, and troubleshoot the electronics portion of the printer.

The family of printers includes both simplex and duplex systems. A note will appear in the when a circuit is unique for different printer types. Circuits unique to simplex printers will have the note SIMPLEX. The note DUPLEX PRINTER 1 will be used for the first printer in the duplex system. The note DUPLEX PRINTER 2 will be used for the second printer in the duplex system.

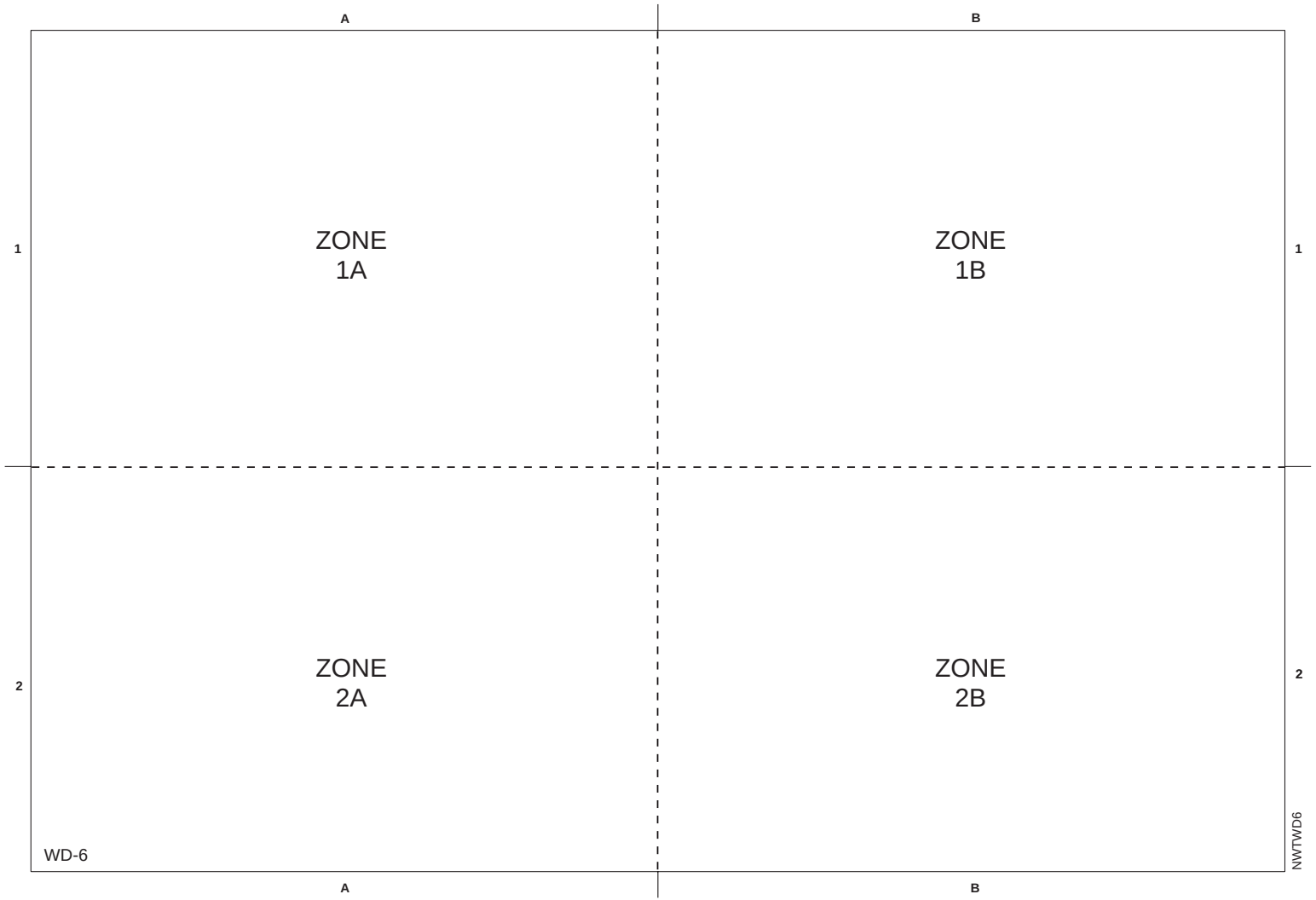
In addition, some circuits are unique for specific features.

TheWiring Diagrams are divided into three sections as follows:

1. Safety Ground Path Schematics
2. Electrical Wiring Diagrams - AC Circuits
3. Electrical Wiring Diagrams - DC Circuits and Channel Attach Electronics

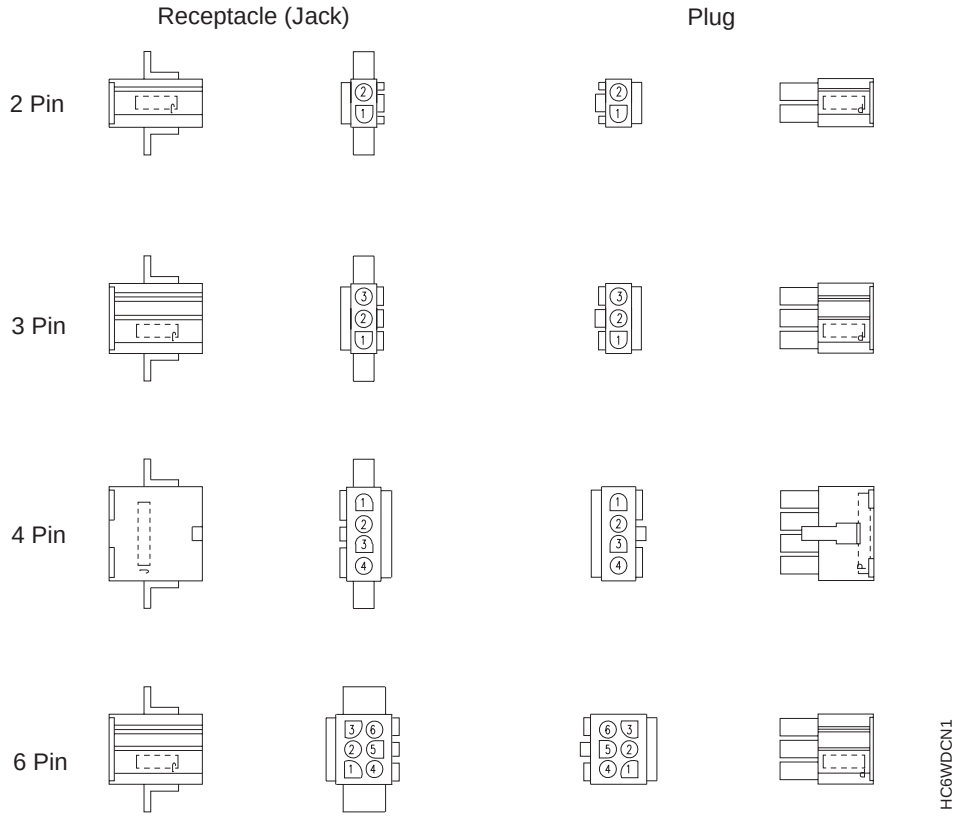
An example of the Wiring Diagrams zoning scheme is described on the next page.

Zoning Grid:

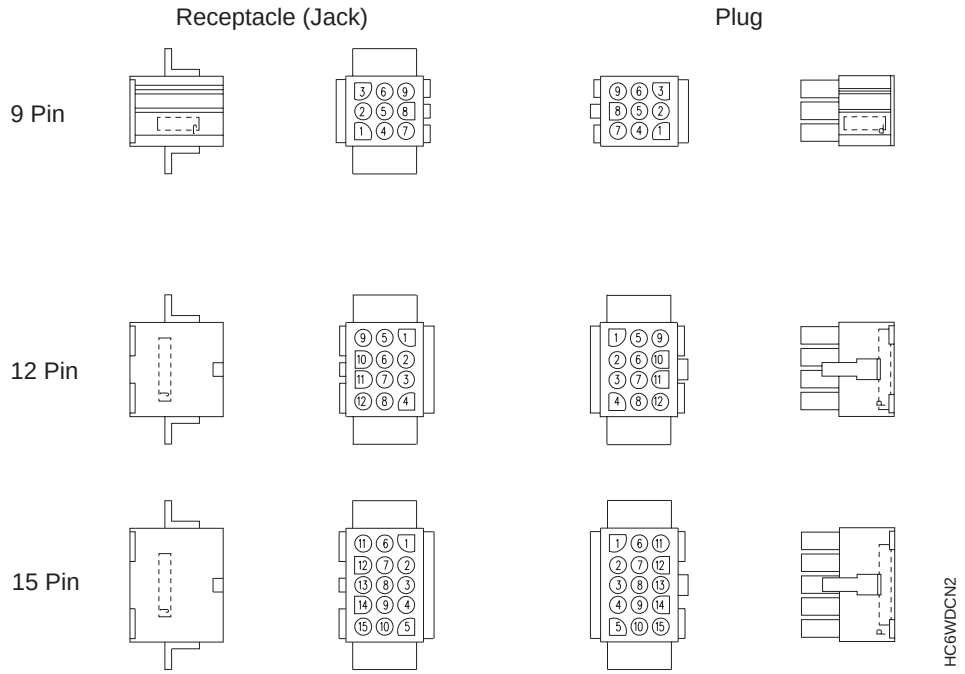


Connector Layouts:

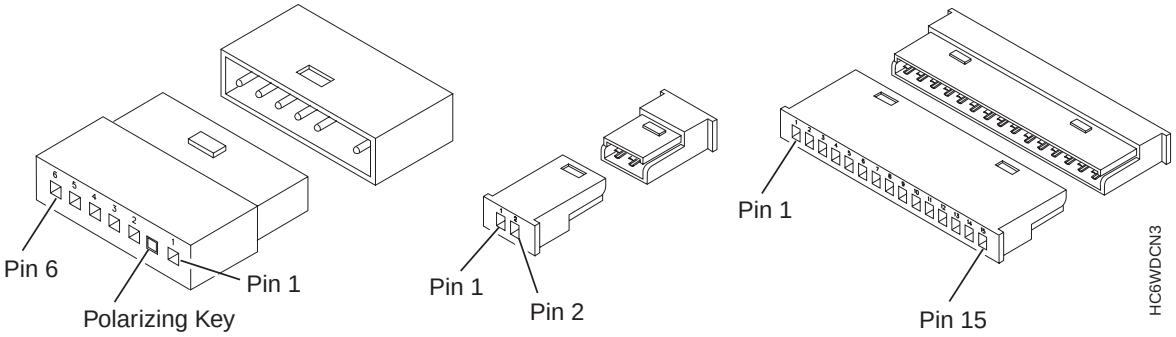
MATE-N-LOCK Connectors:

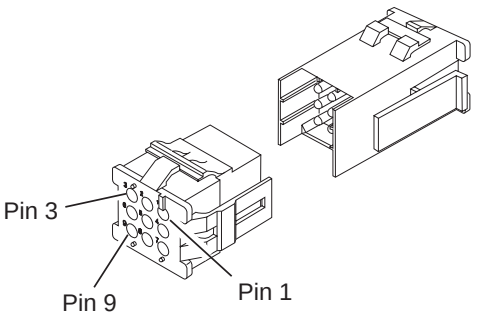


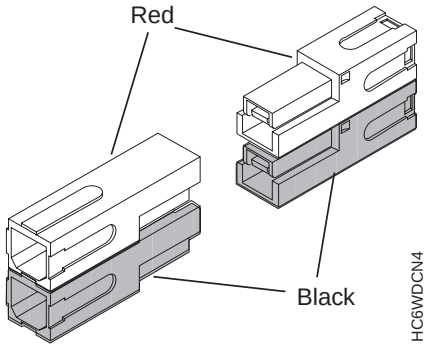
MATE-N-LOCK Connectors (cont'd):



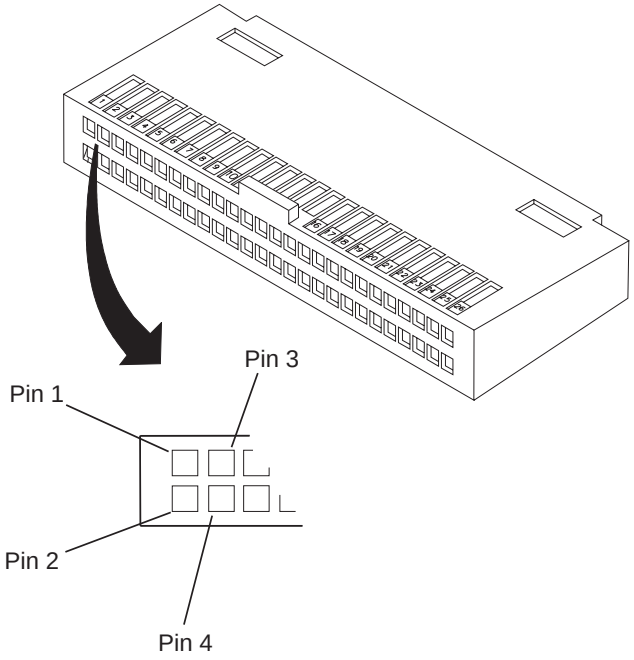
ELCO, AMP and Polarized Connectors:

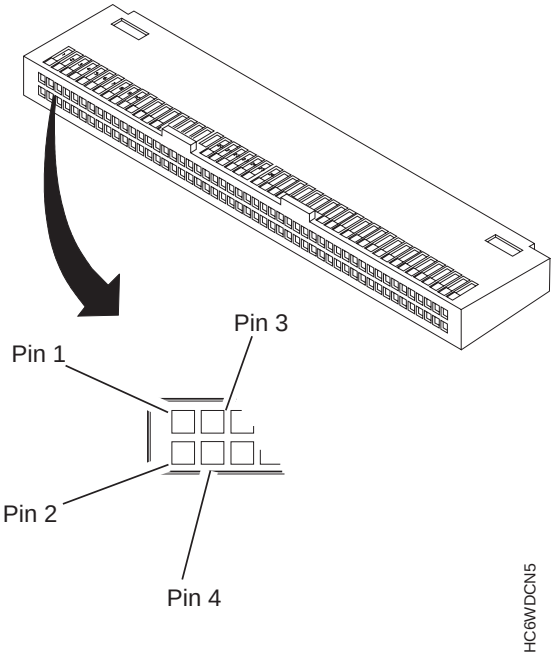




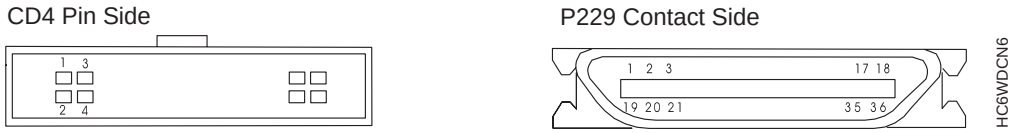


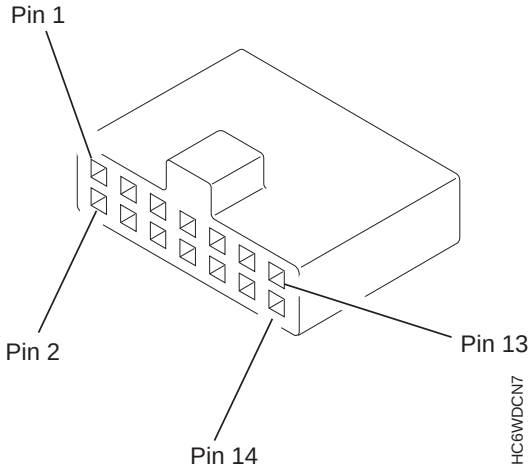
ELCO, AMP and Polarized Connectors (cont'd):





ELCO, AMP and Polarized Connectors (cont'd):



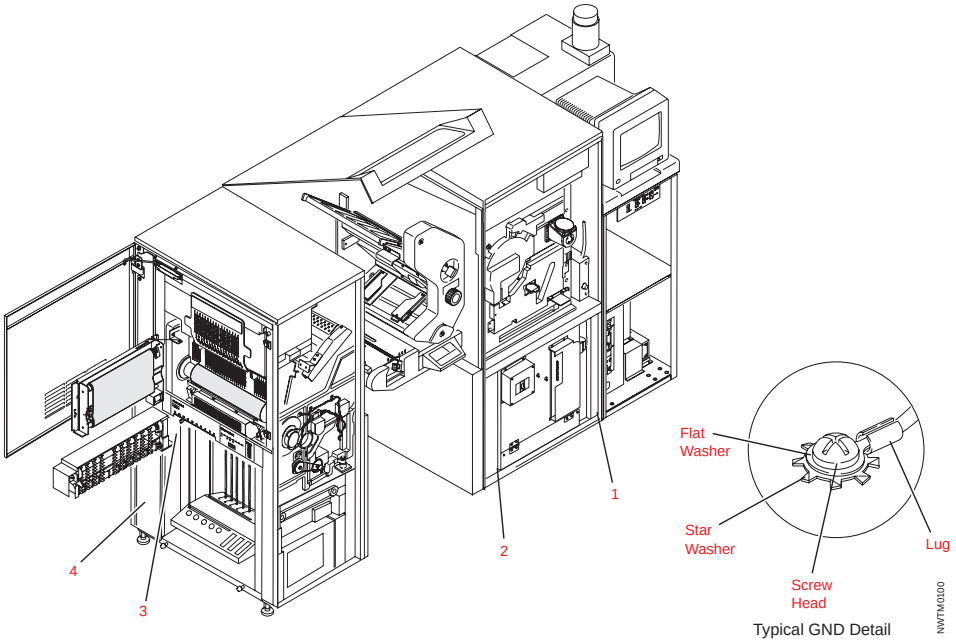


Safety Ground Path Schematics

DANGER

<10> Voltage may be present. Disconnect line cord before attempting the removal or replacement of any components or while checking continuity. Reinstall all grounds before attaching line cord.

Table 439. Safety Grounds (Front View)



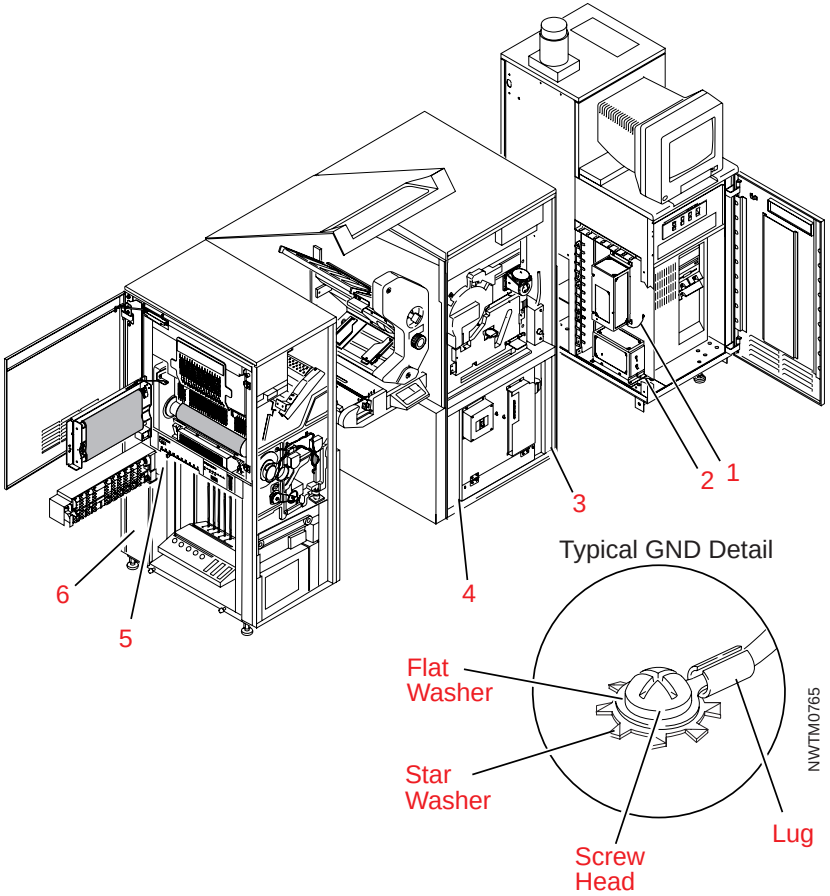
(1) Control Unit Frame to Printer Frame

(2) AC Box to Frame

(3) Stacker Gate to Frame

(4) Stacker to Frame

Table 440. Safety Grounds (Front View, Infoprint 4000)



(1) Low Voltage Power Supply to Control Unit Frame

(2) AC Conrol Box to Control Unit Frame

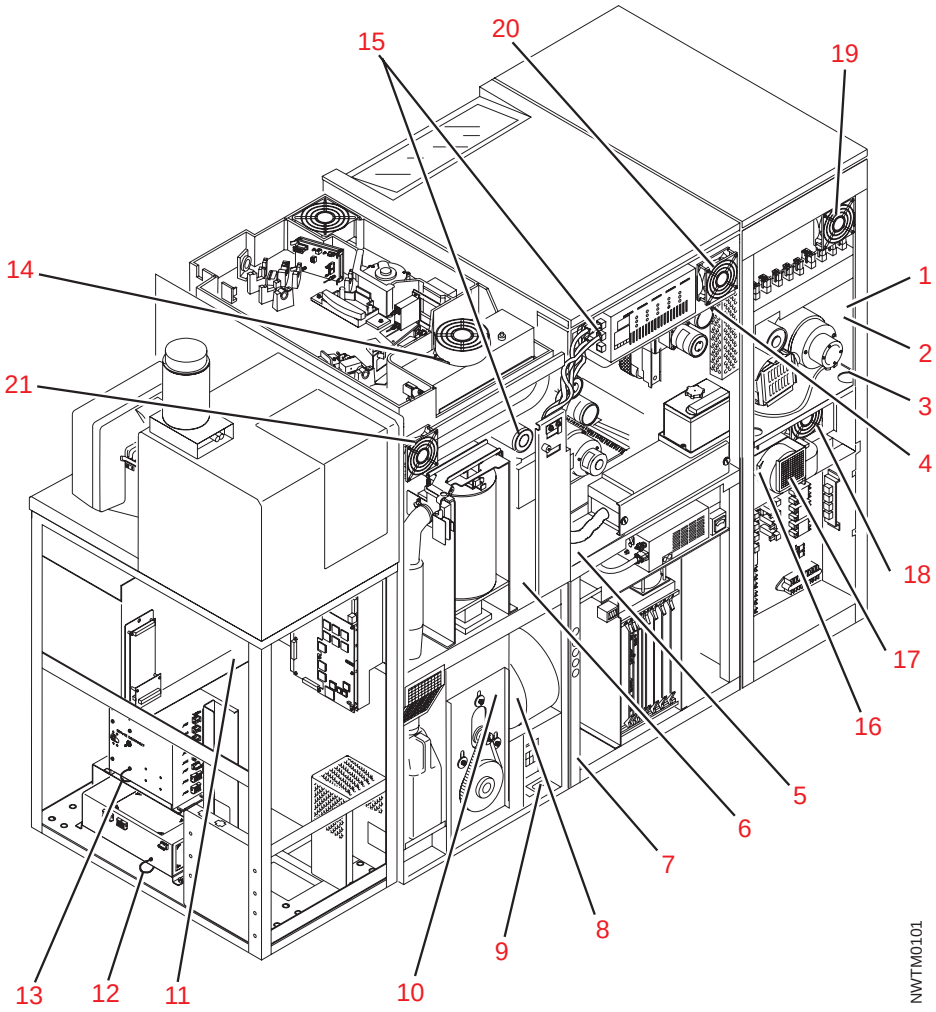
(3) Control Unit Frame to Printer Frame

(4) AC Box to Frame

(5) Stacker Gate to Frame

(6) Stacker to Frame

Table 441. Safety Grounds (Rear View)



(1) Rear Fuser Fan to Frame
(2) Pre-Heat Platen Heat Elements to Frame
(3) Fuser Casting to Frame
(4) Pre-Heat Platen to Fuser Casting
Bridge Assembly to Fuser Casting
(5) Transfer Casting to Frame
(6) Fine Filter Case to Frame
Process Casting to Frame
(7) Laser Power Supply to Frame
Logic Cage to Frame
Logic Cage Fans to Frame
Logic Board to Frame
(8) Vacuum Blower to Frame
(9) Frame to Customer Ground via AC Power Cord
(10) Cyclone Blower to Frame
(11) Control Unit Frame to Printer Frame
(12) Low Voltage Power Supply to Control Unit Frame
(13) AC Control Box to Control Unit Frame
(14) Laser Gun Cooling Fan to Frame
(15) High Voltage Power Supply to Process Casting

AC Circuits

AC Input / Output Tables:

AC Input:

Table 442. AC Input

Input Voltage (VAC)	Frequency	Phase/Wire
200/208/220 230/240	50/60 HZ	3 Phase - Ground
380/400/415	50 HZ	3 Phase - Neutral - Ground

AC Output:

Table 443. AC Output

Voltage (VAC)	Phase	Ampere	Terminal	Name	Purpose
200-240	3	35 (21)	TB502	FAC	Fuser
200-240	1	3.5 @ 208V	J531	VC	CE for PC
200-240	1	8 @ 208V		CU	Controller
200	3	2.5	J532	CBM	3 Phase Motor
200	1	2		P/F	1 Phase Motors
200	1	1.5		IPF	1 Phase Fans
200	3	0.8		3PS	3 Phase (Spare)
200	3	2	J533	3PM	3 Phase Motors
200	1	1		1PM	1 Phase Motors
115	1	20	J534	LC	Laser Power Supply

Note: Entries within ( ) are for 400V input.

AC / DC Power Tables:

DC Output:

Table 444. DC Output

DC Output	Ampere	Voltage		Over Current Protection	Purpose	Unit Name
		Min	Max			
+5V	25	4.3	5.75	27A	Logics	DC Unit 2
+12V	0.2	8.4	15.6	0.24A	OP AMP	
-12V	0.2	8.4	15.6	0.24A	OP AMP	
+24VH	3	16.8	31.2	3.3A	High Voltage PS	
+24VD	13	16.8	31.2	17A	Motor Relay	
+24VB	1	16.8	31.2	1.5A	Driver Cards	
+24VE	1	16.8	31.2	1.5A	Thermal System	
+42V	18	29.4	54.6	30A	Motor	DC Unit 1
+260VM	1	182	312	1.3A	Mirror Motor	
+12VM	0.15	8.4	15.6	0.18A	Mirror Mtr Transistor	
+5VM	0.8	4.3	5.75	1.0A	Mirror Mtr Logics	
12VS	0.3	11.0	13.0	1.0A	Power Sequence	SR081

AC Current Protection:

Table 445. AC Current Protection

DC Output	Over Current Protection	Component
CB501	60A (40A)	EPO
CB503	30A (20A)	Logic
CB504	0.5A	Sequencer

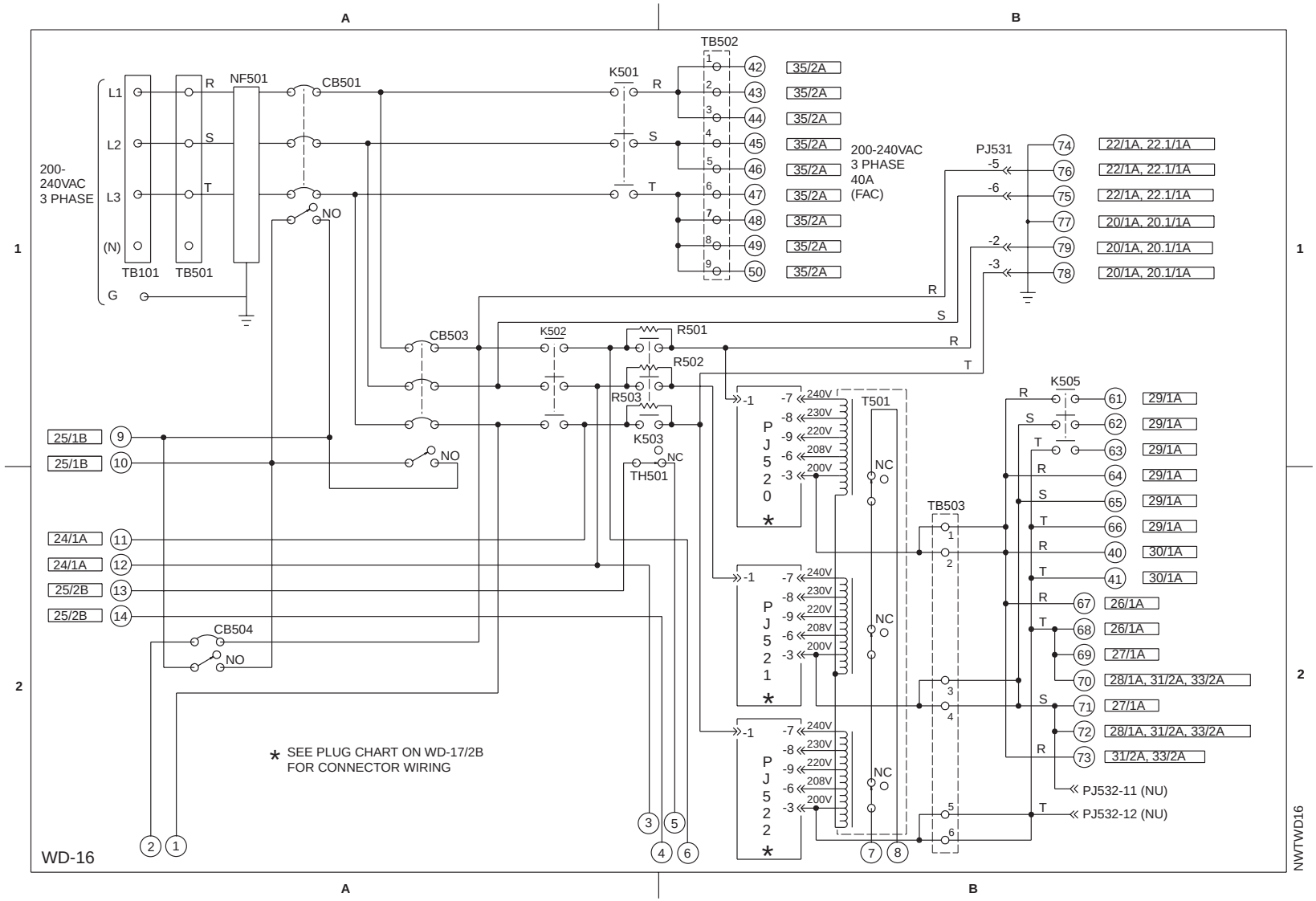
Note: Entries within ( ) are for 400V input.

Over Temperature Protection:

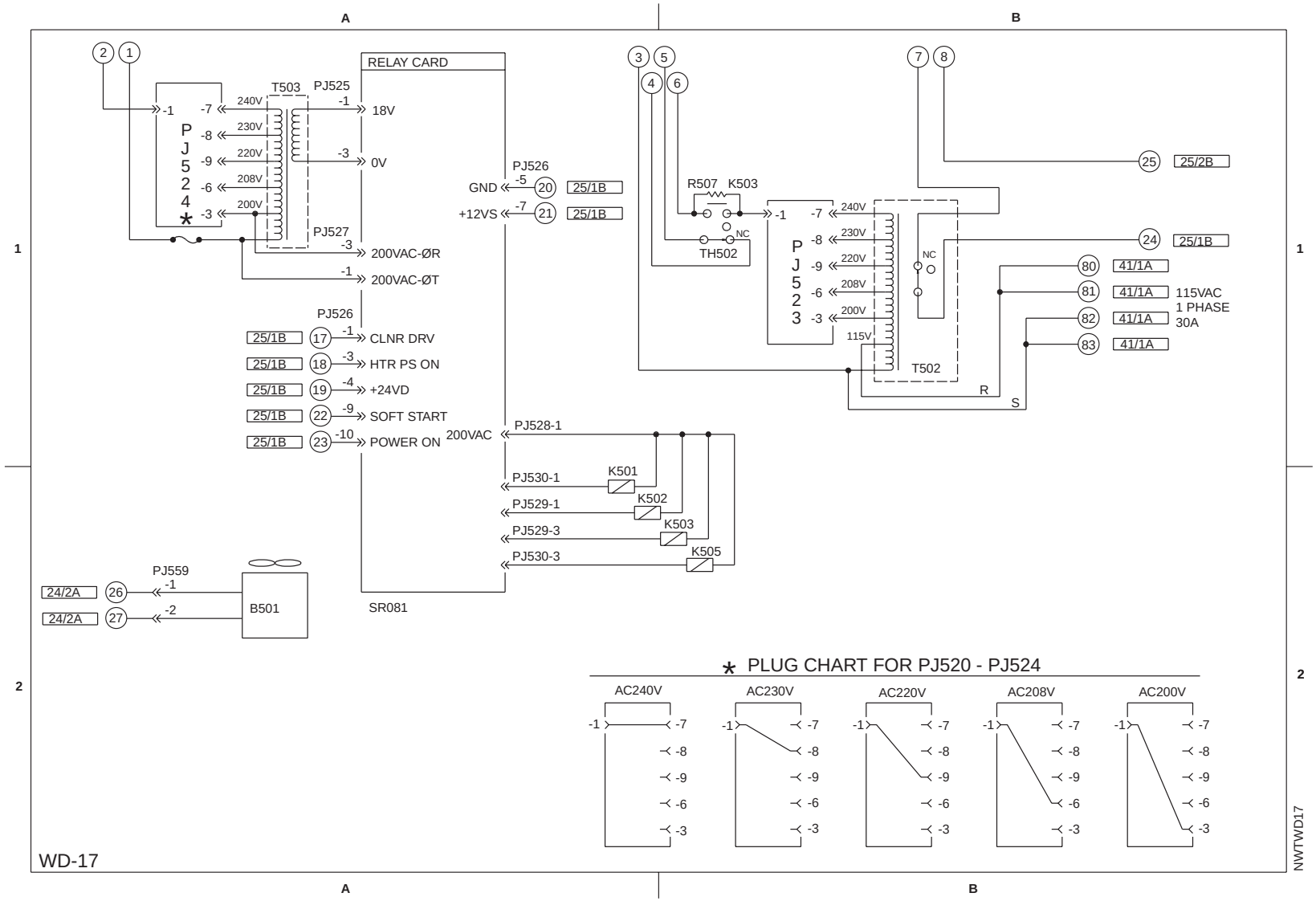
Table 446. Over Temperature Protection

Marking	Component	Temp	Component
TH501	Thermal Switch	70°C	Soft Start Resistor
TH502	Thermal Switch	70°C	
T501	Thermal Switch	135°C	Transformer
T502	Thermal Switch	135°C	

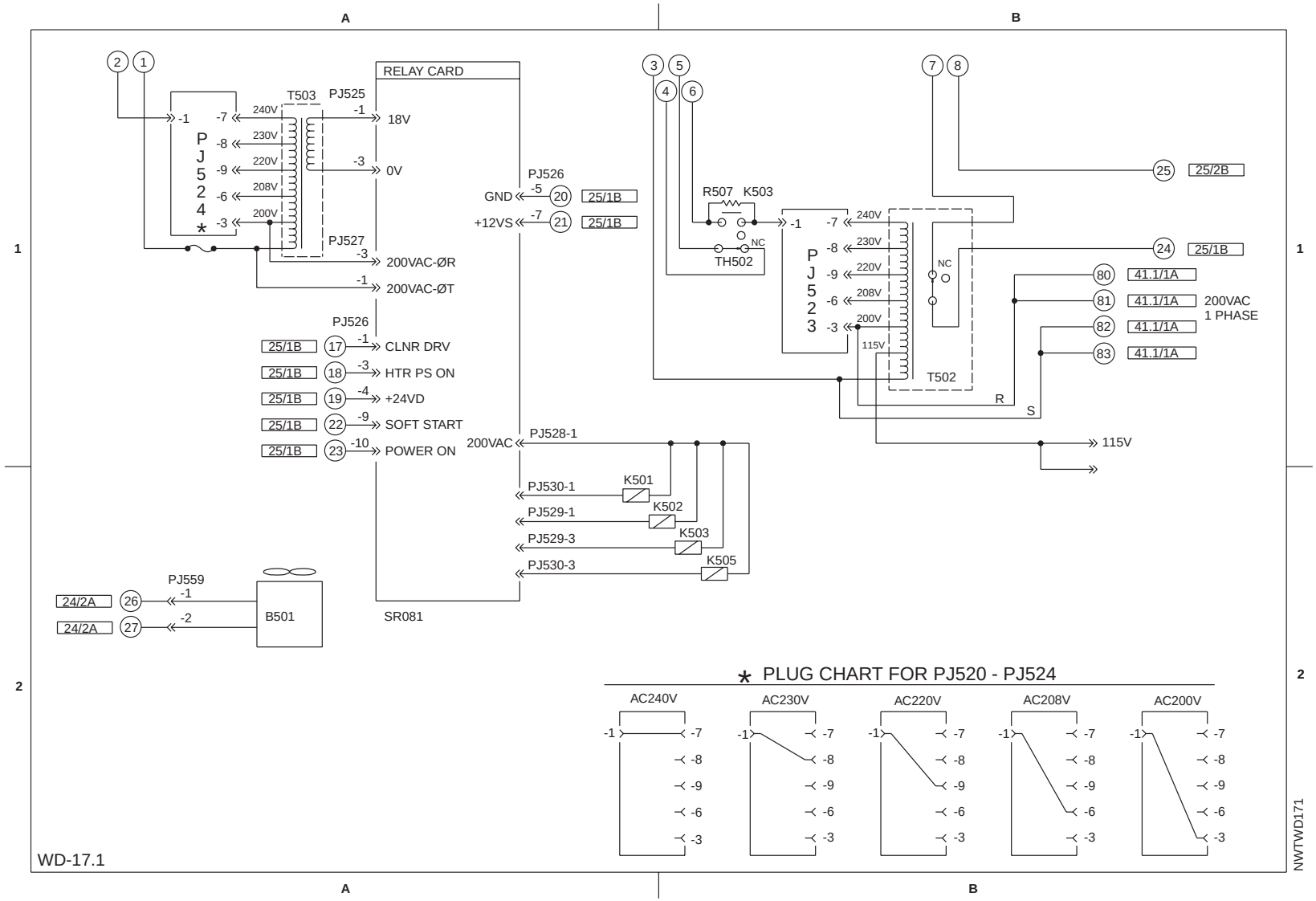
WD16 - Printer AC Power Supply - (200/208/220/230/240V):



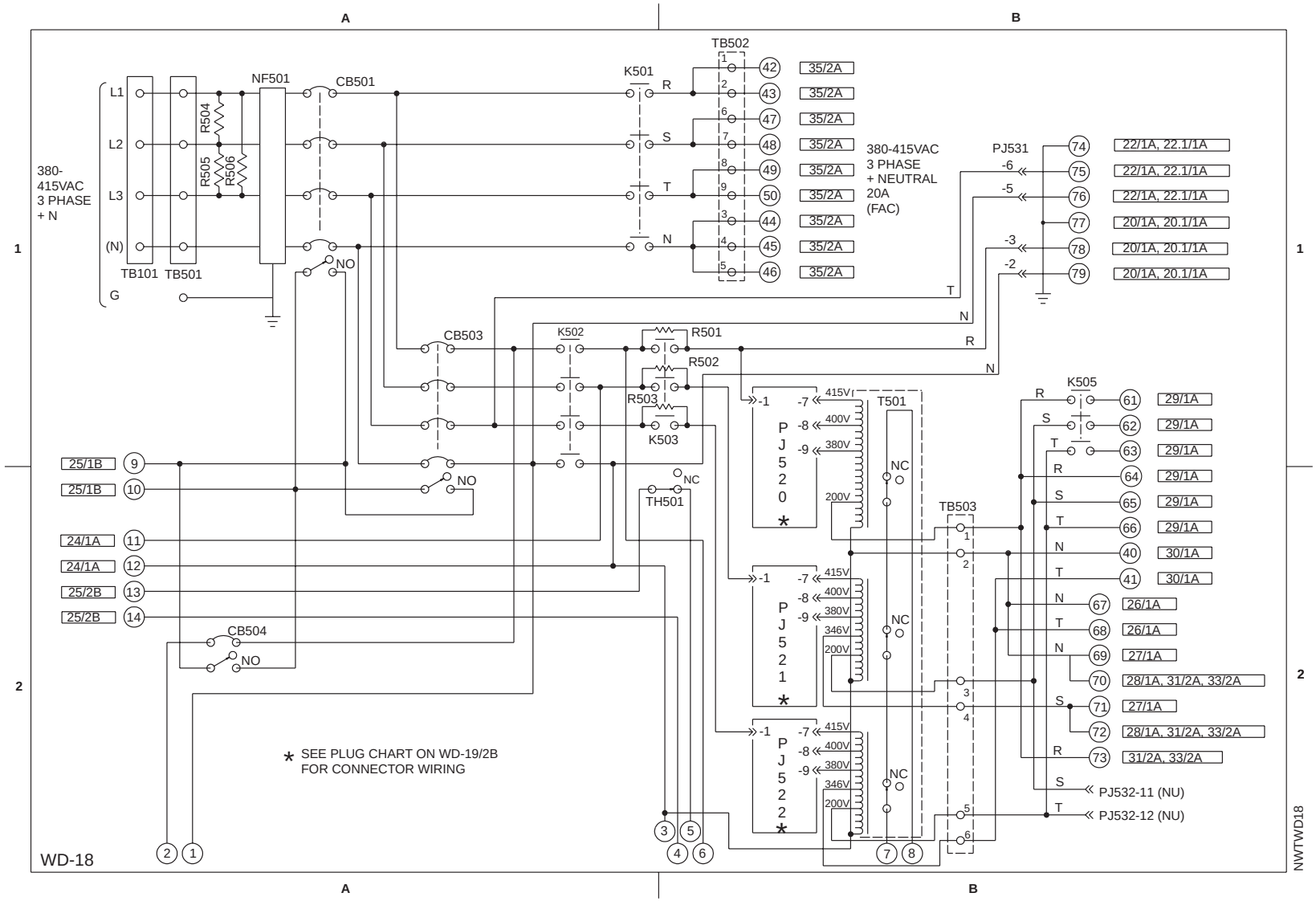
WD17 - Printer AC Power Supply - (200/208/220/230/240V) (except 324 PPM):



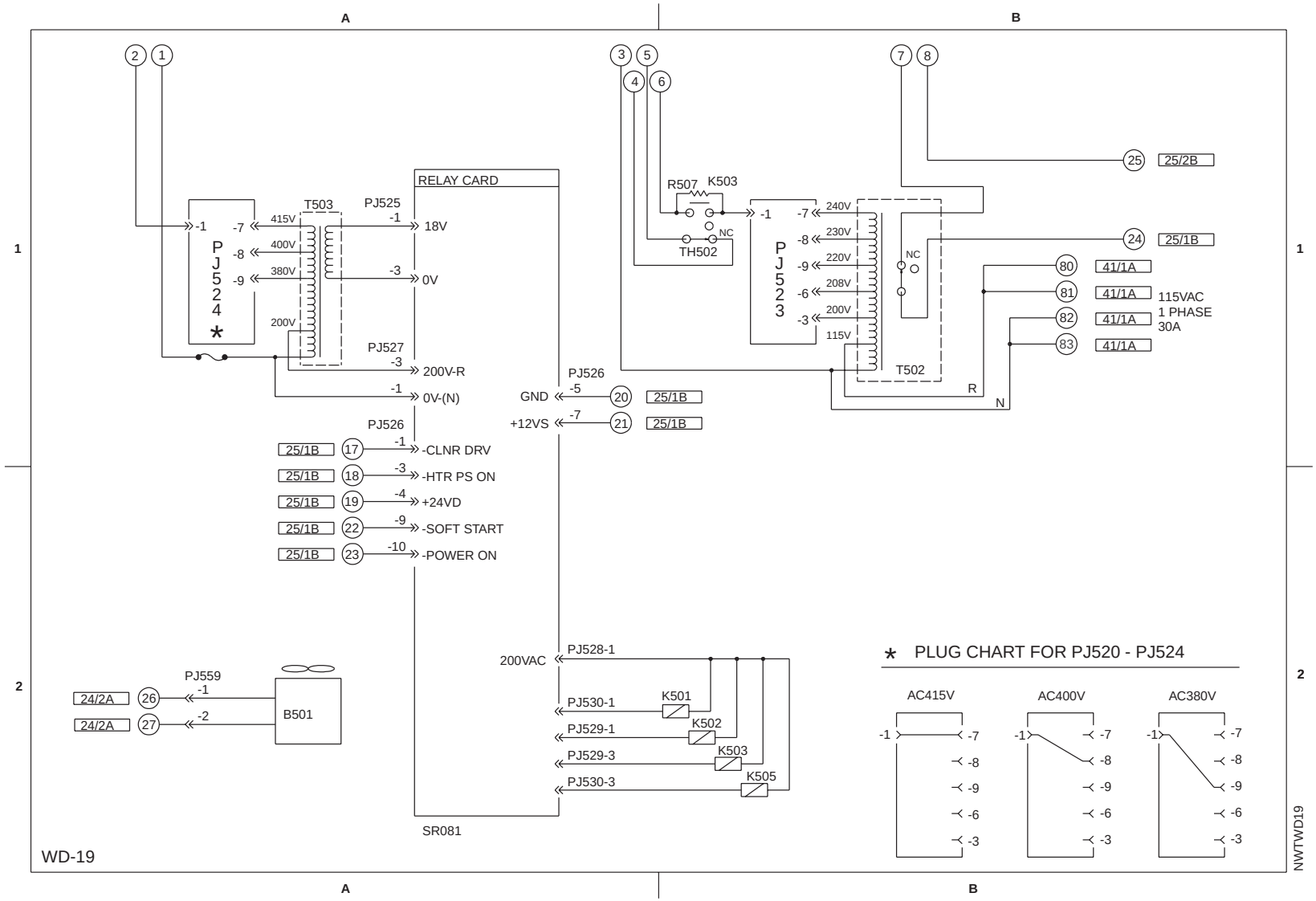
WD17.1 - Printer AC Power Supply - (200/208/220/230/240V) (324 PPM):



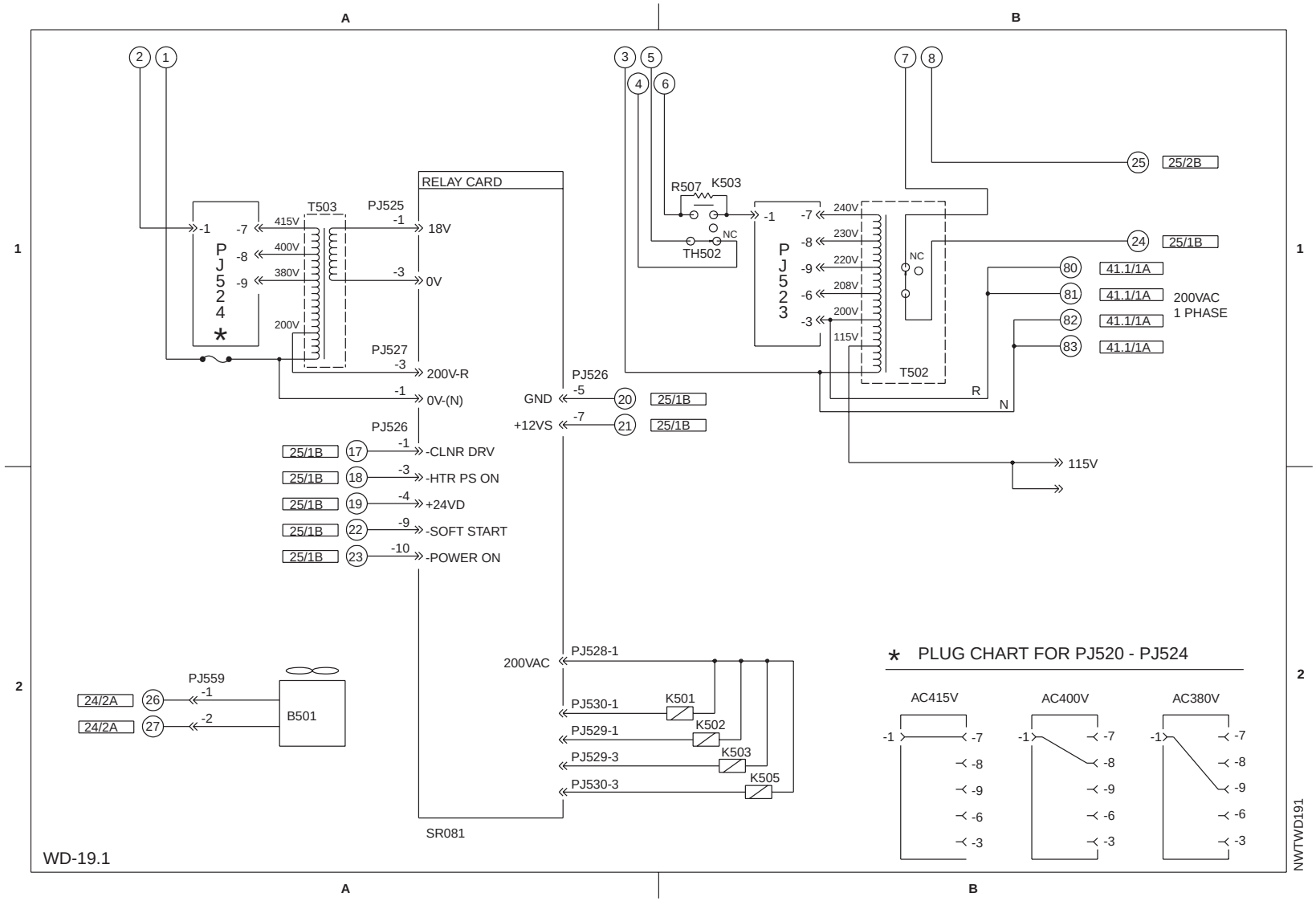
WD18 - Printer AC Power Supply - (380/400/415V):



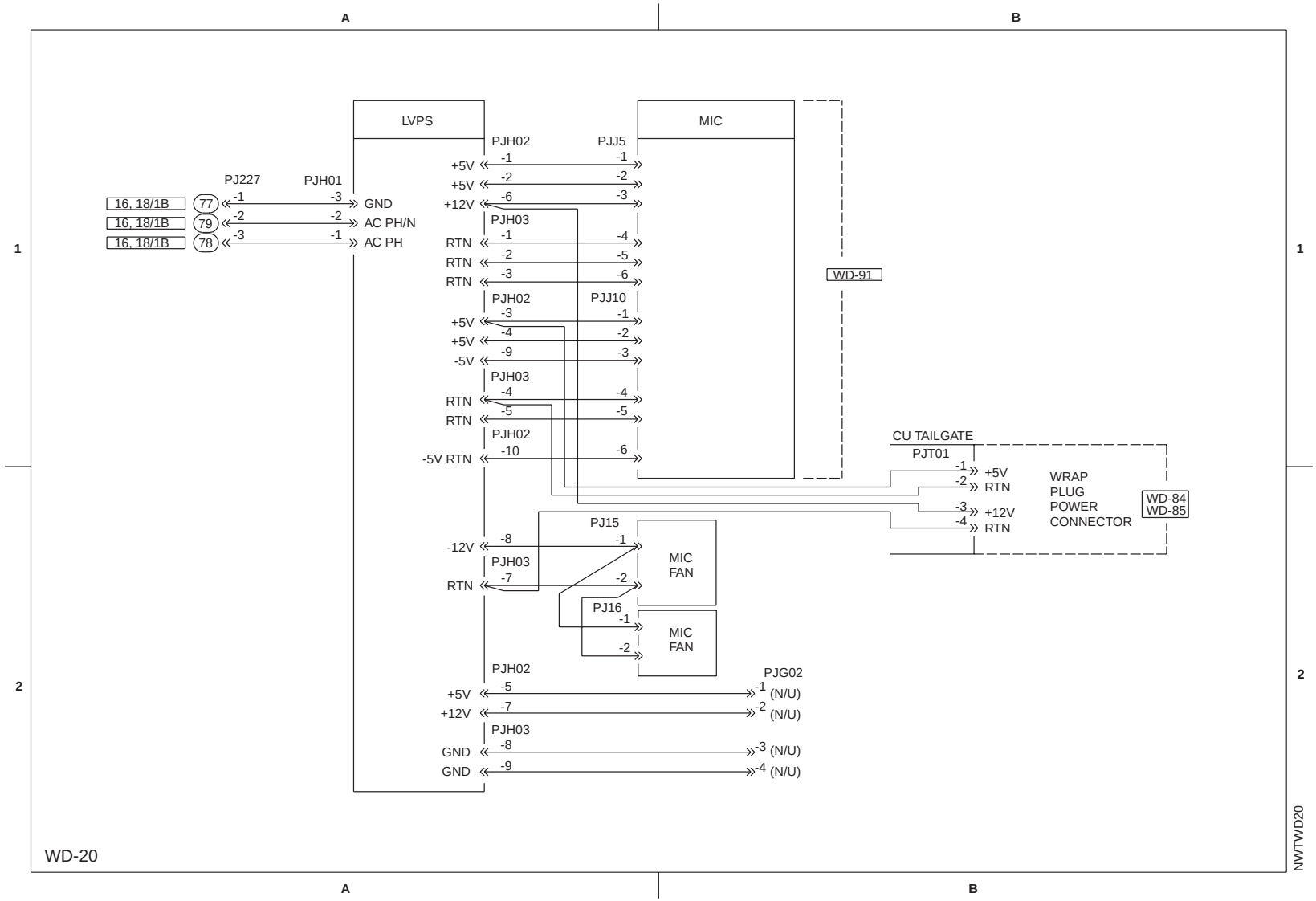
WD19 - Printer AC Power Supply - (380/400/415V) (except 324 PPM):



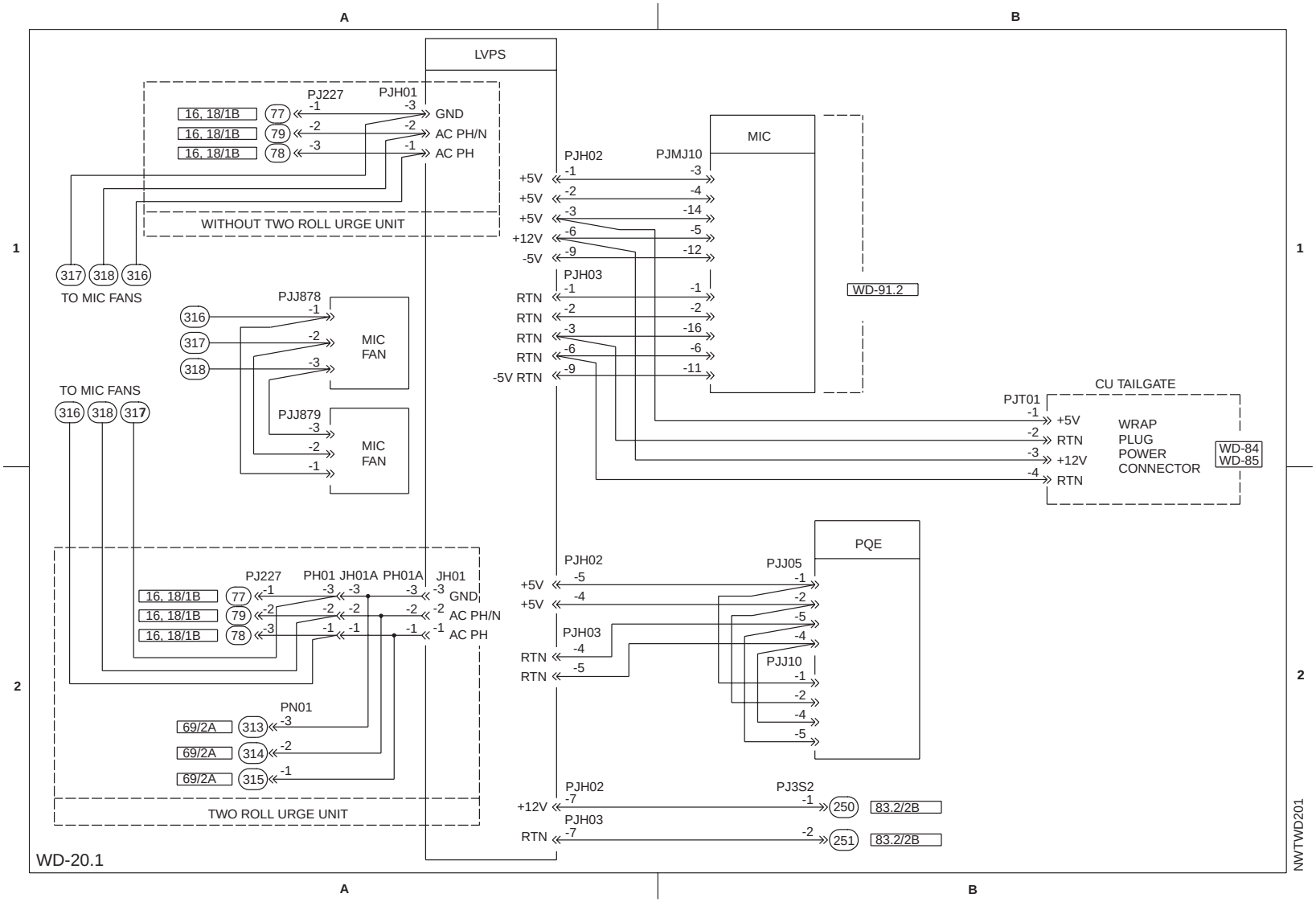
WD19.1 - Printer AC Power Supply - (380/400/415V) (324 PPM):



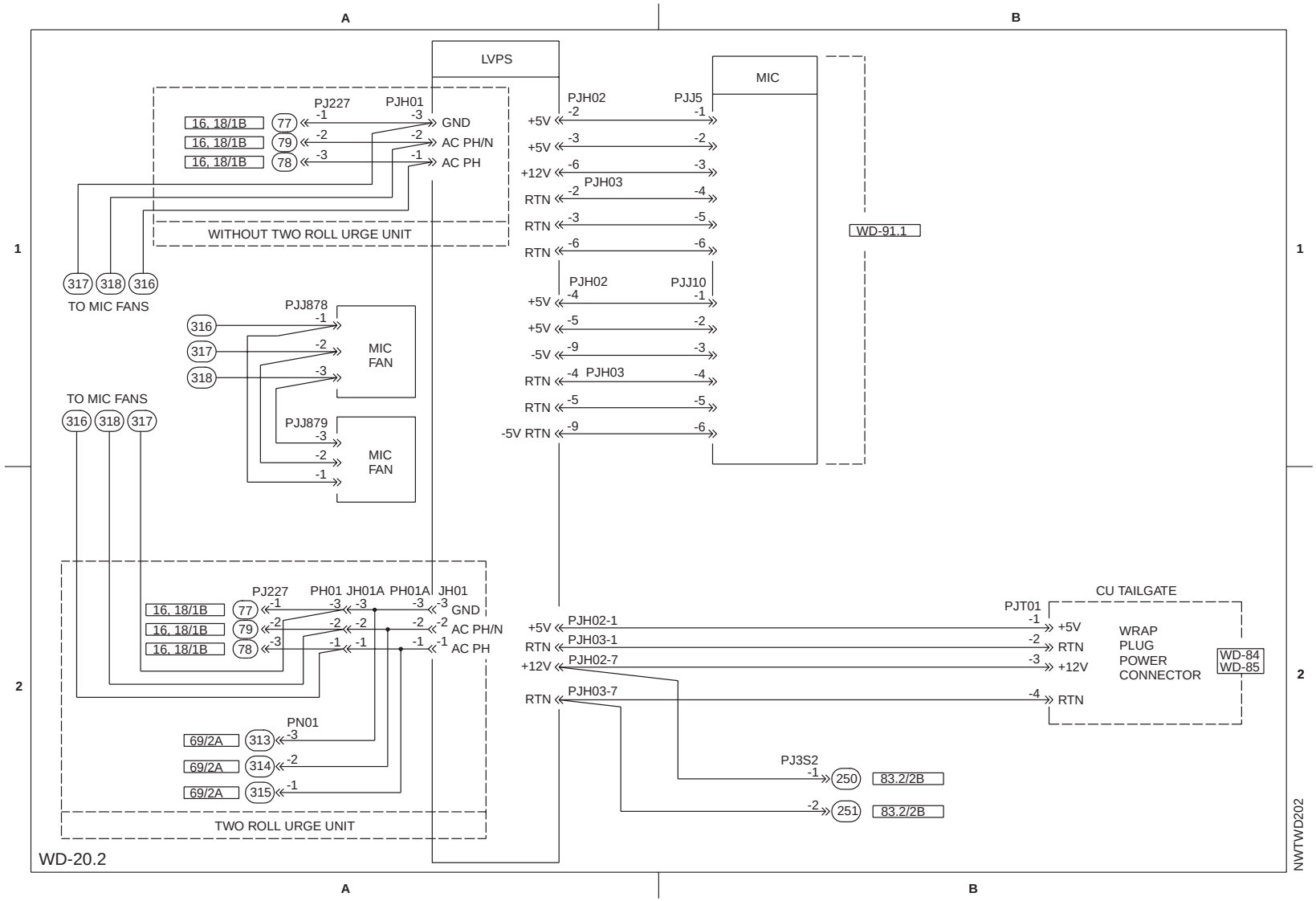
WD20 - Low Voltage Power Supply (LVPS), and MIC Fan (3900 0Wx & DWx Models):



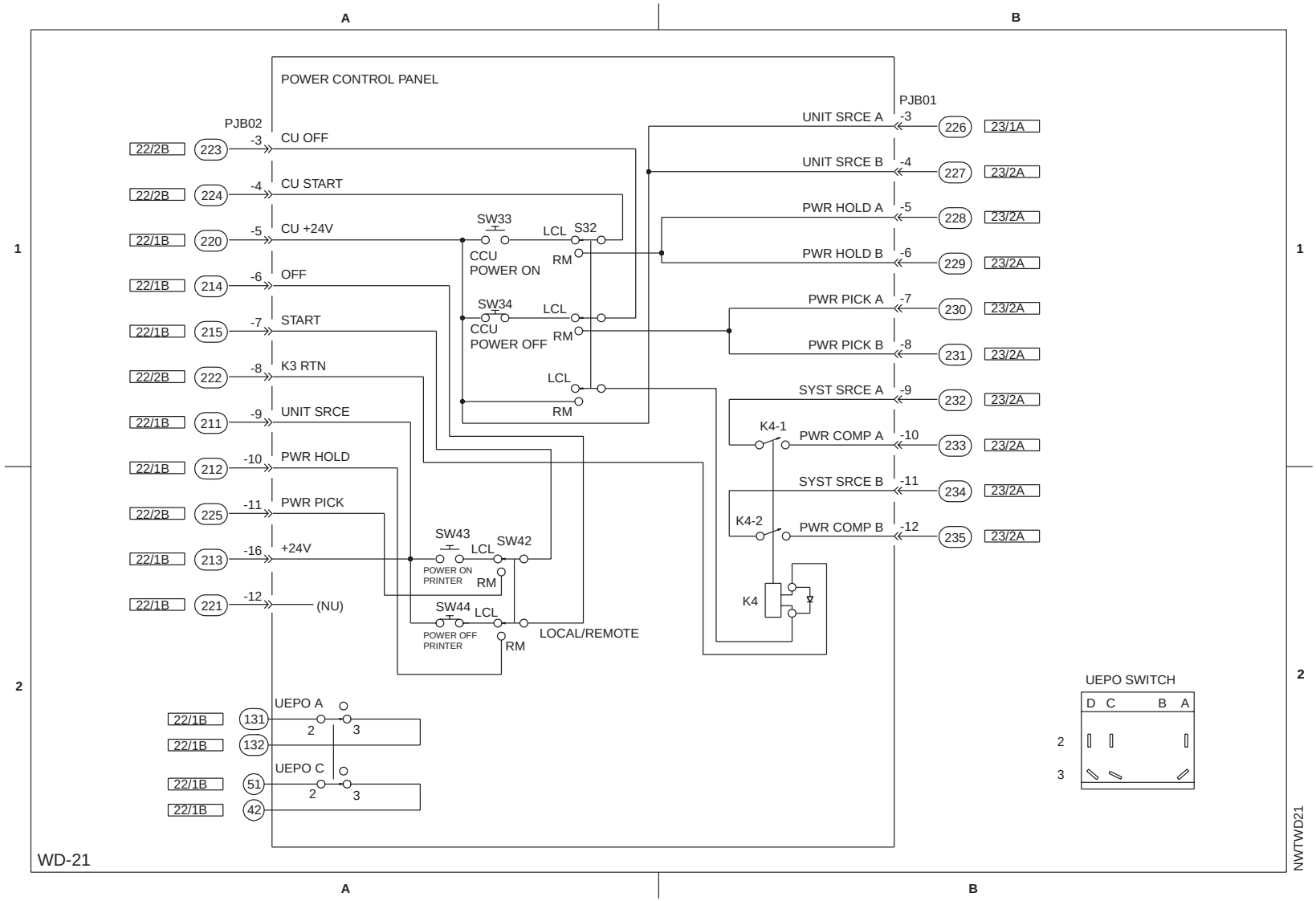
WD20.1 - Low Voltage Power Supply (LVPS), MIC, PQE, and Fans (3900 Model DR1/2 & Infoprint 4000 IRx Models):



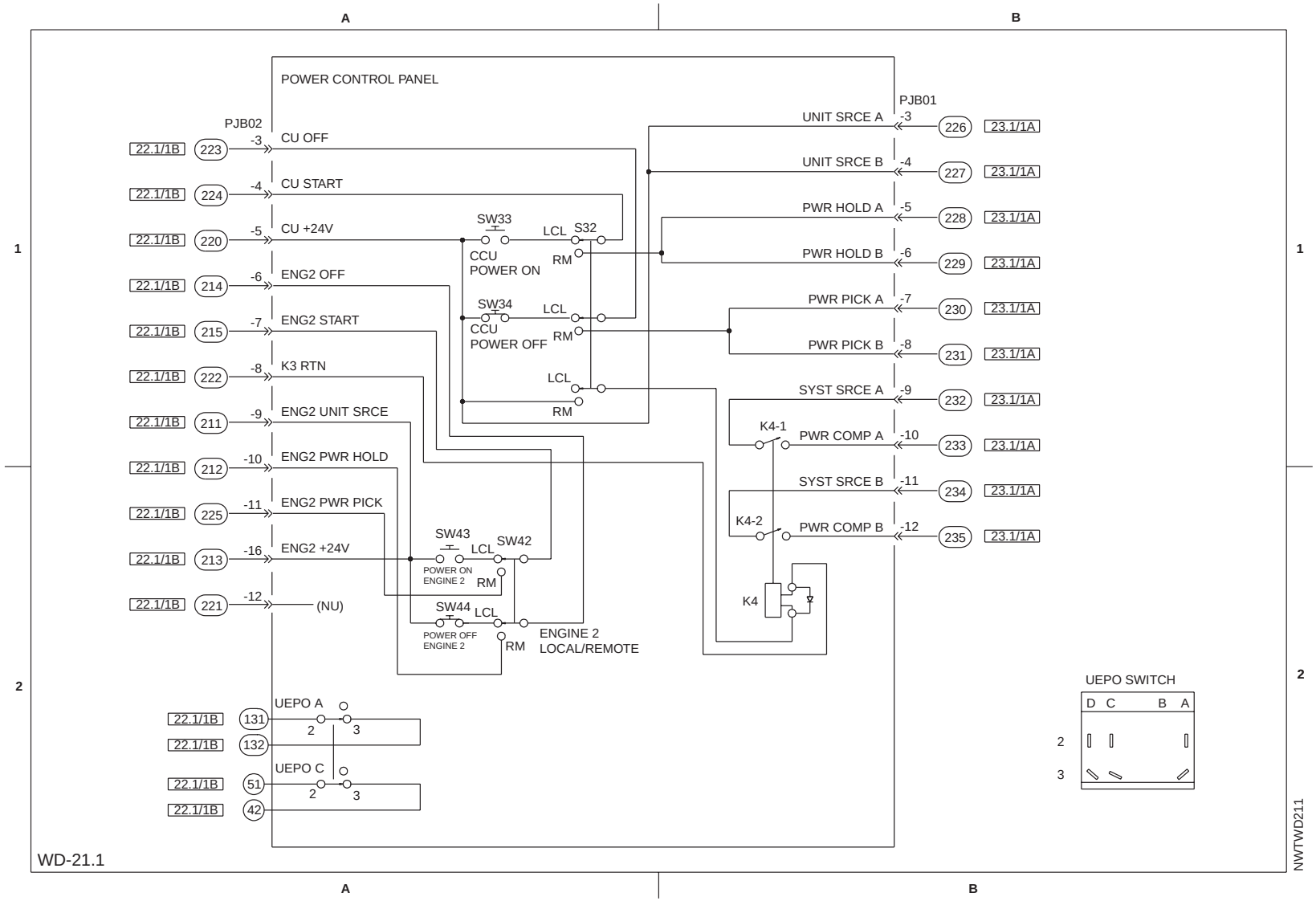
WD20.2 - Low Voltage Power Supply (LVPS), MIC, PQE, and Fans (Infoprint 4000 ISx & IDx Models):



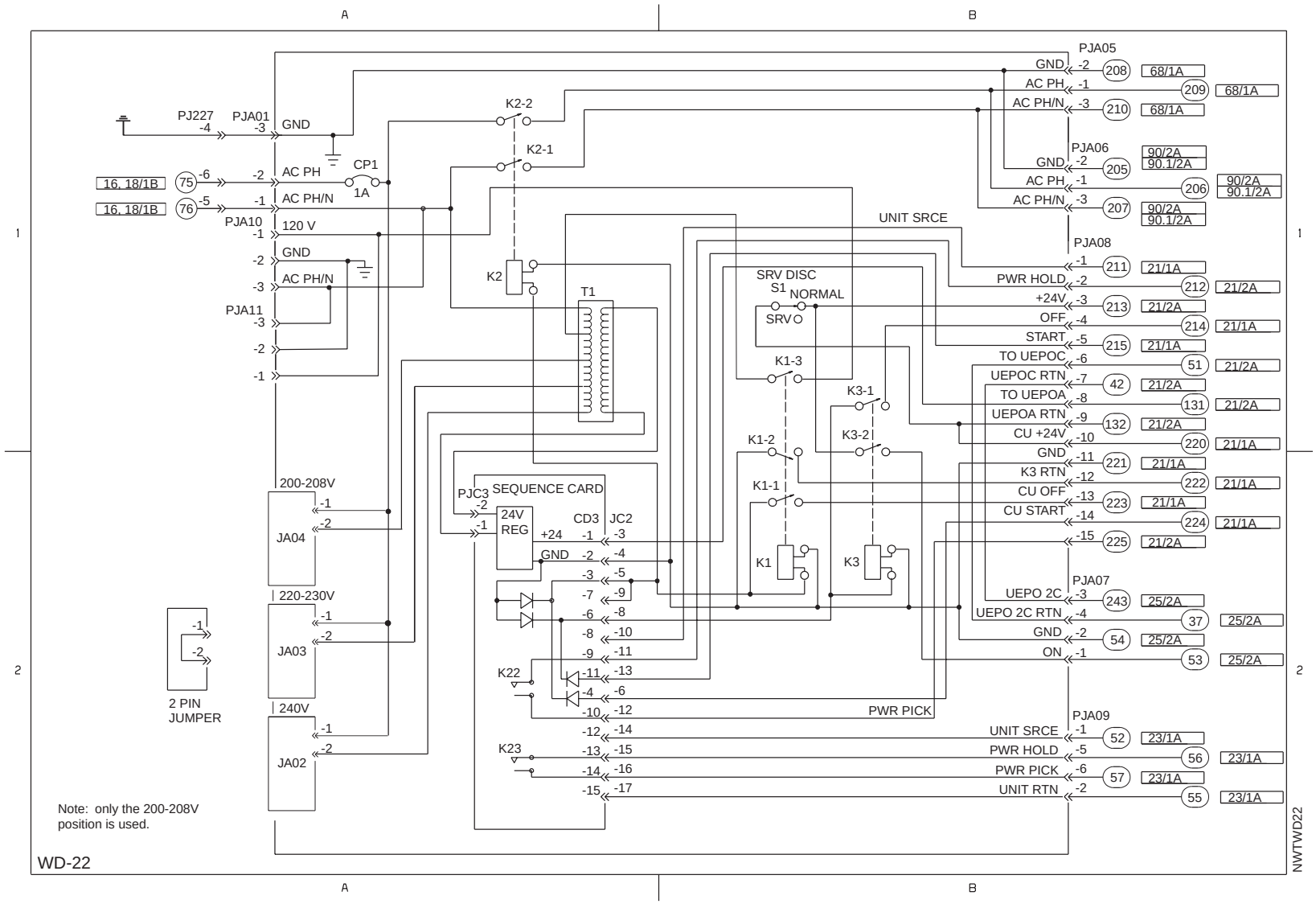
WD21 - Control Unit AC Power Control (Simplex):



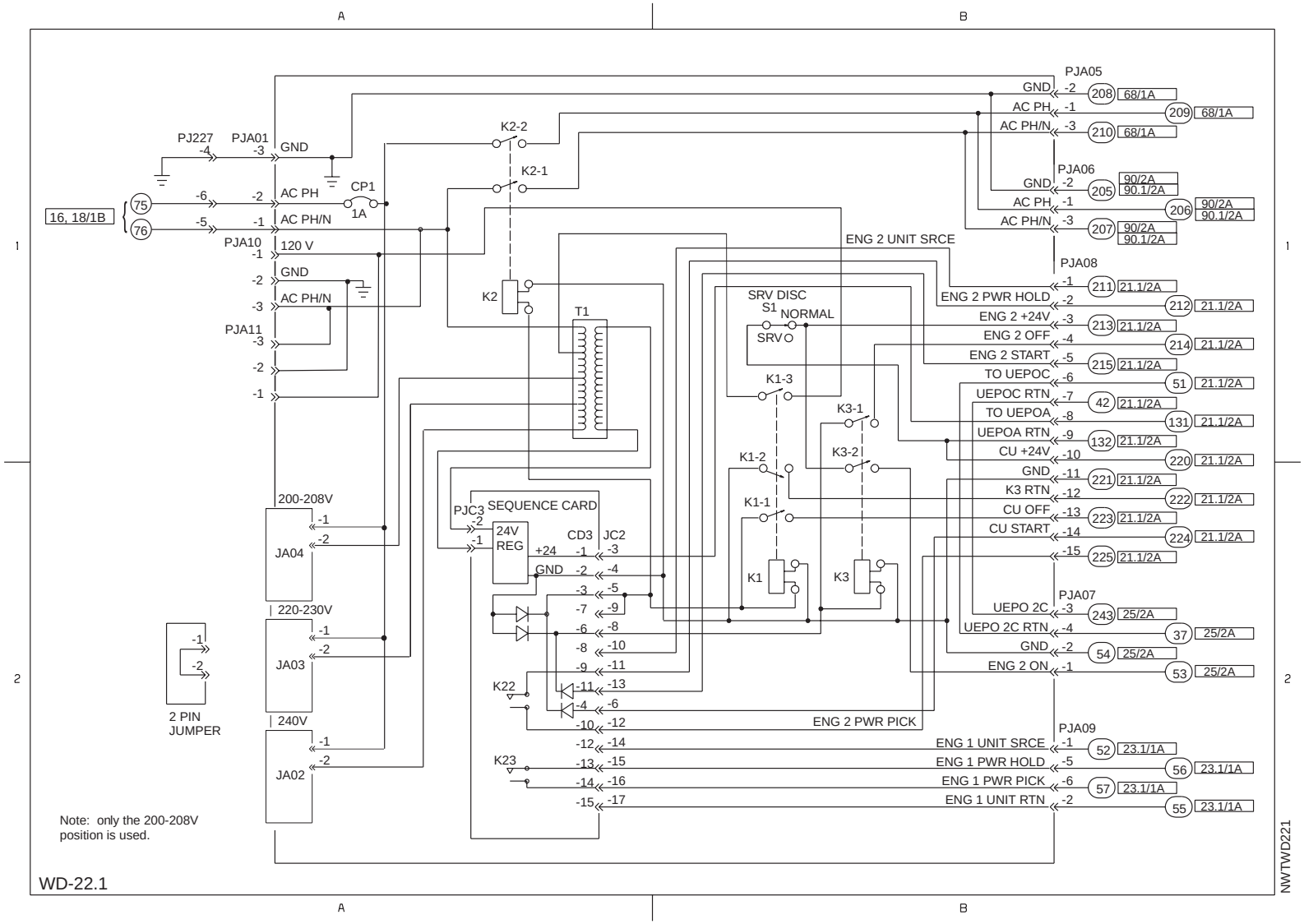
WD21.1 - Control Unit AC Power Control (Duplex):



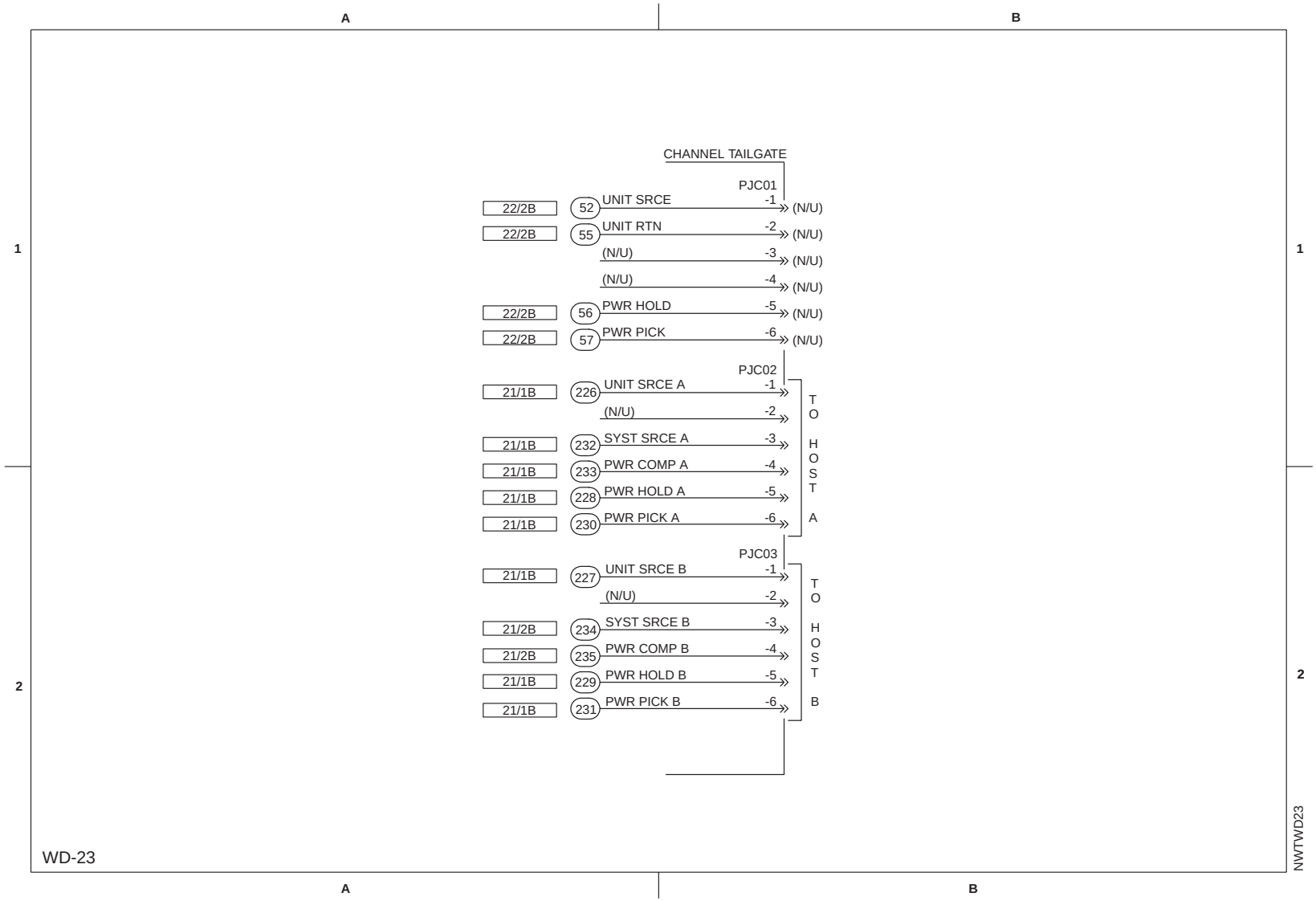
WD22 - Control Unit AC Control Box (Simplex):



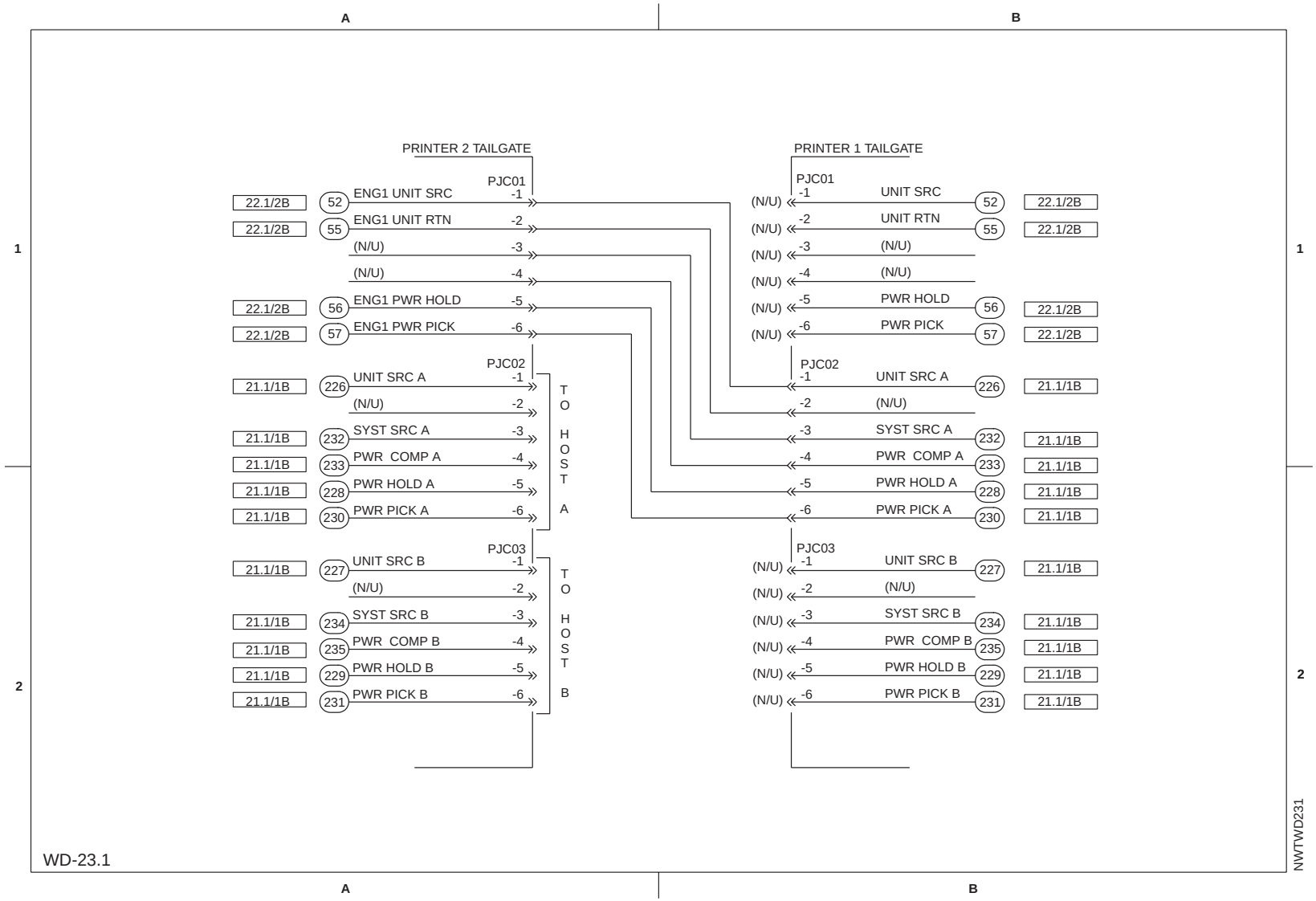
WD22.1 - Control Unit AC Control Box (Duplex):



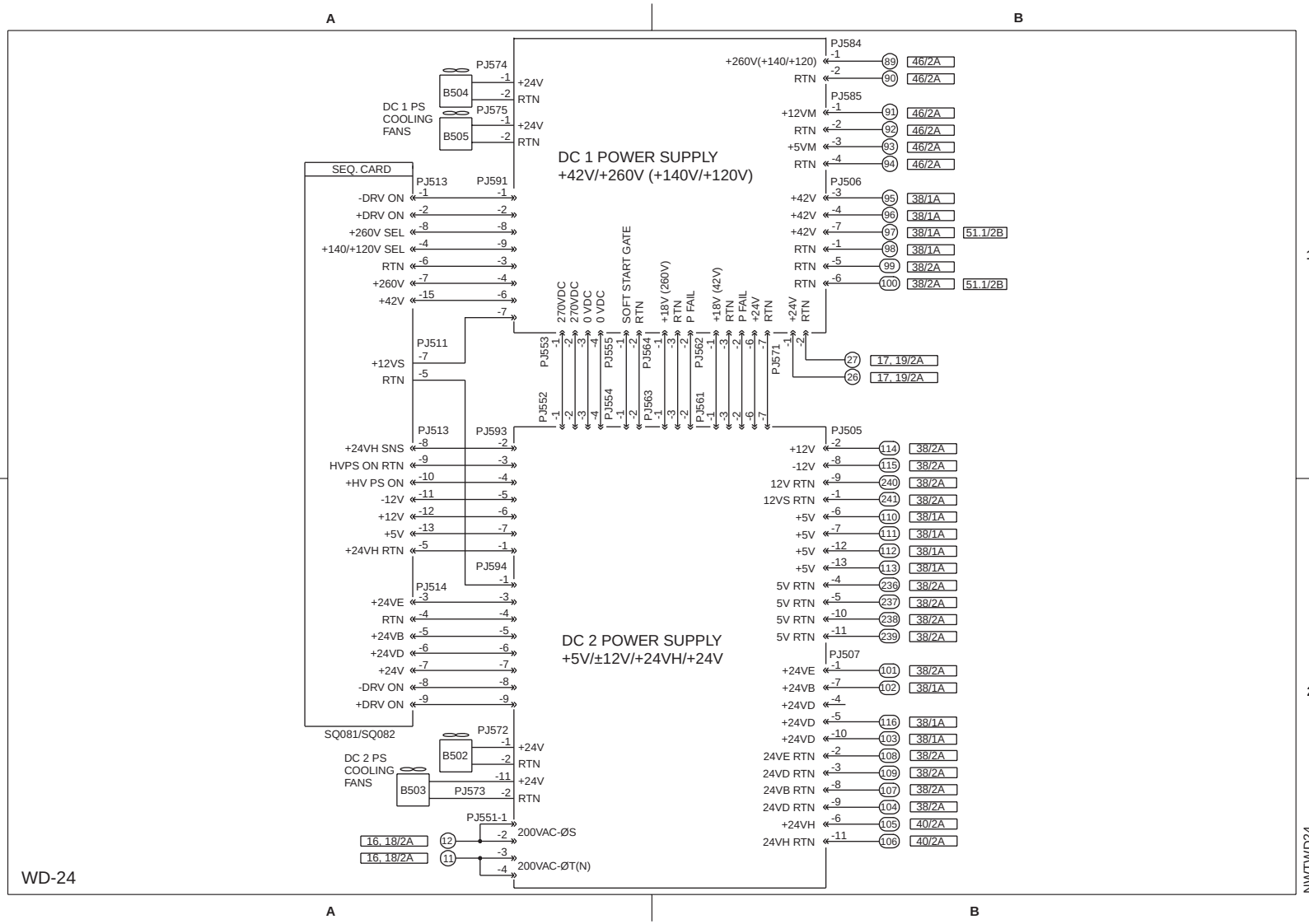
WD23 - AC Power Control (Simplex):



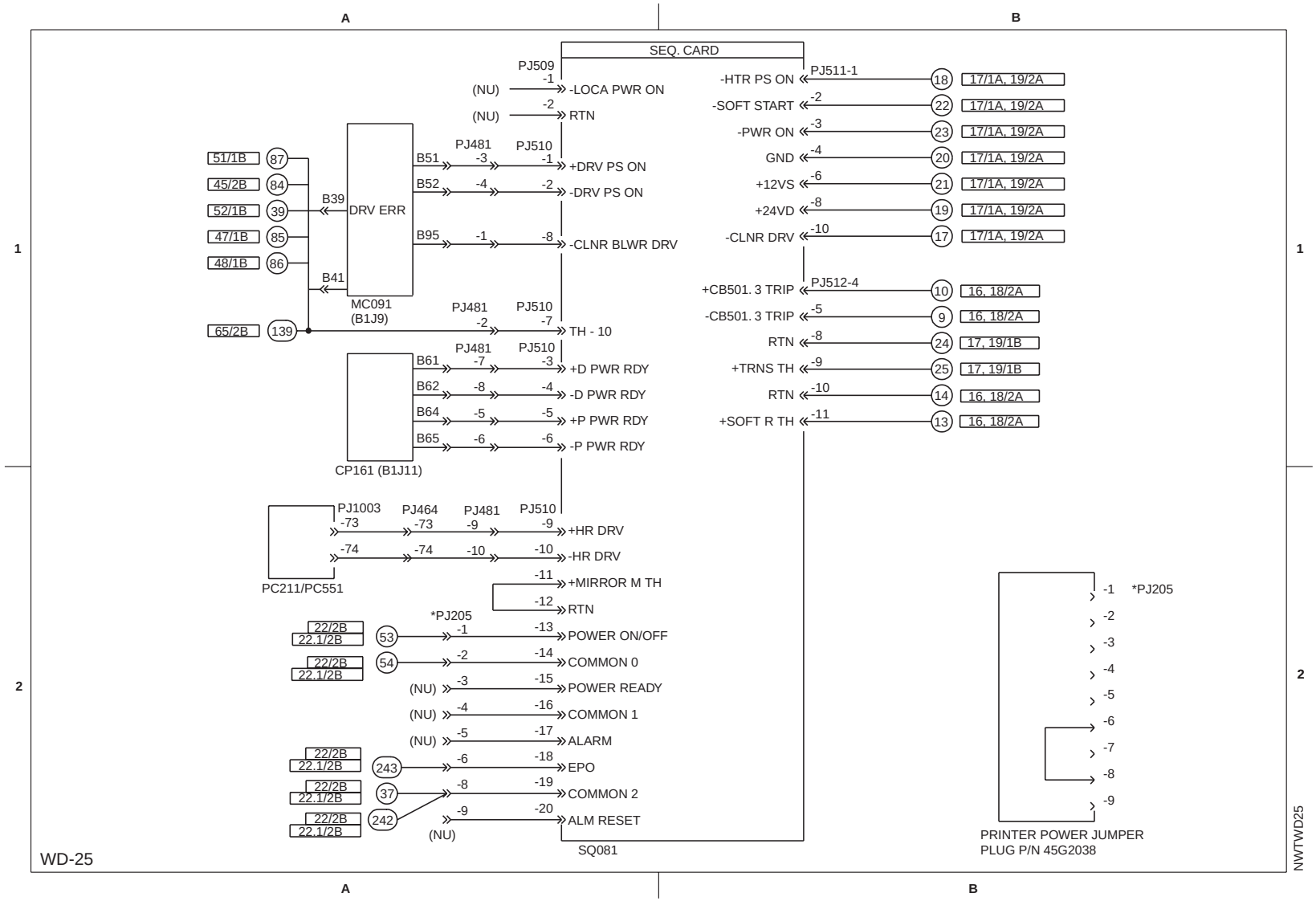
WD23.1 - AC Power Control (Duplex) Printer 2 Control Unit to Printer 1 Control Unit:



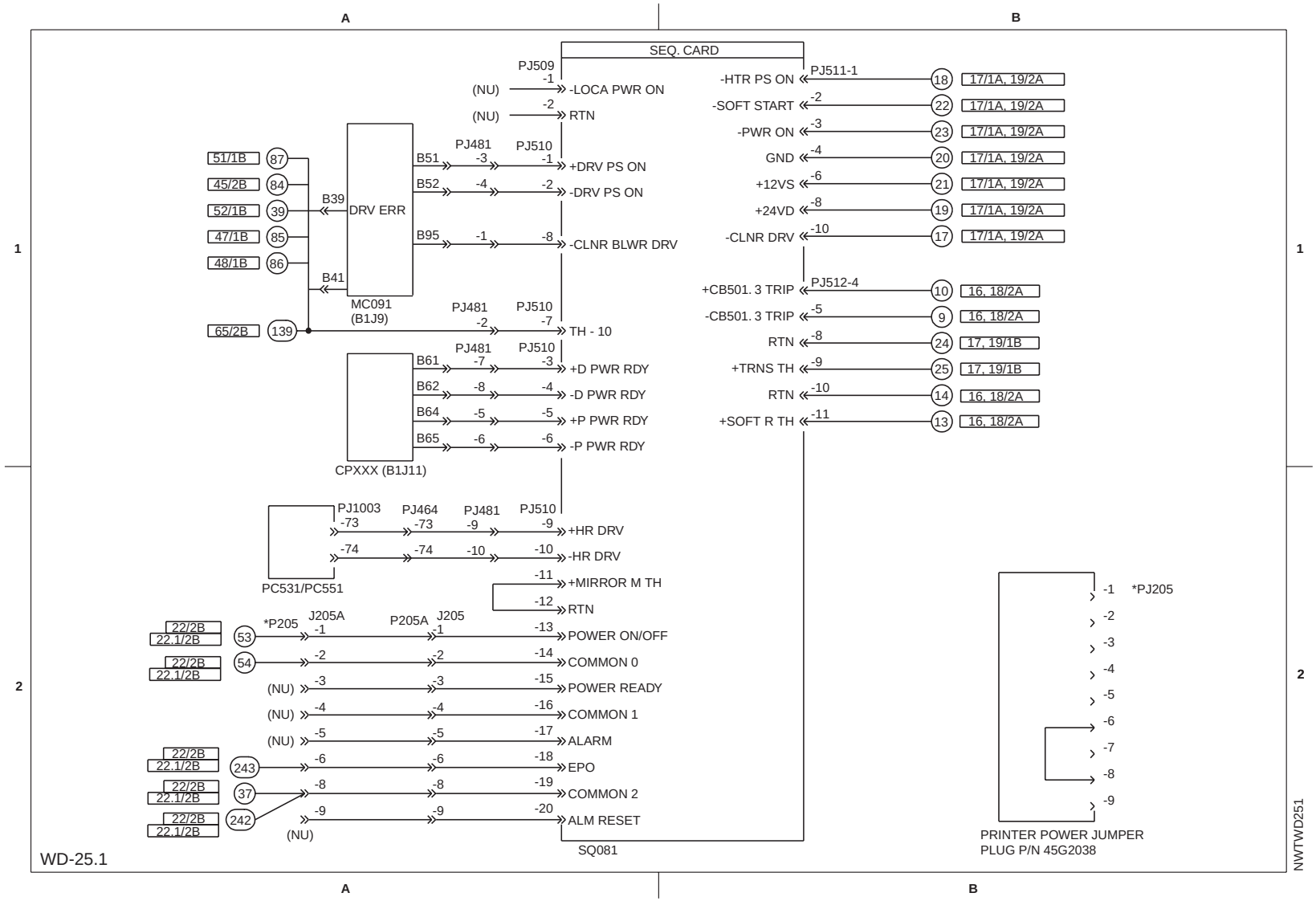
WD24 - Printer DC Power Units and Sequence Card:



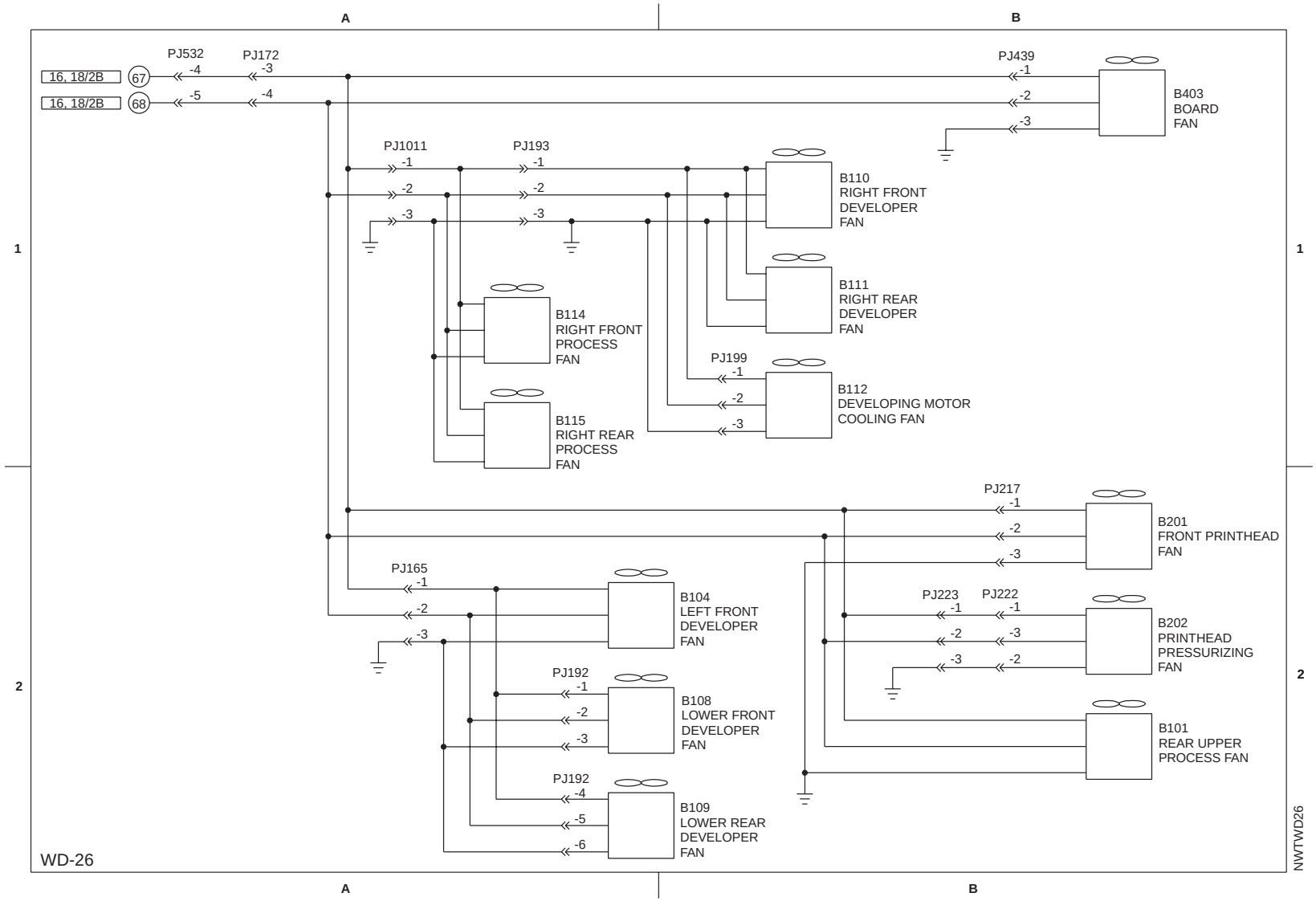
WD25 - Printer Sequence Card (Single Beam Printhead):



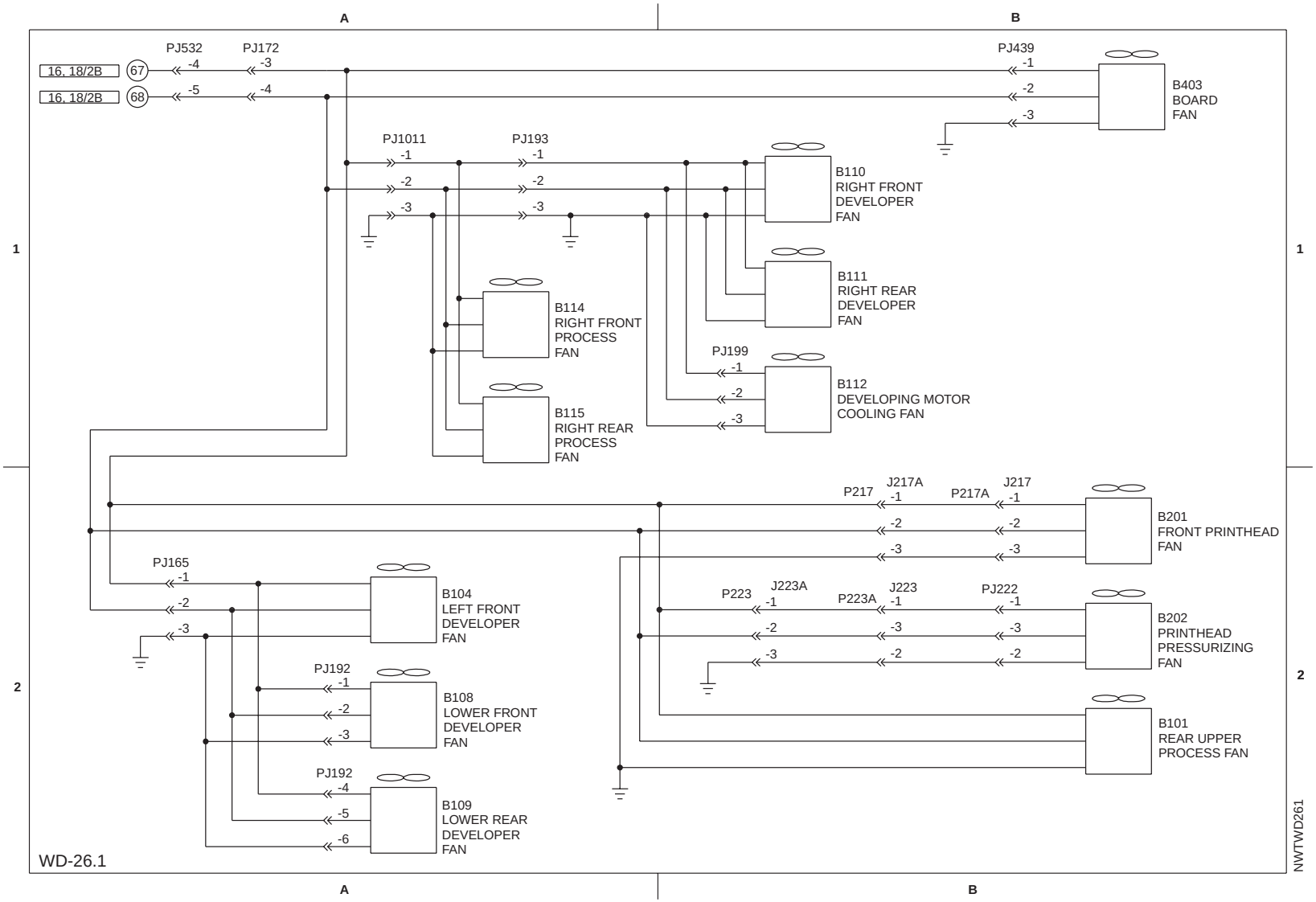
WD25.1 - Printer Sequence Card (Multi Beam Printhead):



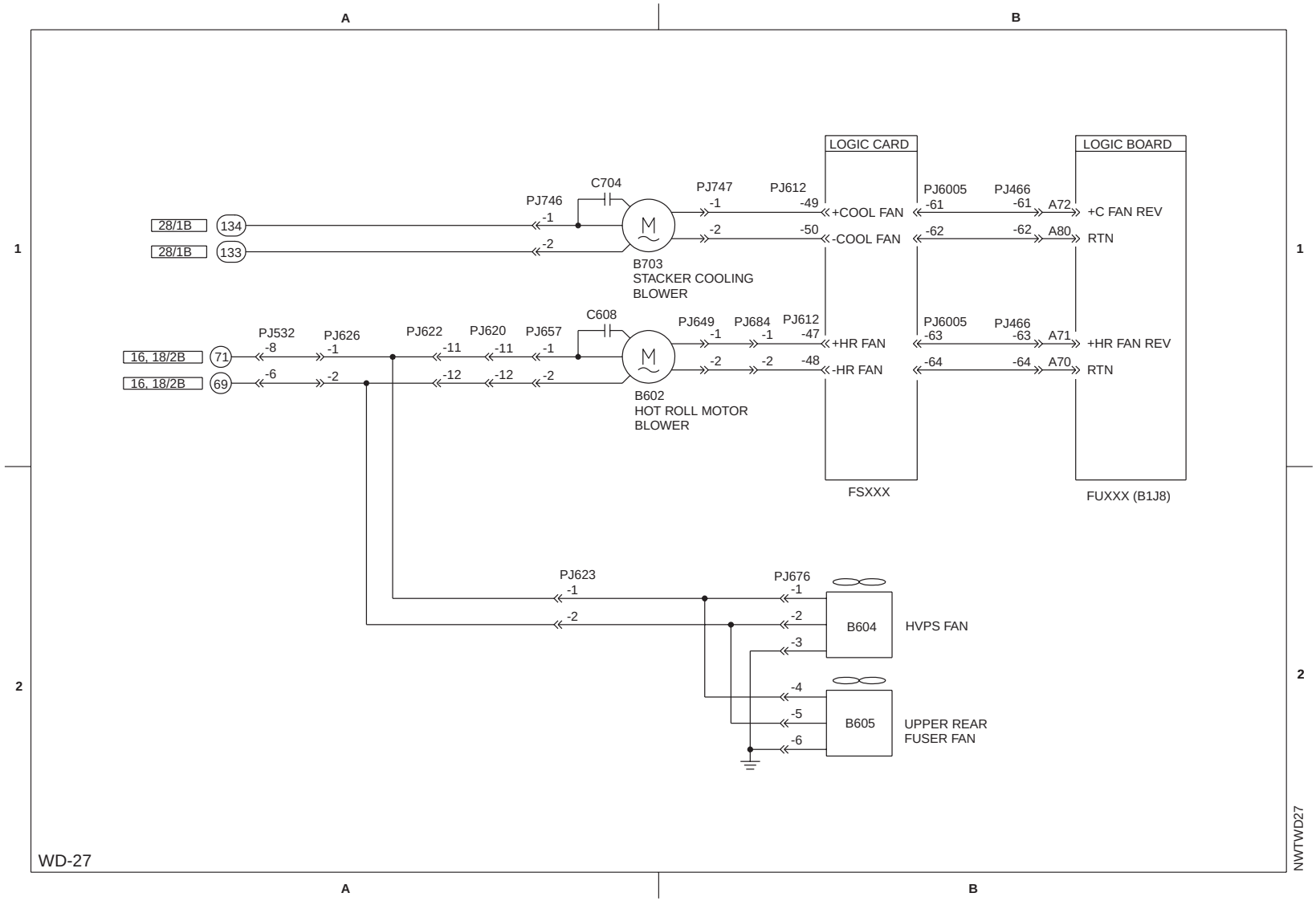
WD26 - 200 VAC Blowers (Single Beam Printhead):



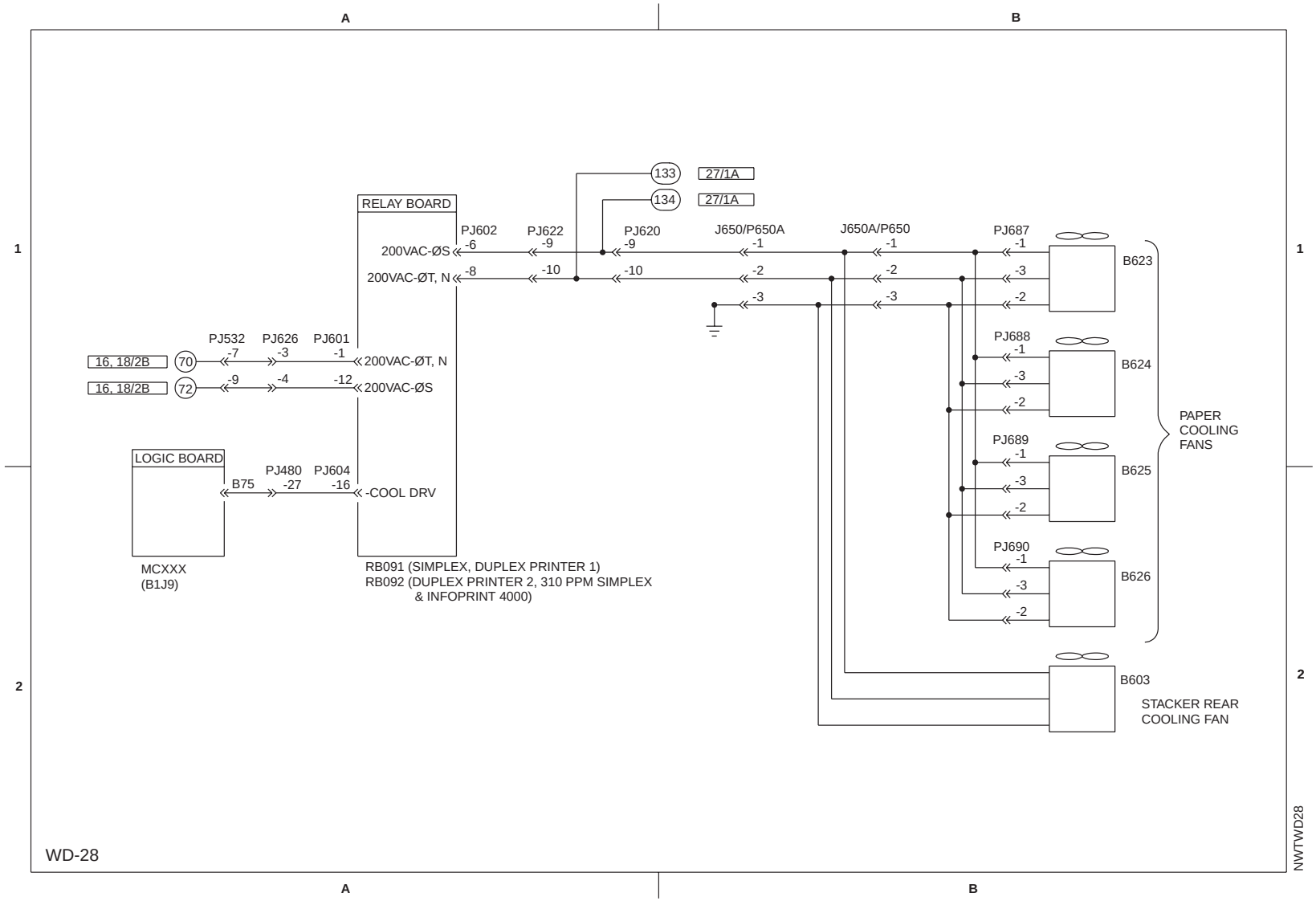
WD26.1 - 200 VAC Blowers (Multi Beam Printhead):



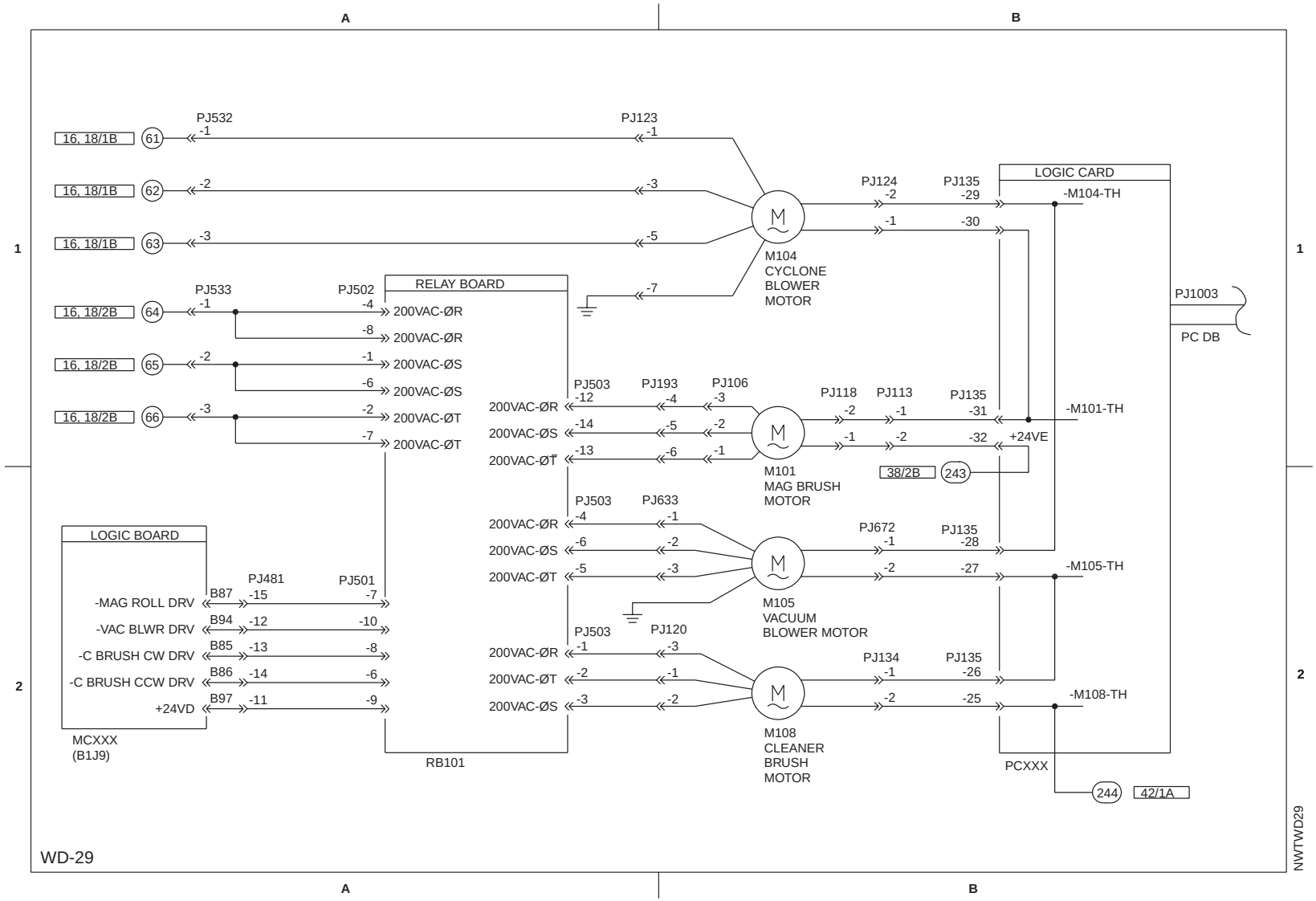
WD27 - Motors B602, B703 & 200 VAC Blowers:



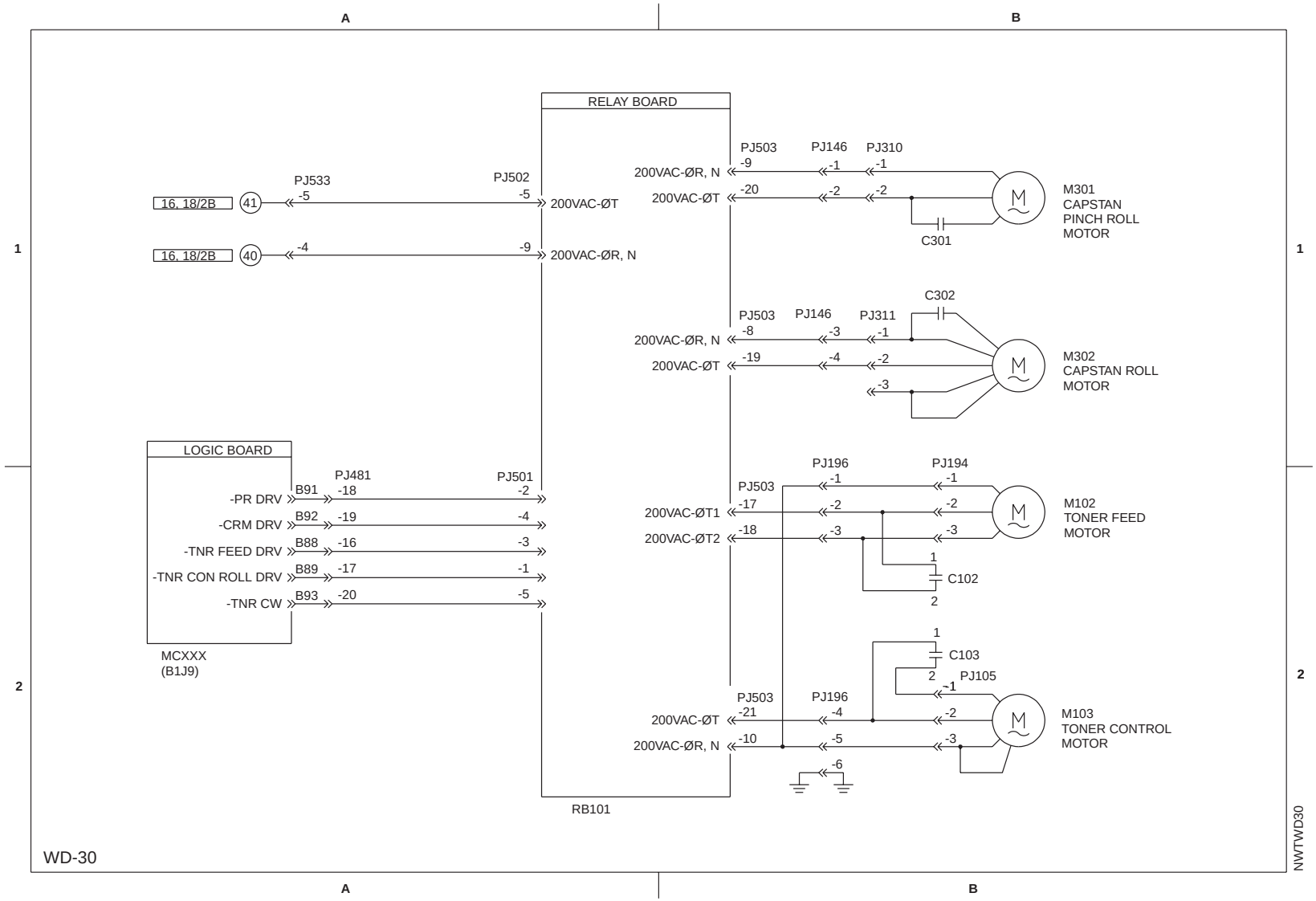
WD28 - 200 VAC Blowers:



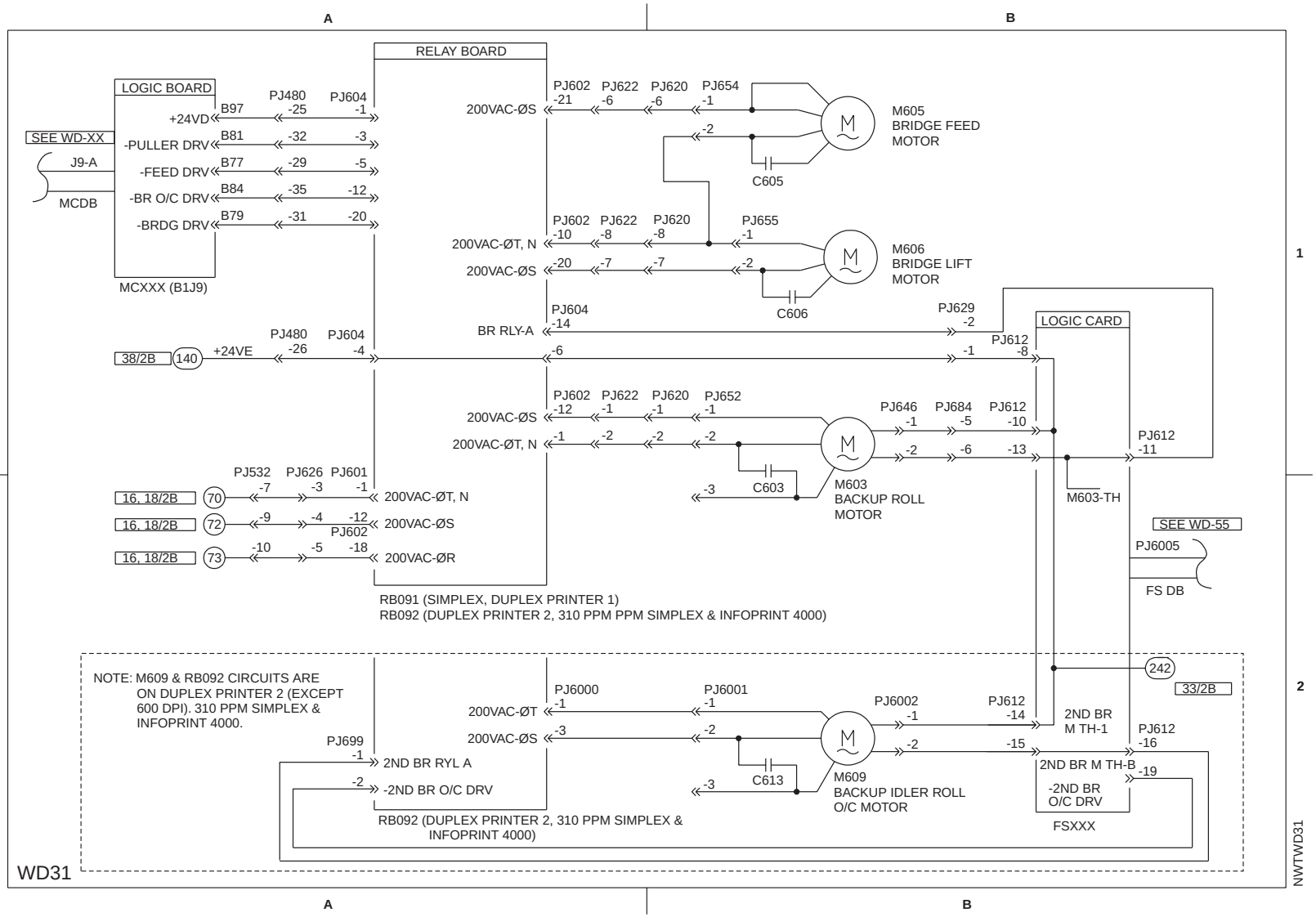
WD29 - 3 Phase AC Motors (M101, M104, M105 & M108):



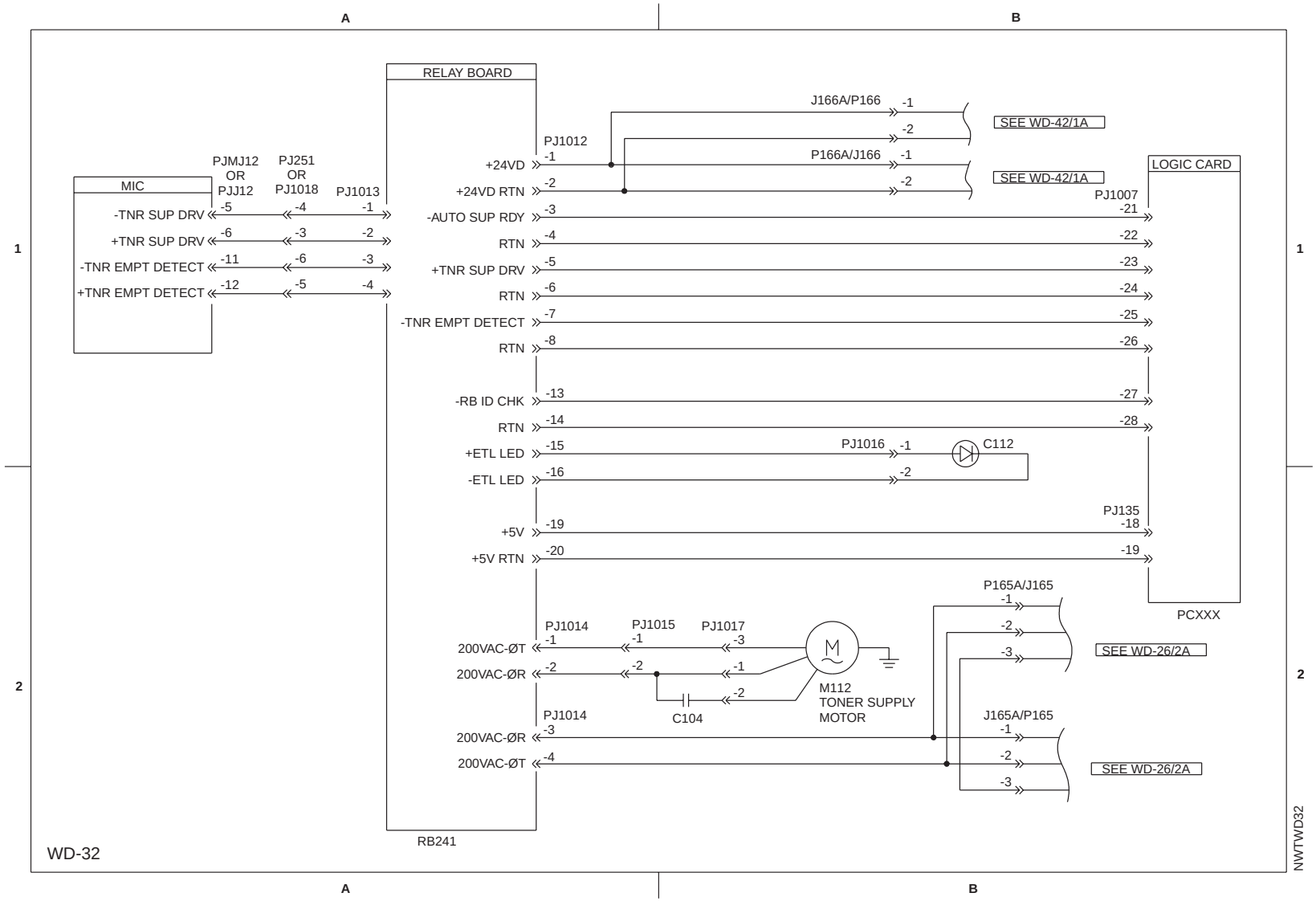
WD30 - Single Phase AC Motors (M102, M103, M301 & M302):



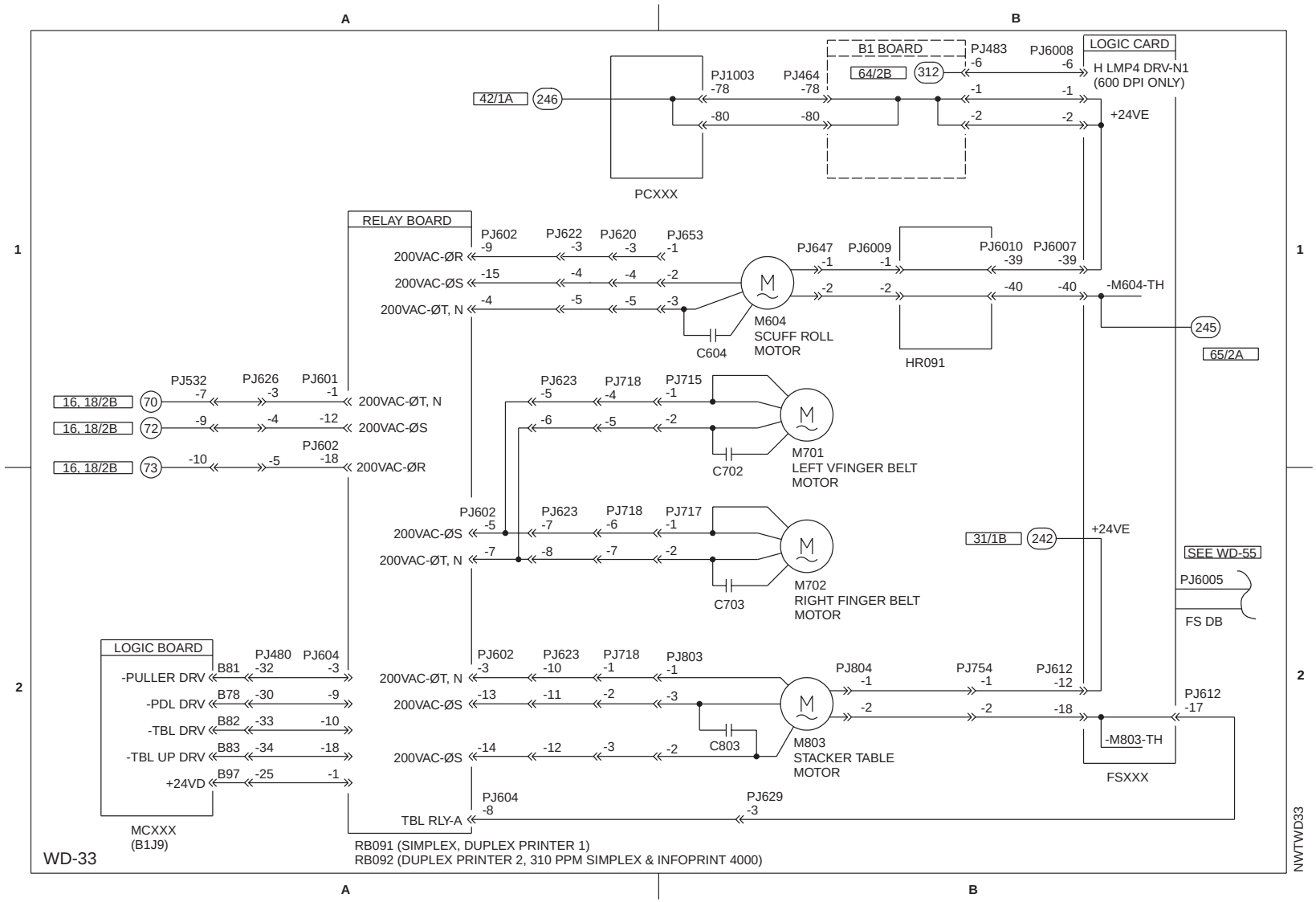
WD31 - AC Motors (M603, M605, M606 & M609):



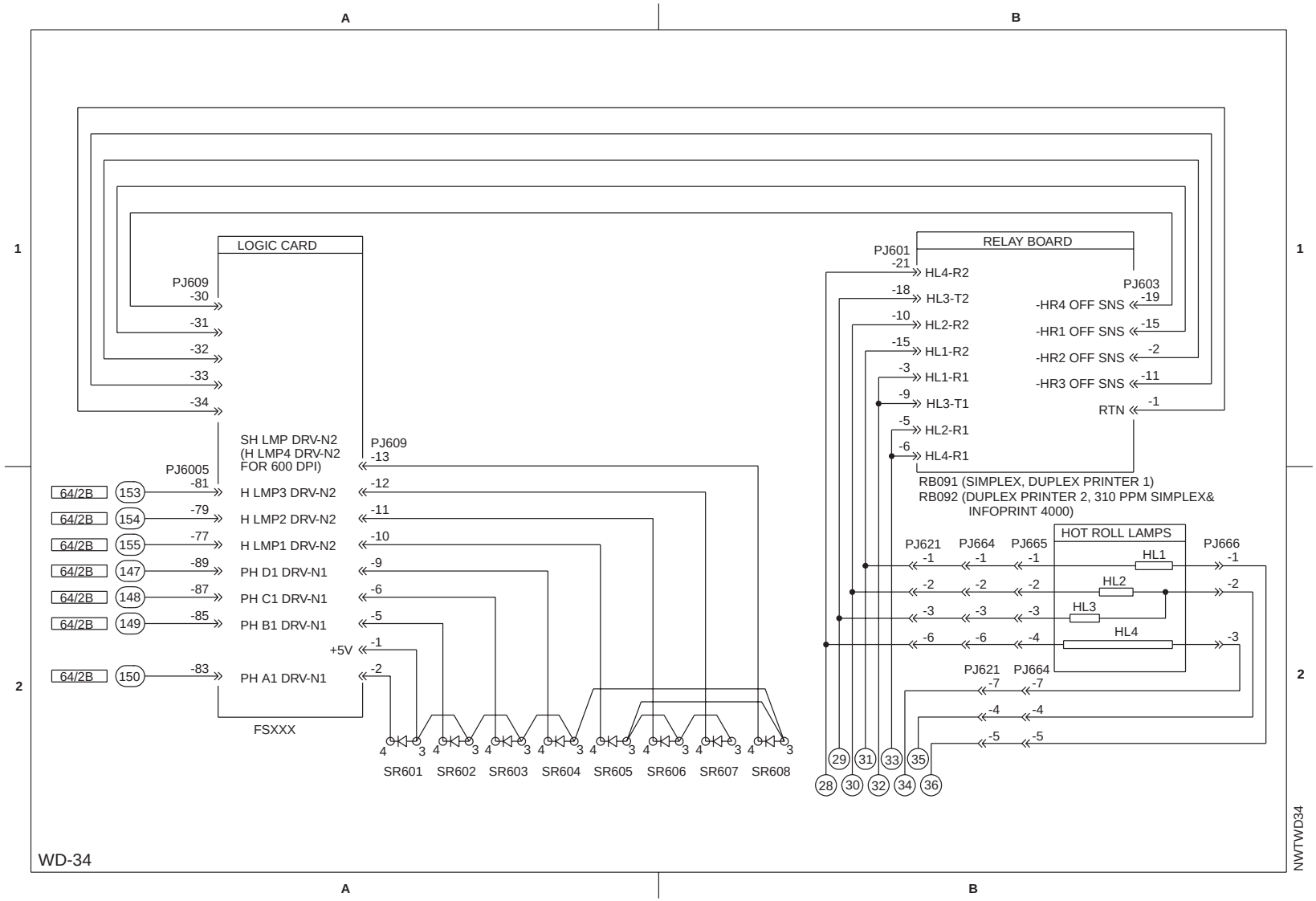
WD32 - AC Motor M112 (Enhanced Toner Loading):



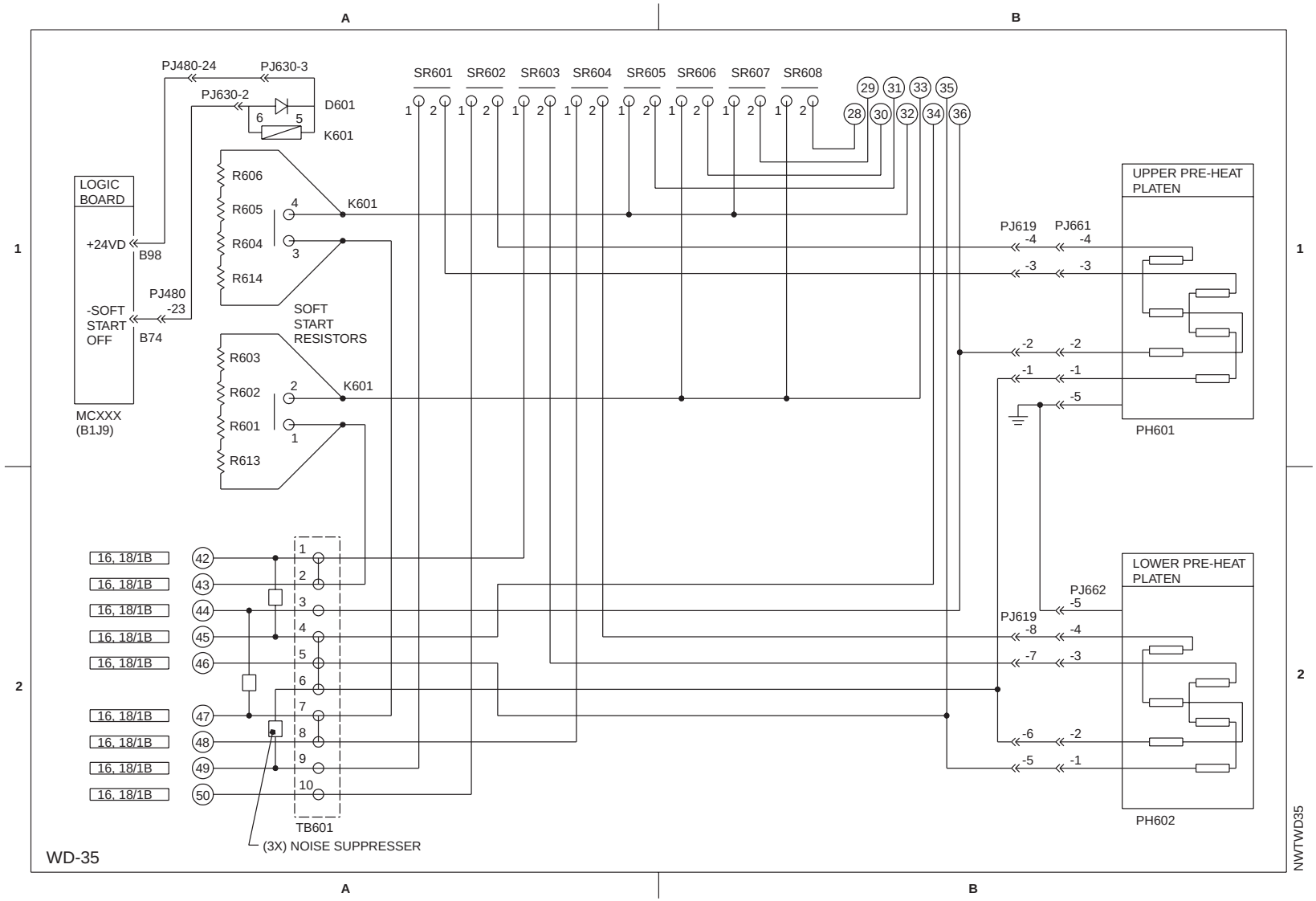
WD33 - AC Motors (M604, M701, M702 & M803):



WD34 - AC Distribution To Hot Roll Lamps:

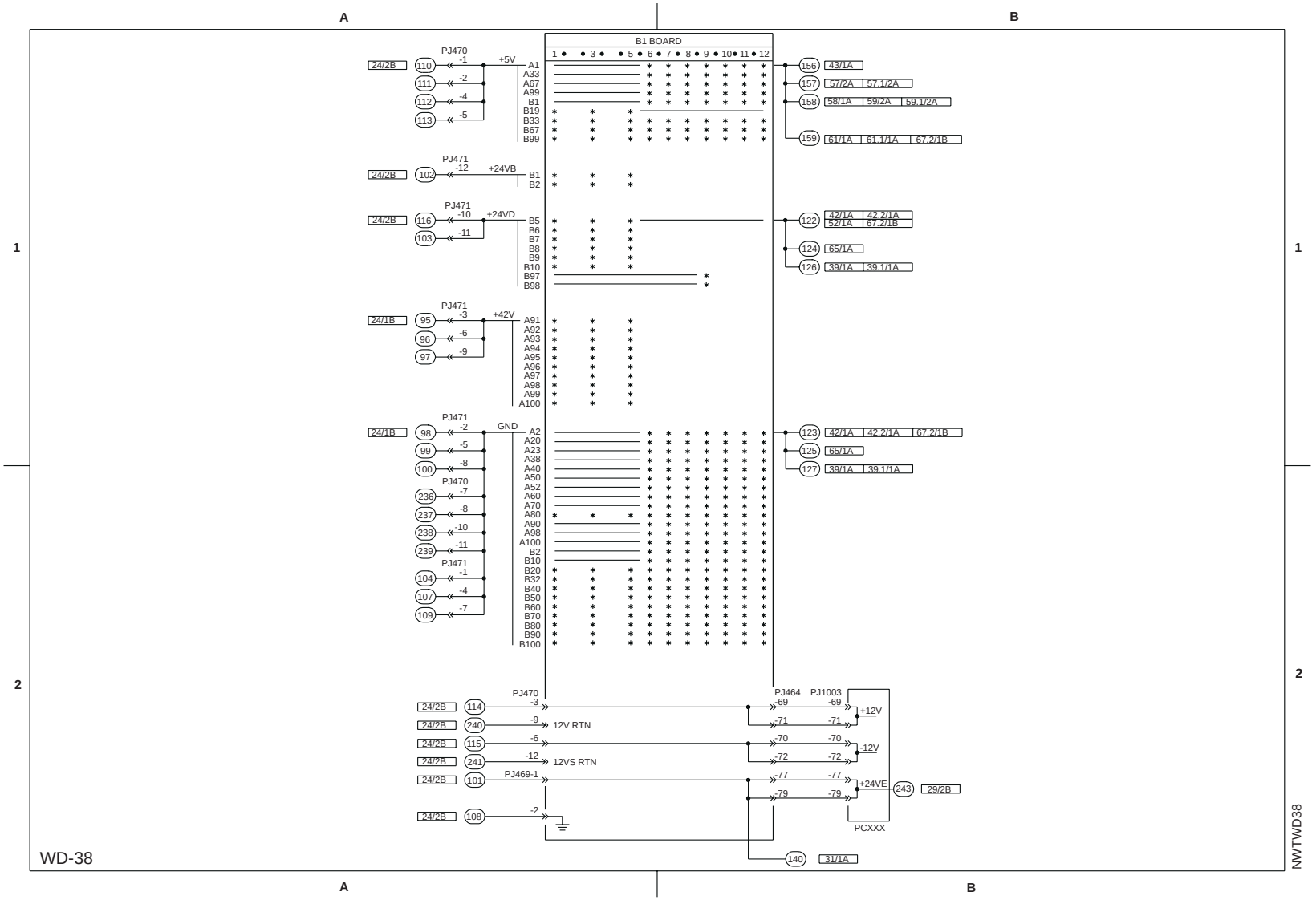


WD35 - AC Distribution To Preheat Platen:

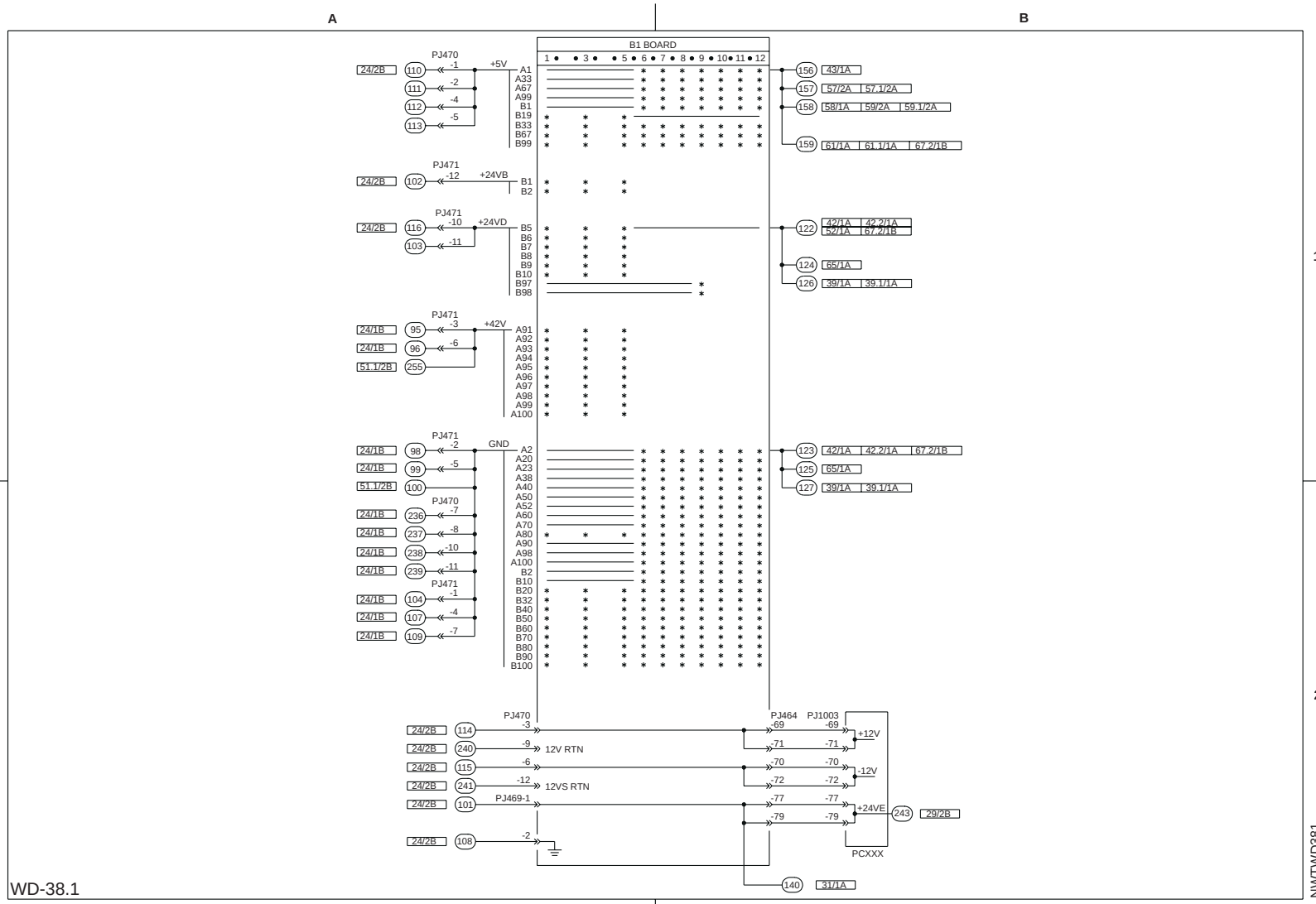


DC Circuits And Channel Attach Electronics

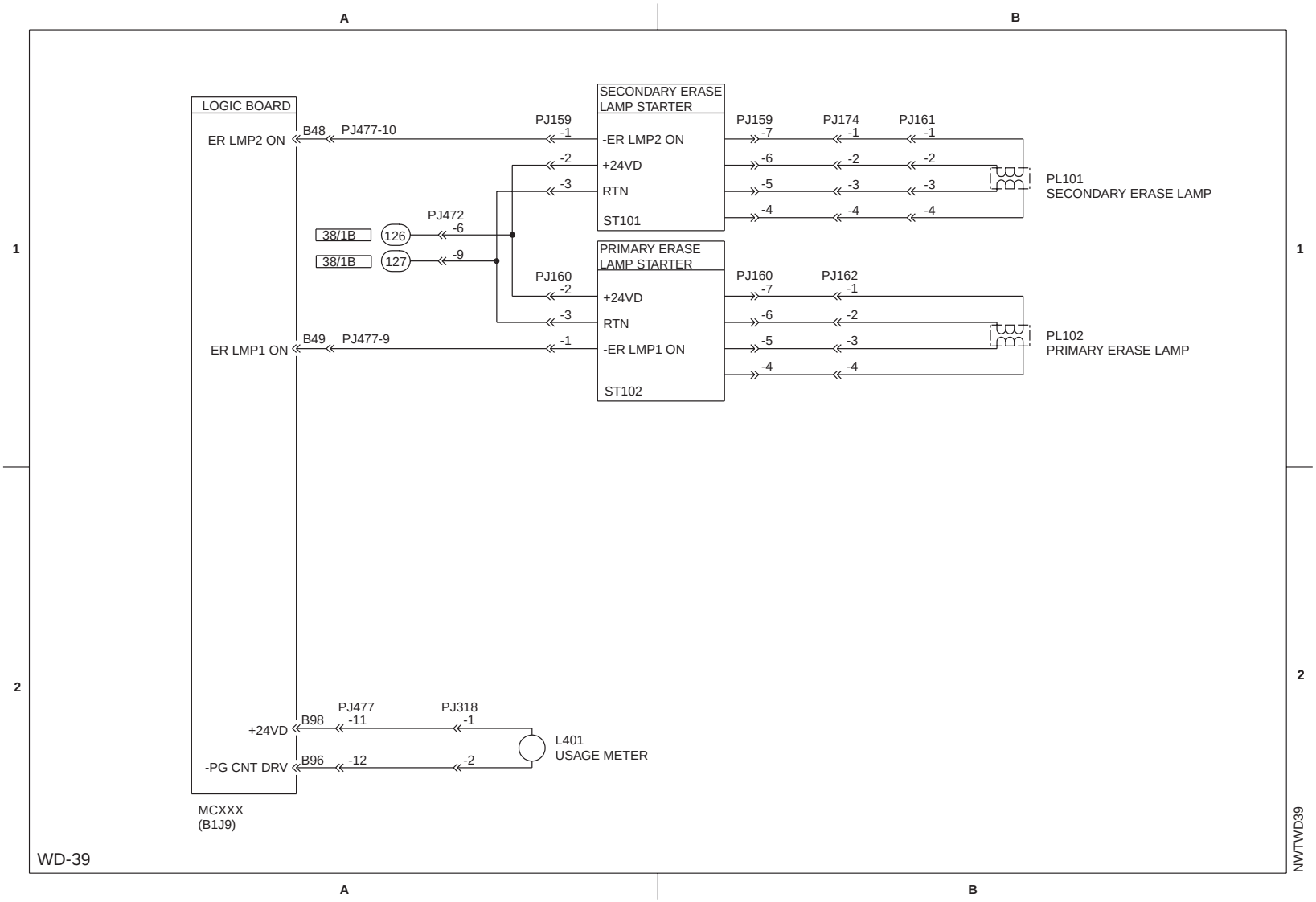
WD38 - Printer DC Power Distribution (Printers without M610):



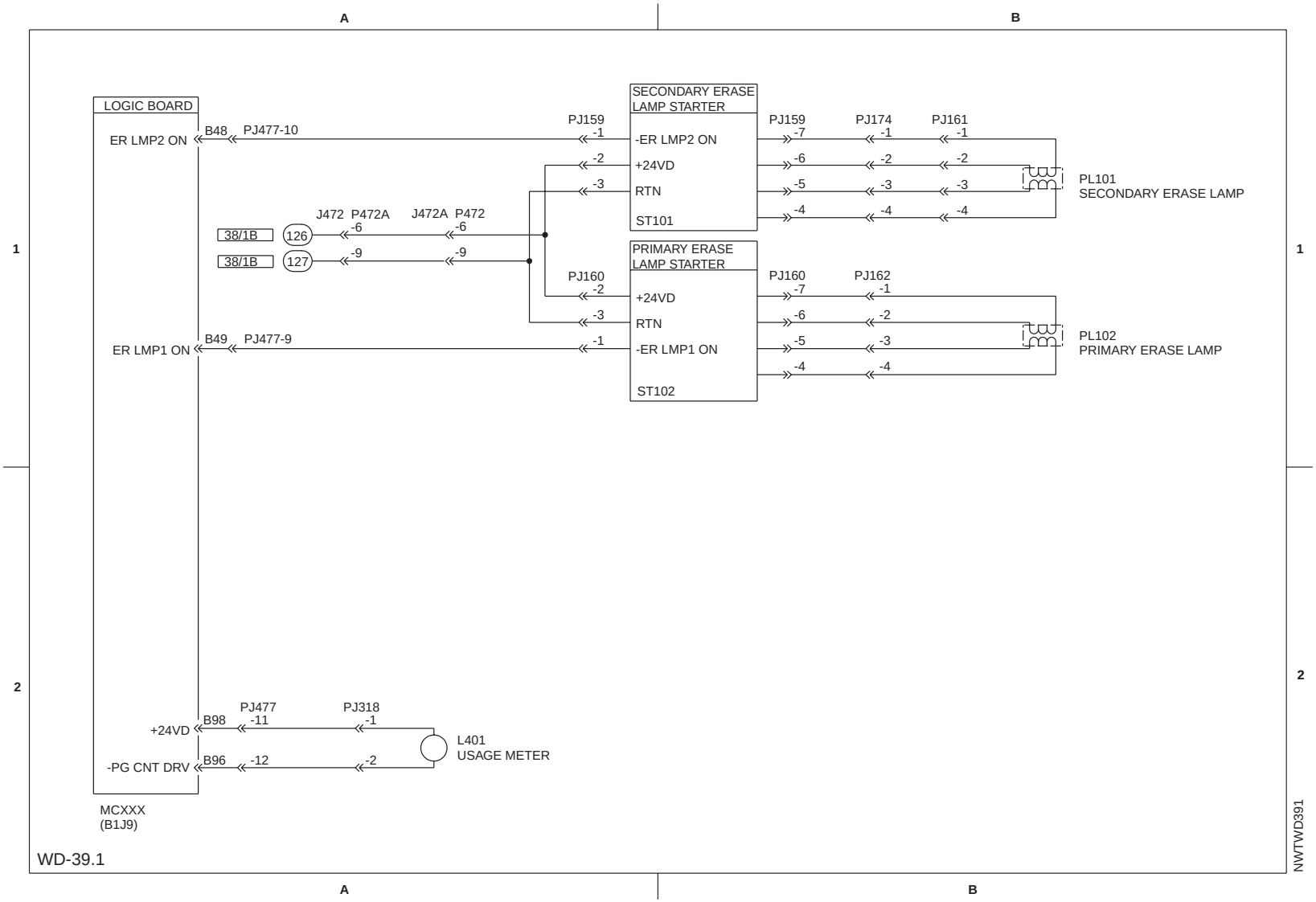
WD38.1 - Printer DC Power Distribution (Printers with M610):



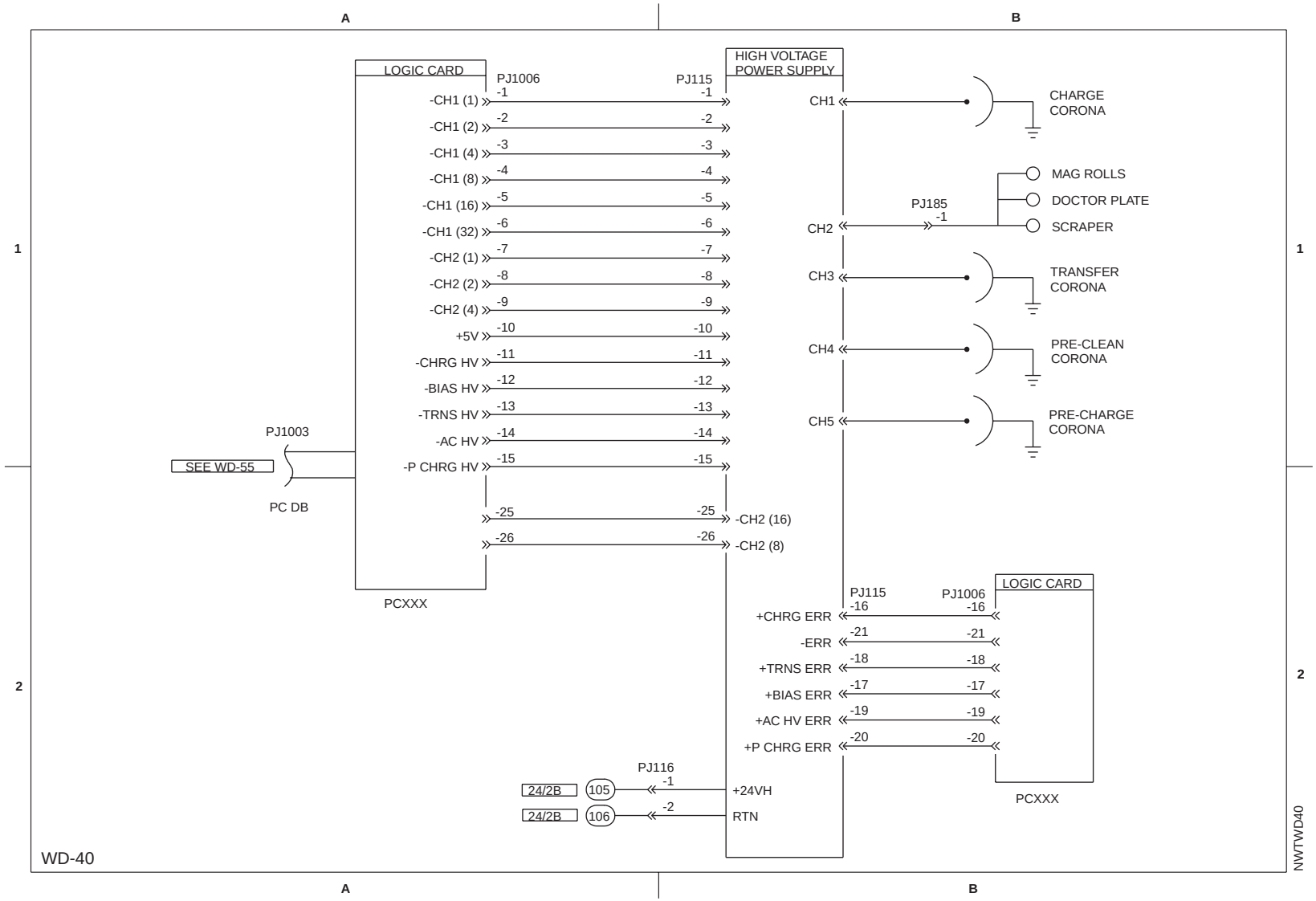
WD39 - Erase Lamp and Usage Meter (Single Beam or Two Beam 240 Printhead):



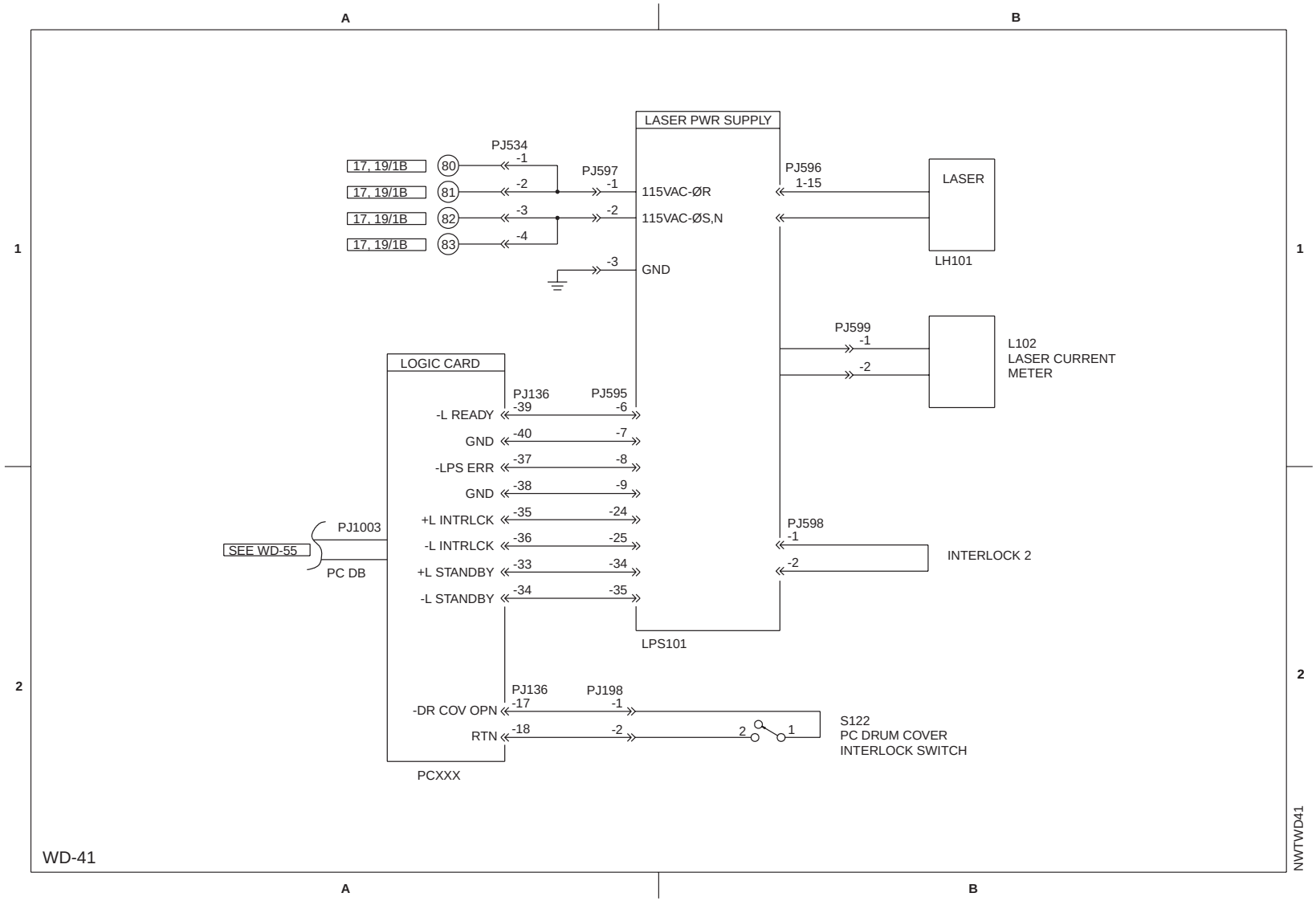
WD39.1 - Erase Lamp and Usage Meter (Two Beam 240/300, Four or Five Beam Printhead):



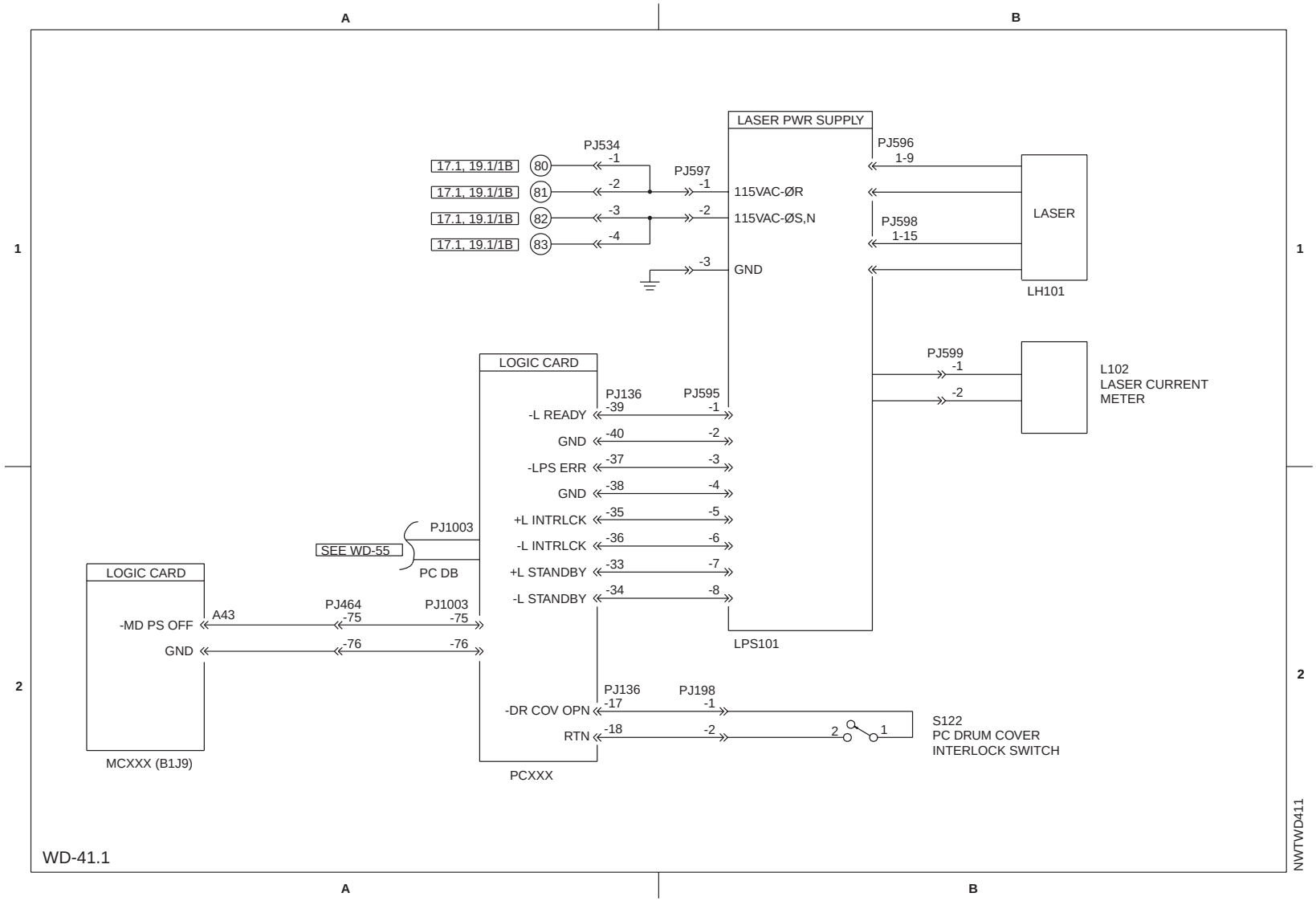
WD40 - High Voltage to Coronas:



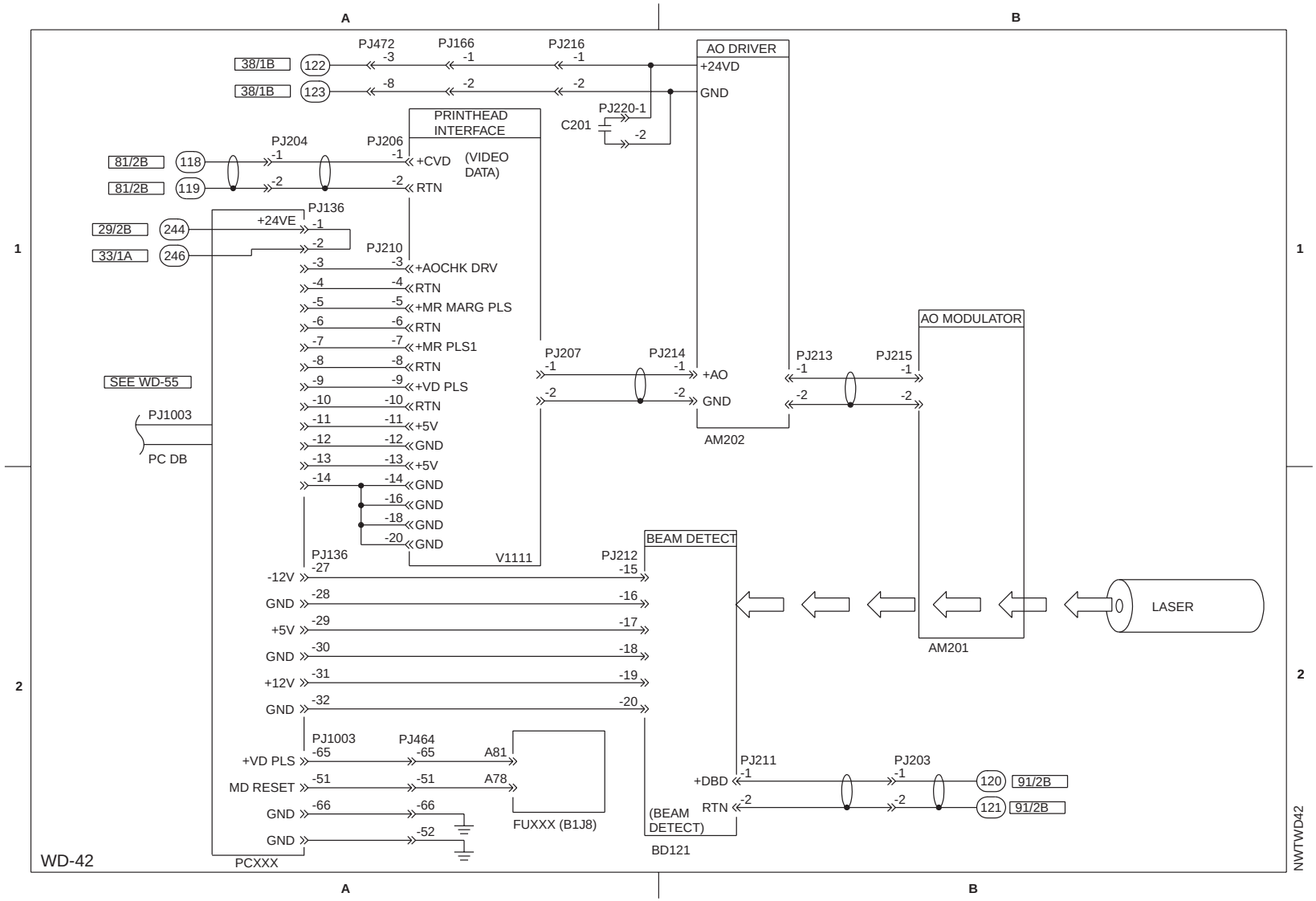
WD41 - Laser Power & Control and Drum Cover Interlock (except 30 mW laser):



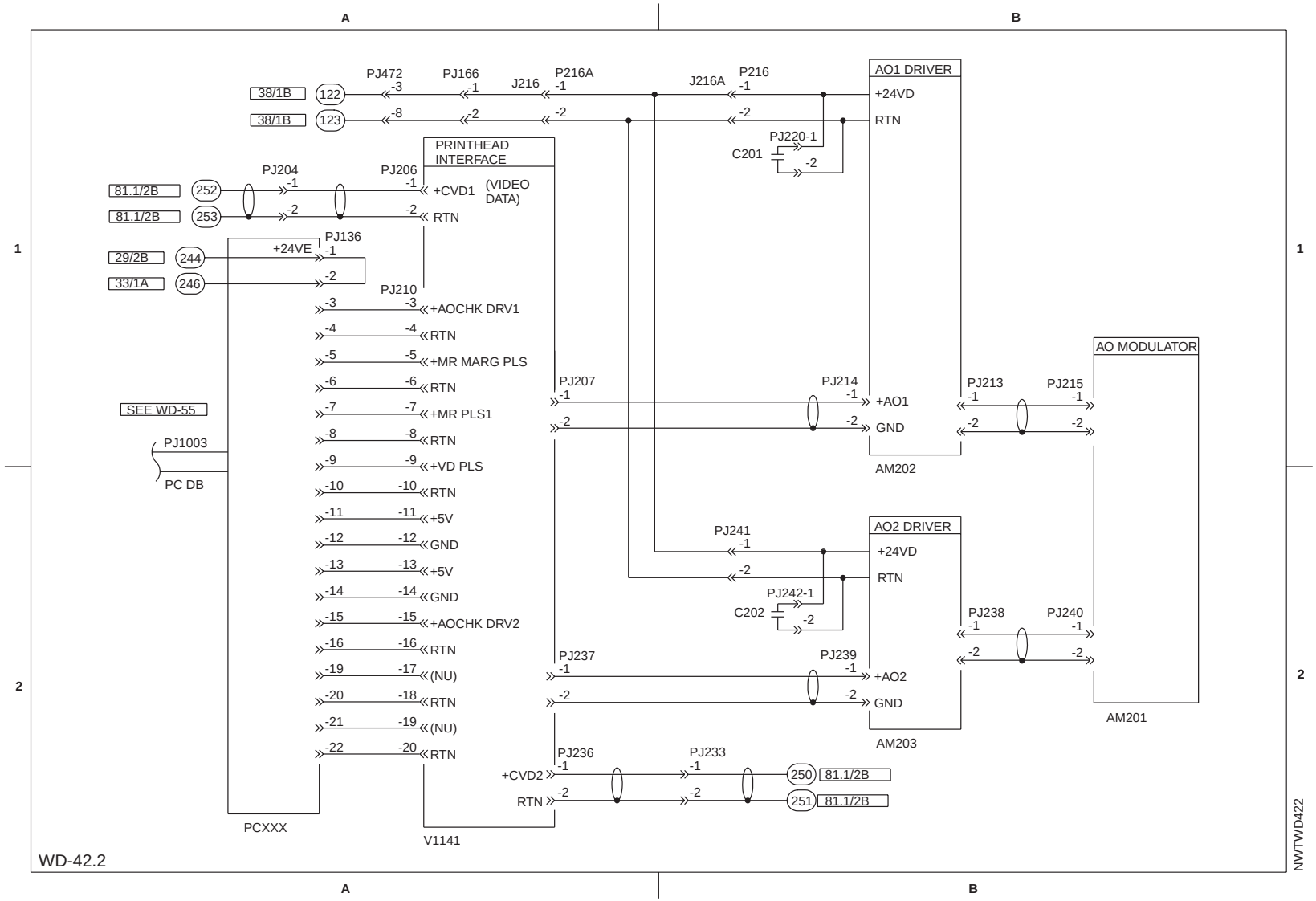
WD41.1 - Laser Power & Control and Drum Cover Interlock (for 30 mW laser):



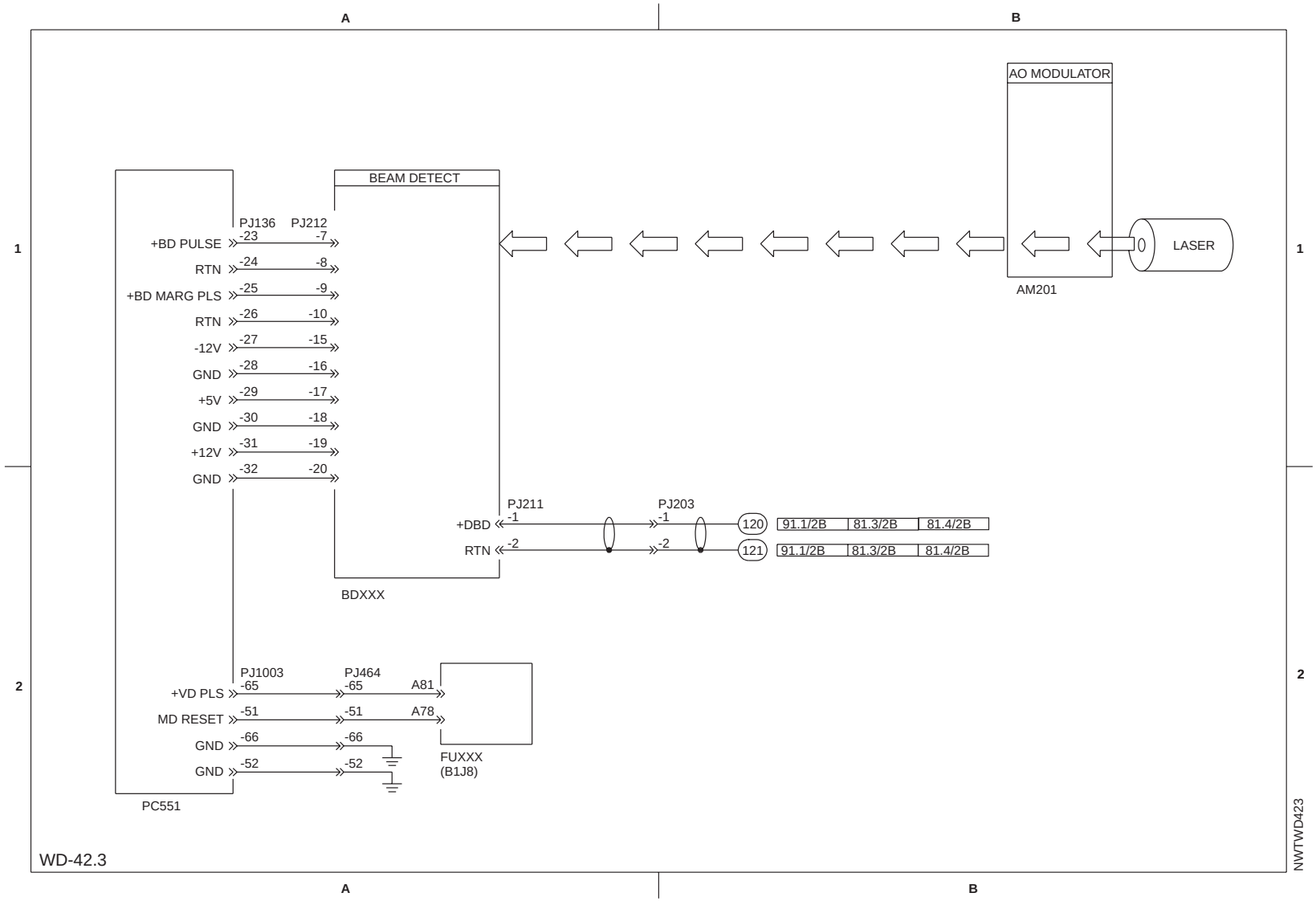
WD42 - Laser Modulator and Beam Detect (Single Beam Printhead):



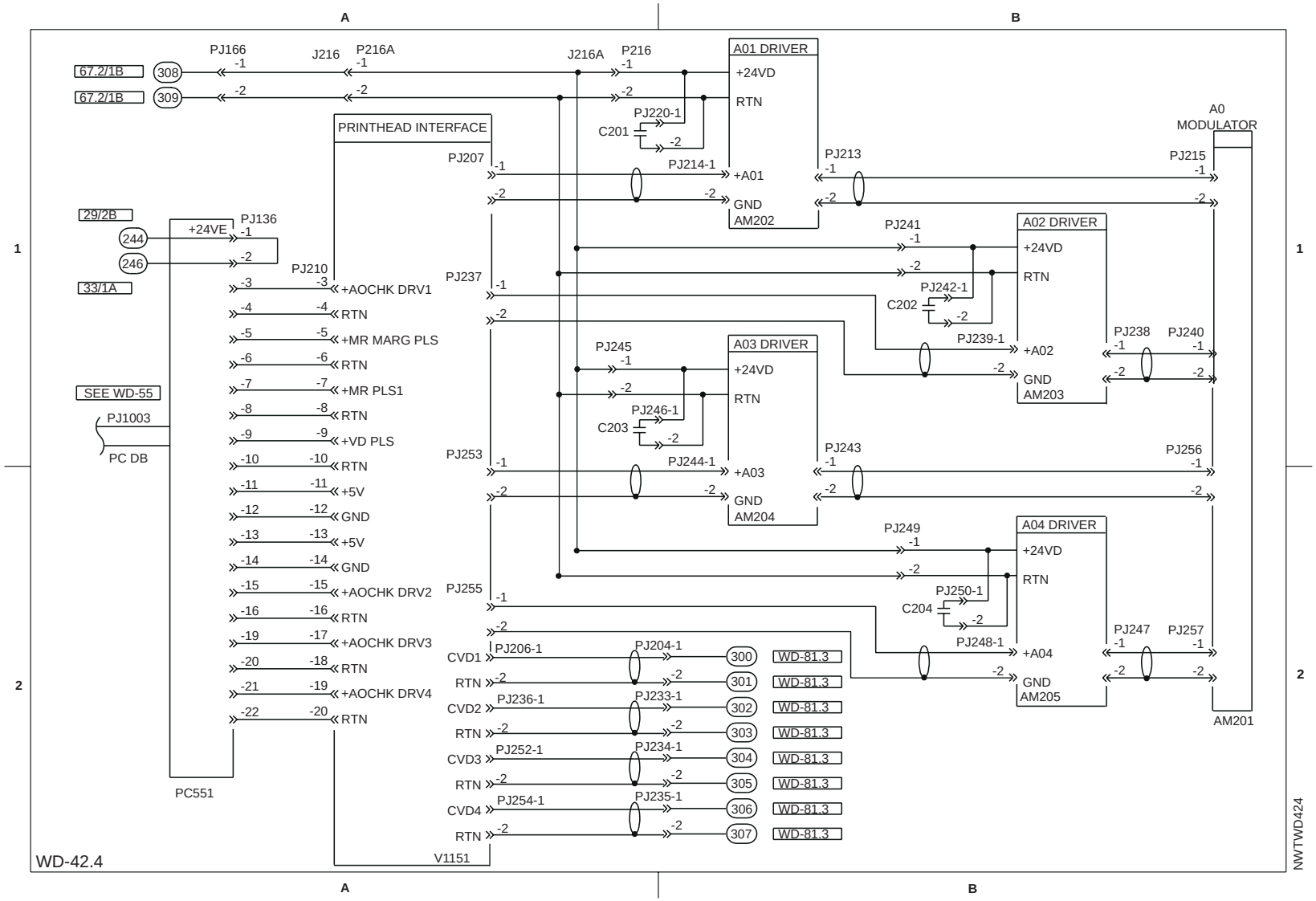
WD42.2 - Laser Modulator (Two Beam Printhead):



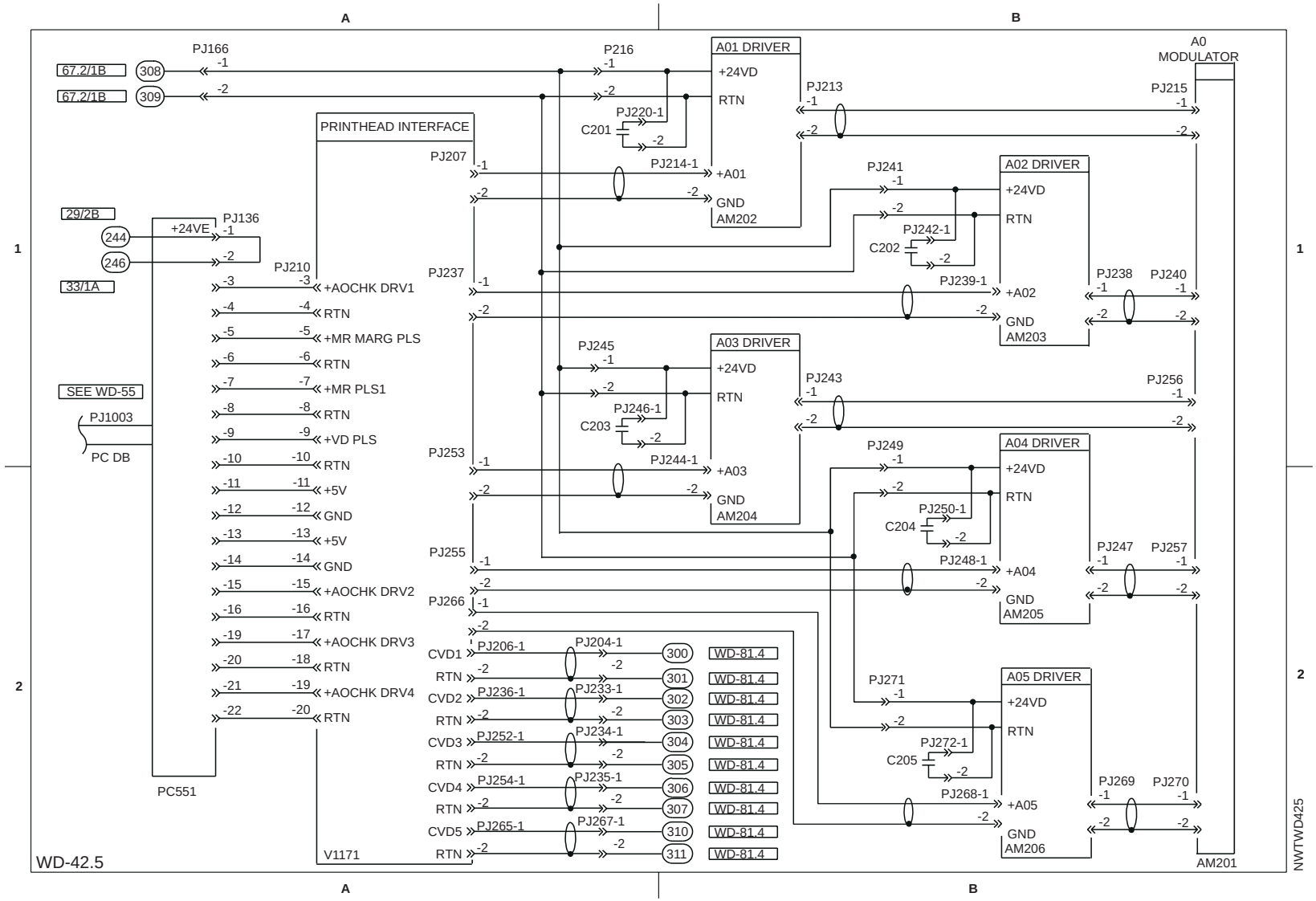
WD42.3 - Beam Detect (Multi Beam Printhead):



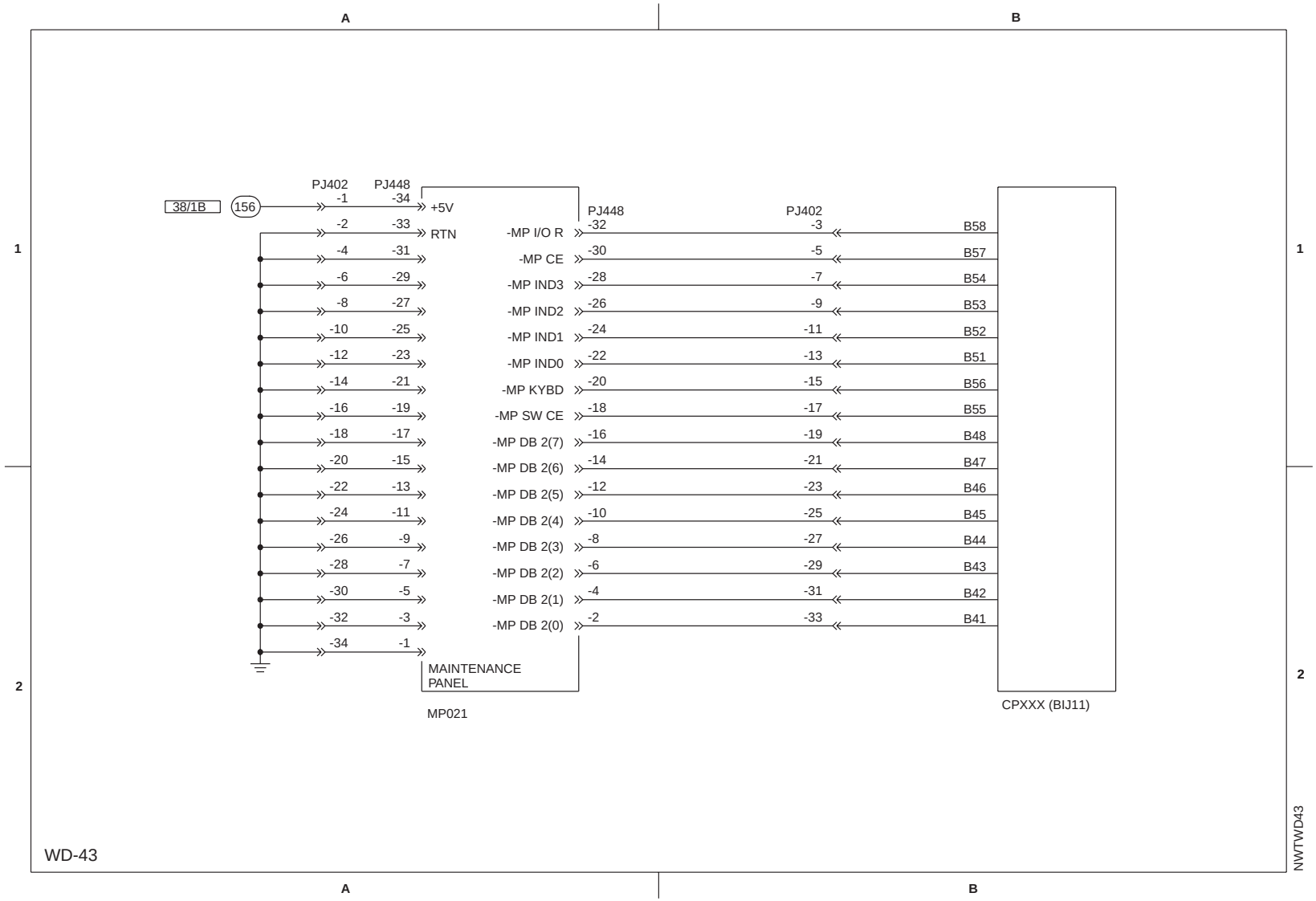
WD42.4 - Laser Modulator (Four Beam Printhead):



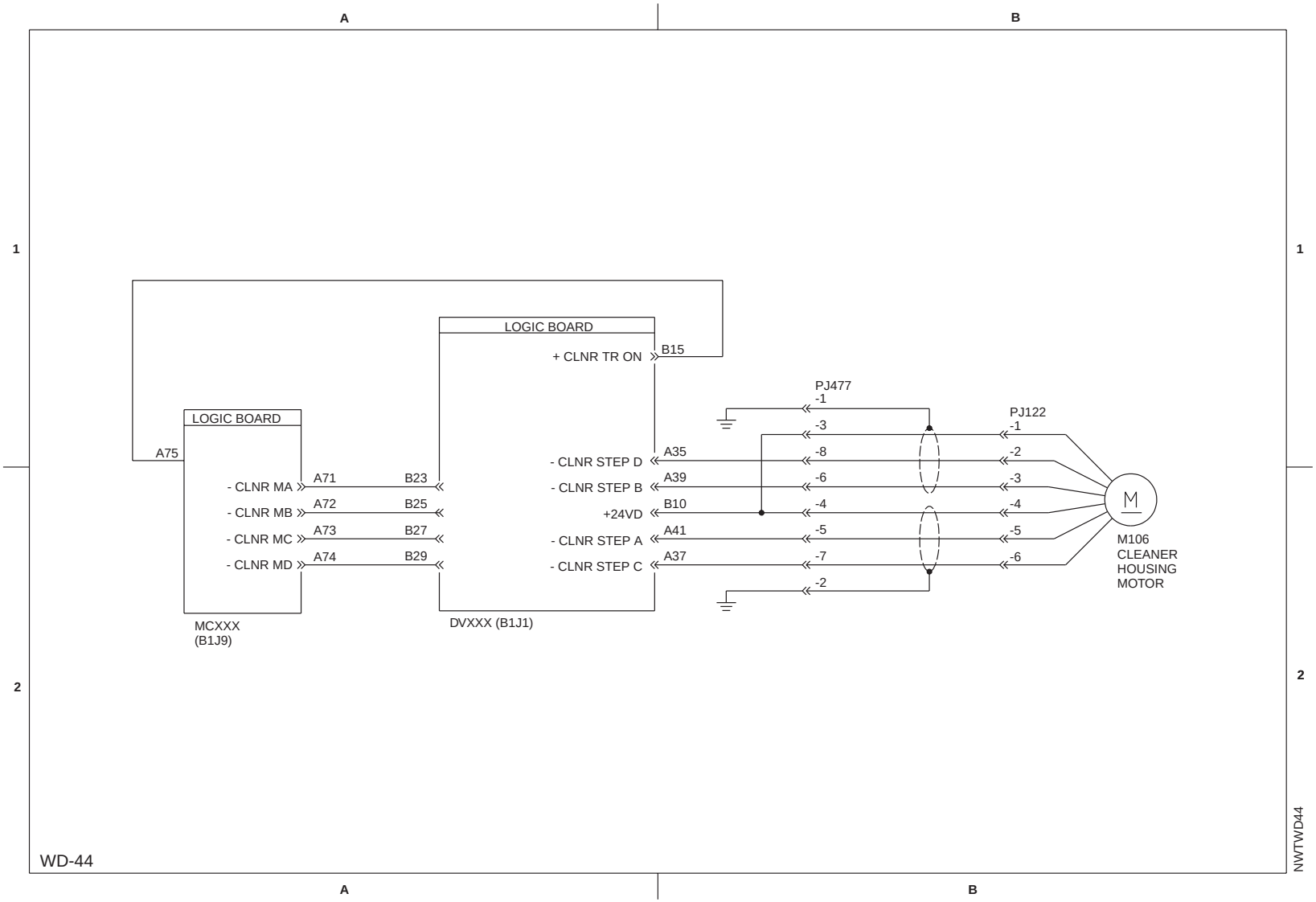
WD42.5 - Laser Modulator (Five Beam Printhead):



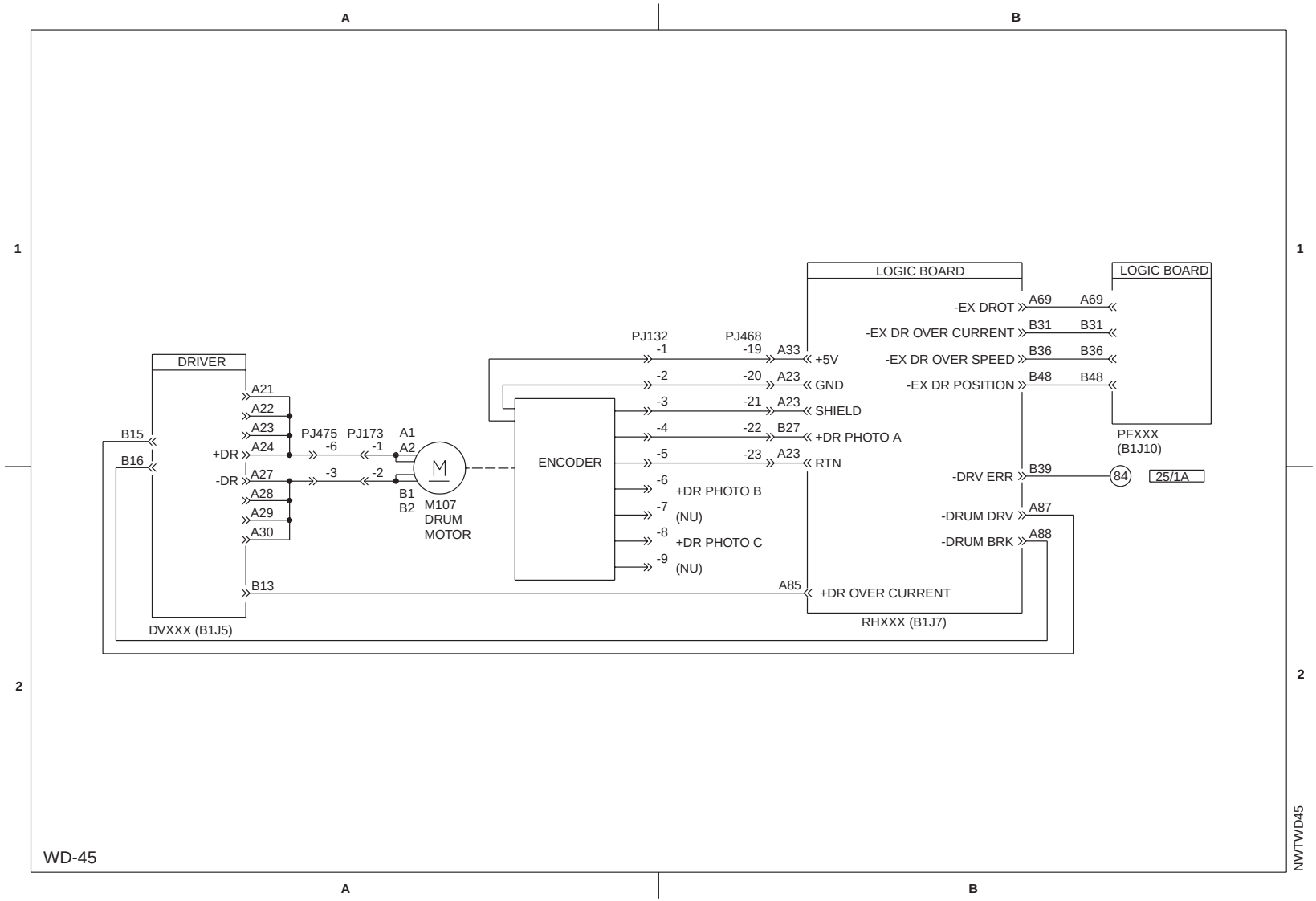
WD43 - Maintenance Panel:



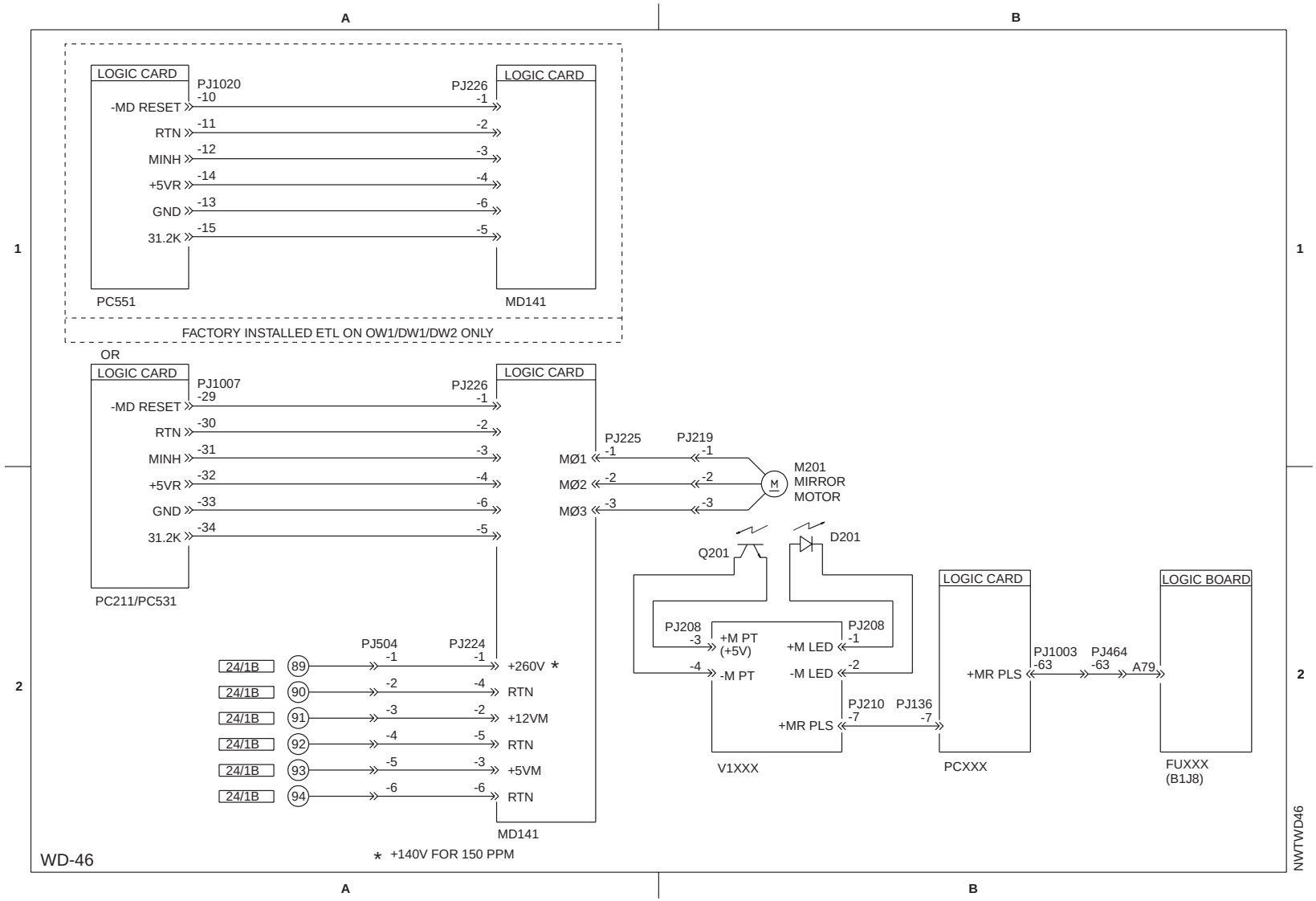
WD44 - Motor M106:



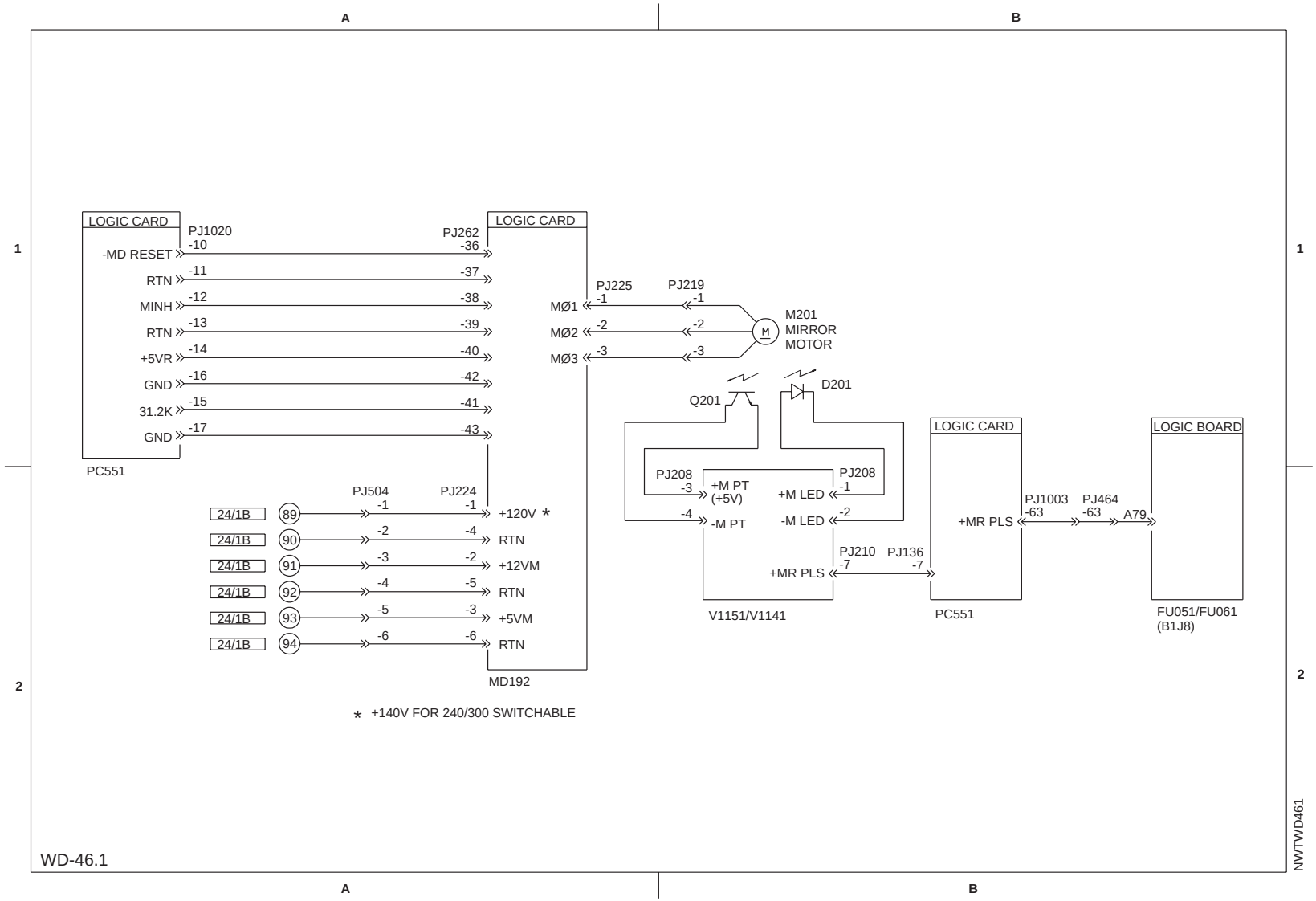
WD45 - Motor M107:



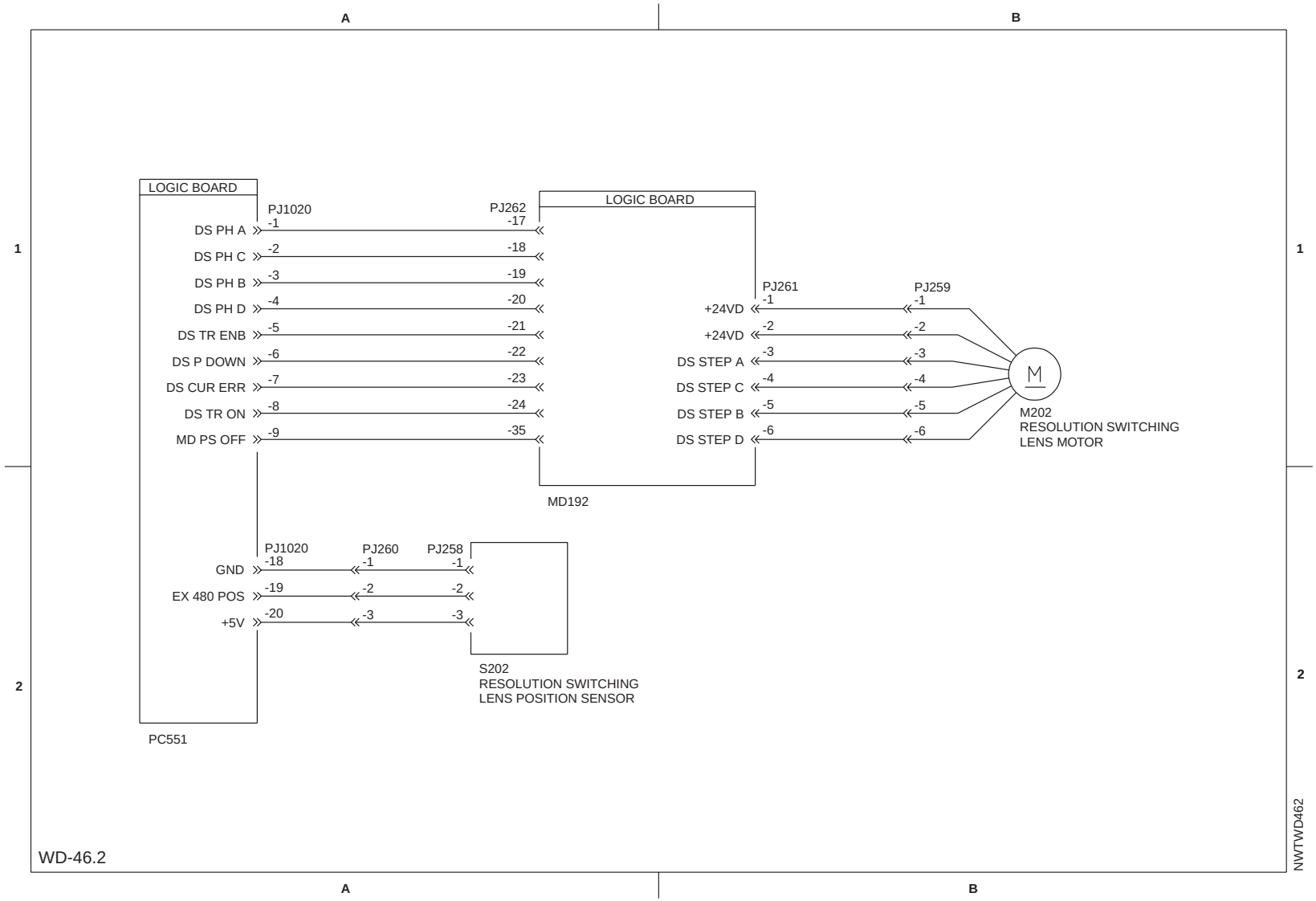
WD46 - Motor M201 (Fixed Resolution Printhead):



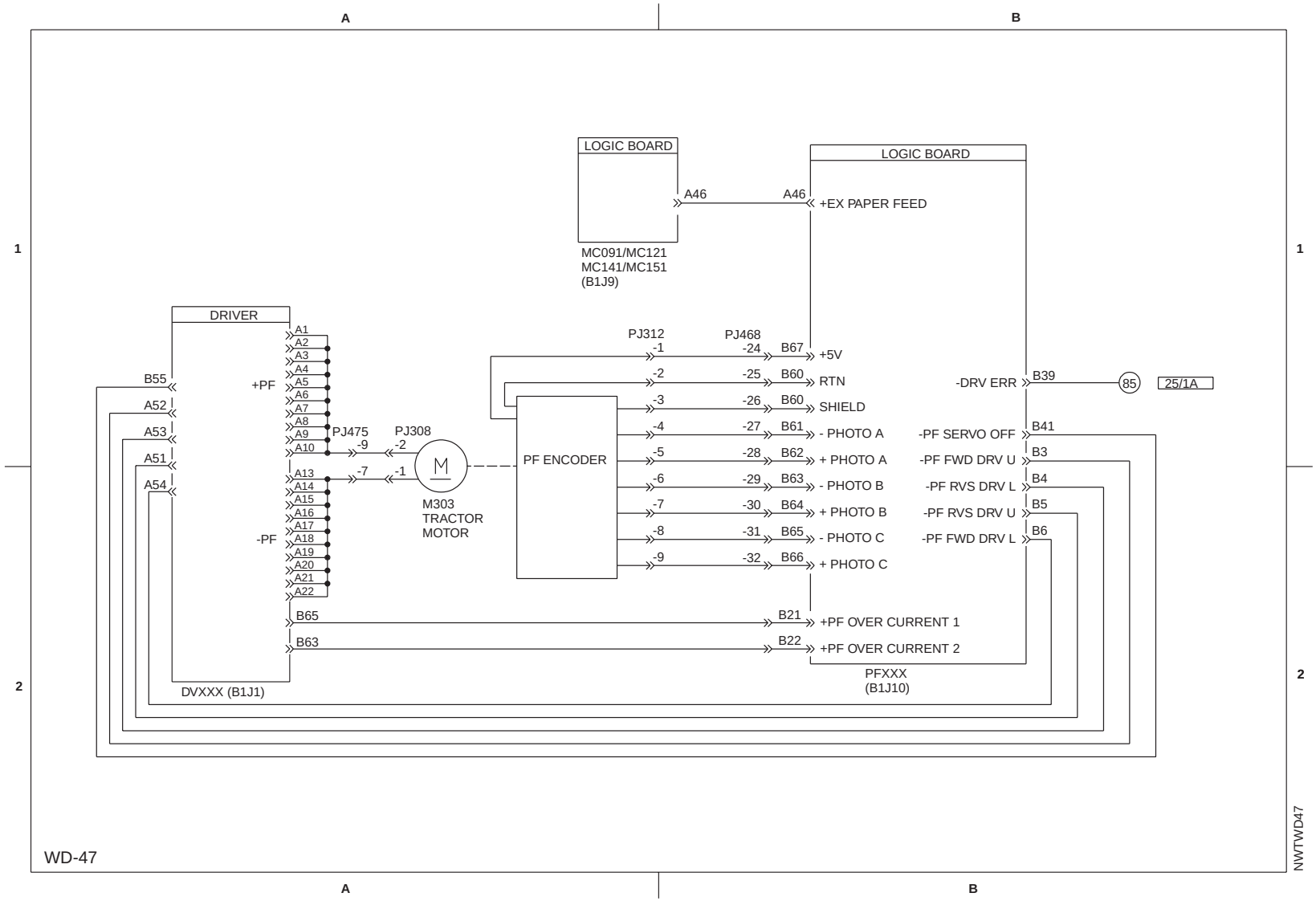
WD46.1 - Motor M201 (Switchable Printhead):



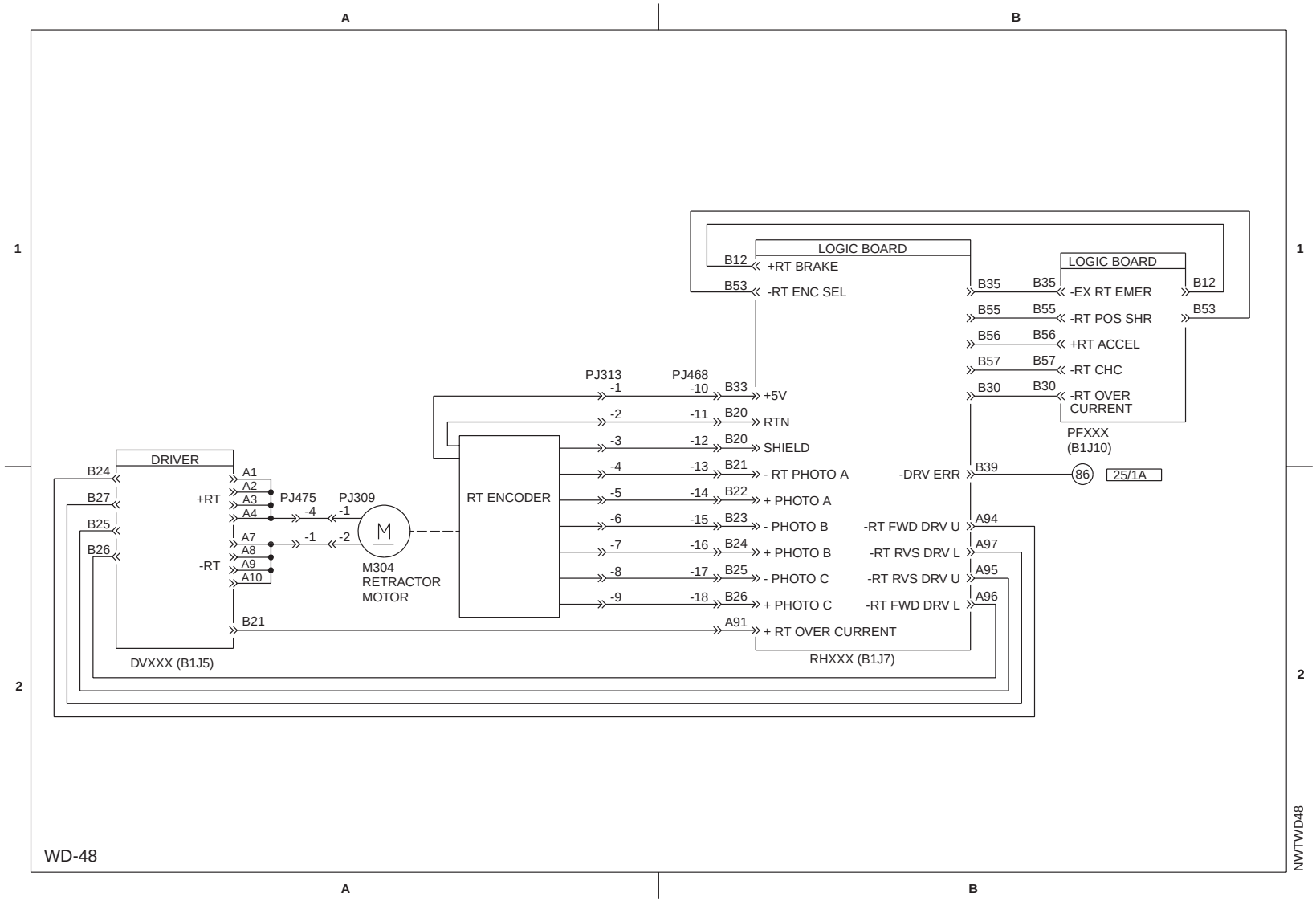
WD46.2 - Motor M202 / Sensor S202 (Switchable Printhead):



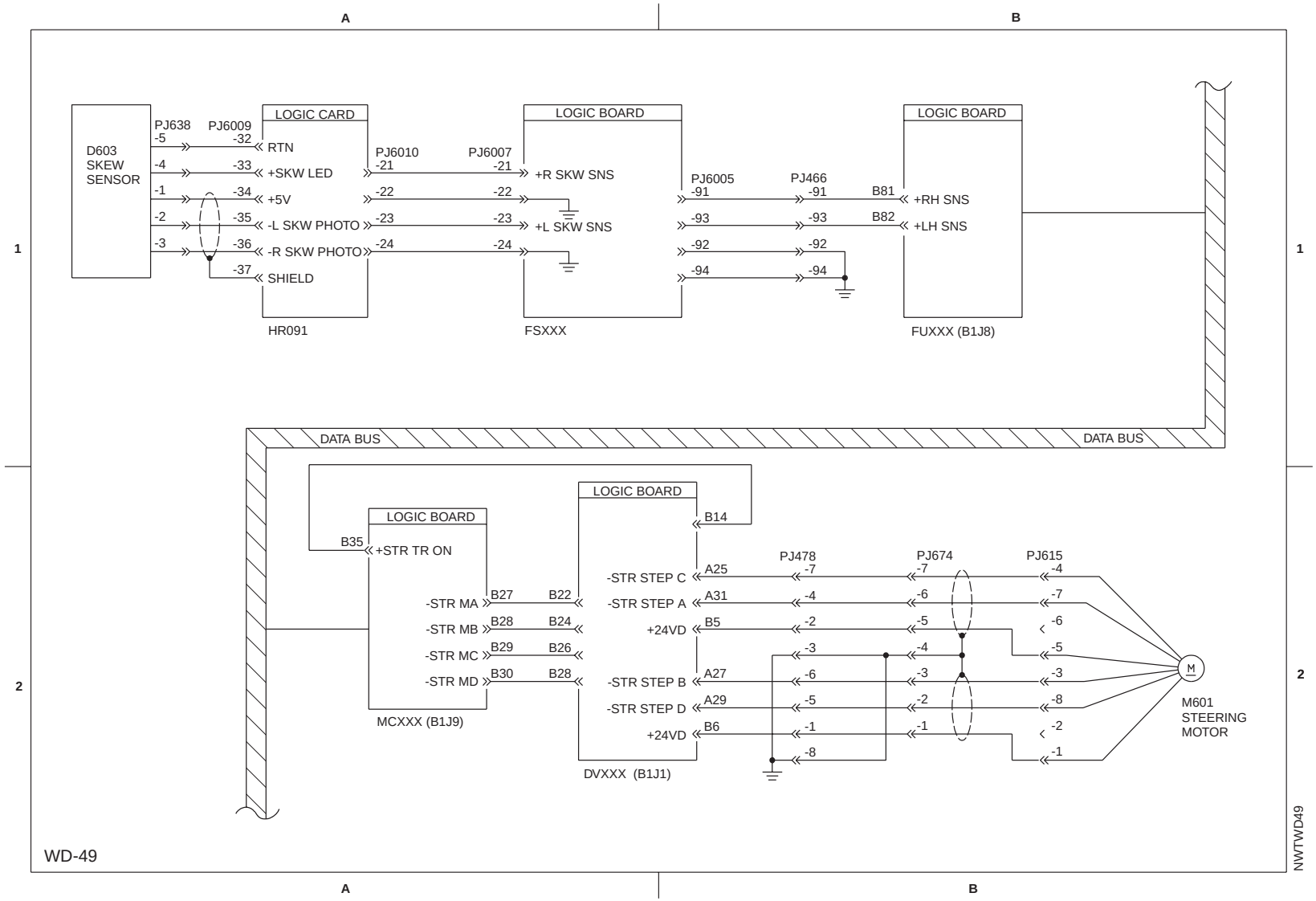
WD47 - Motor M303:



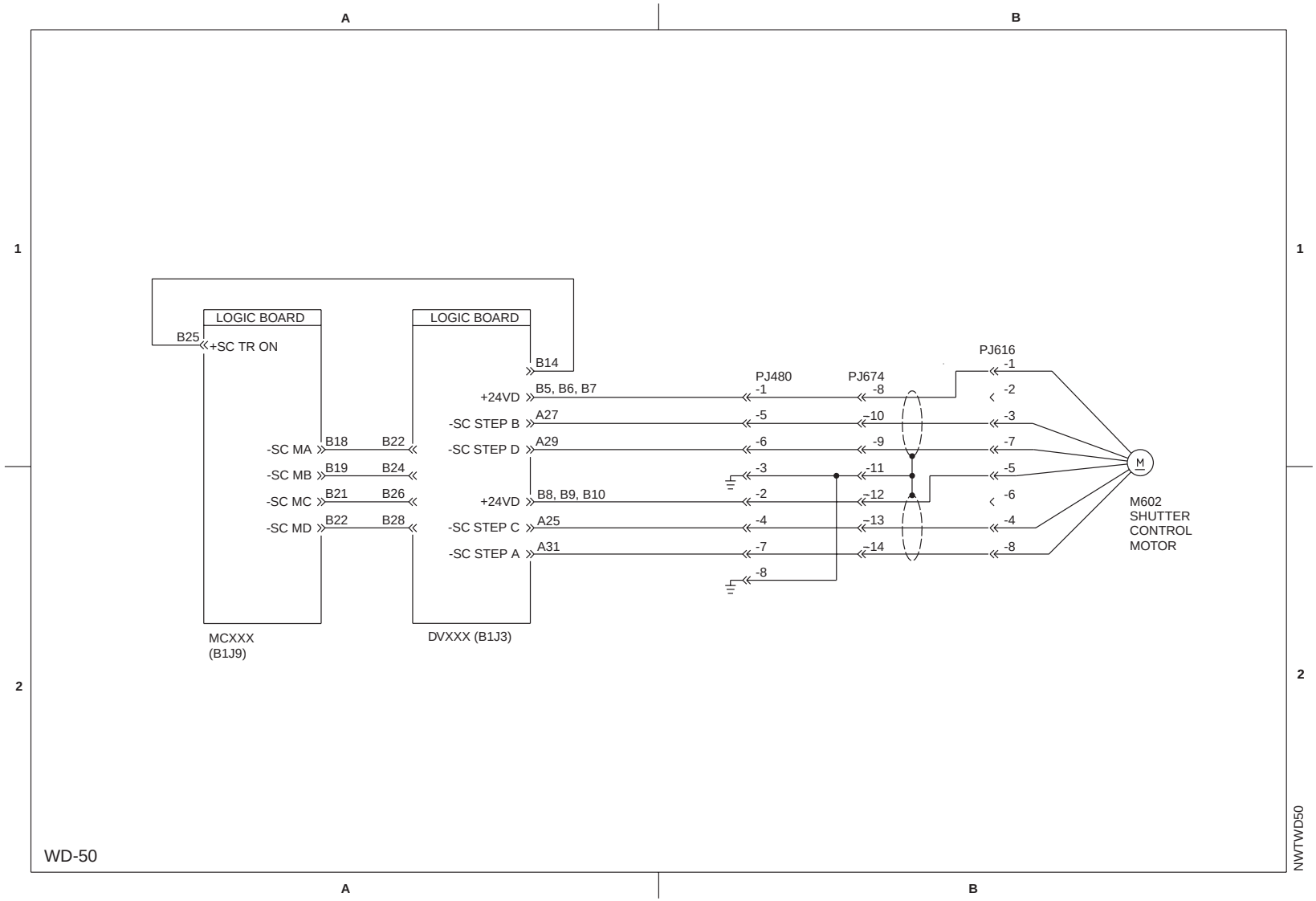
WD48 - Motor M304:



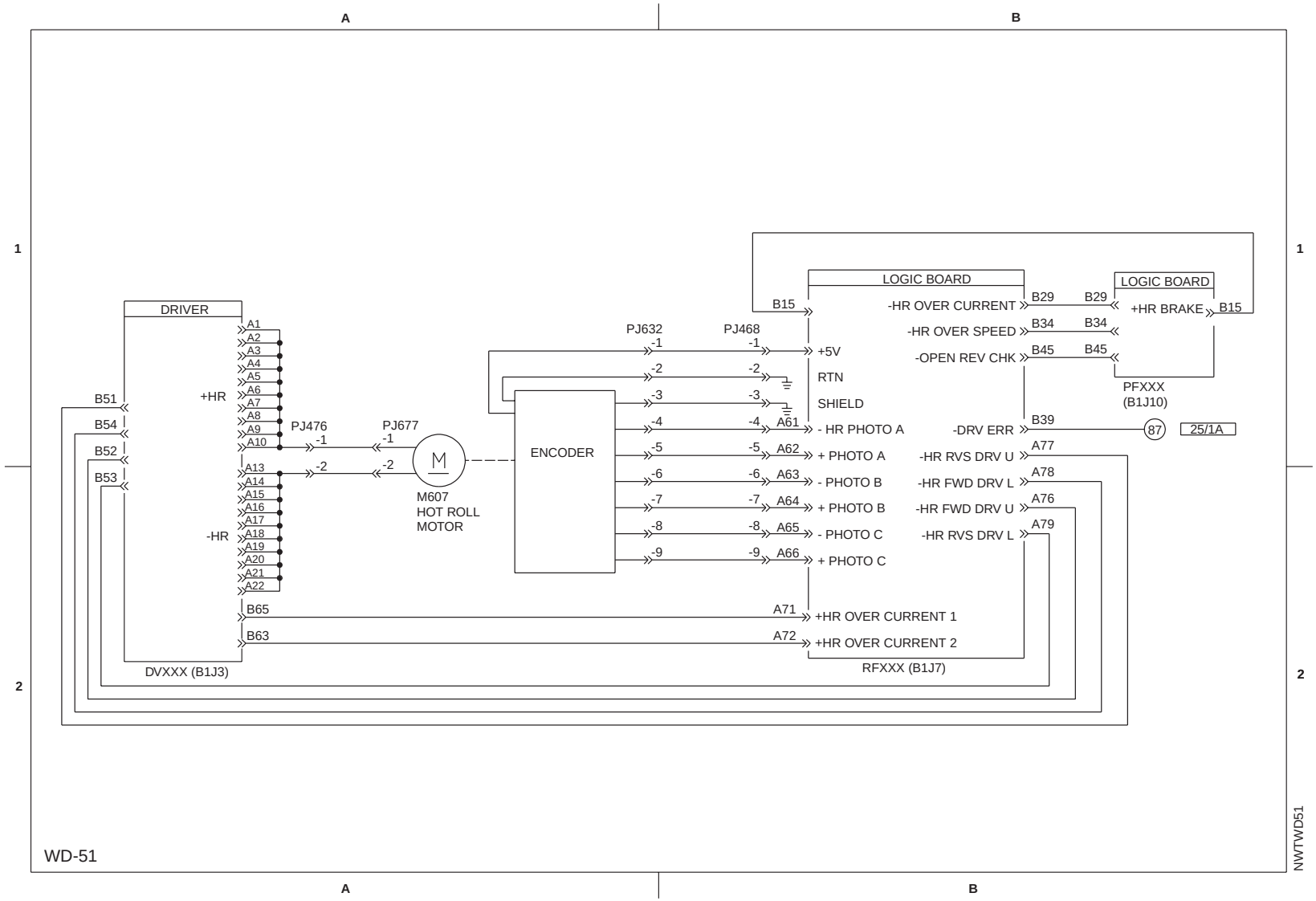
WD49 - Motor M601 and Skew Sensor:



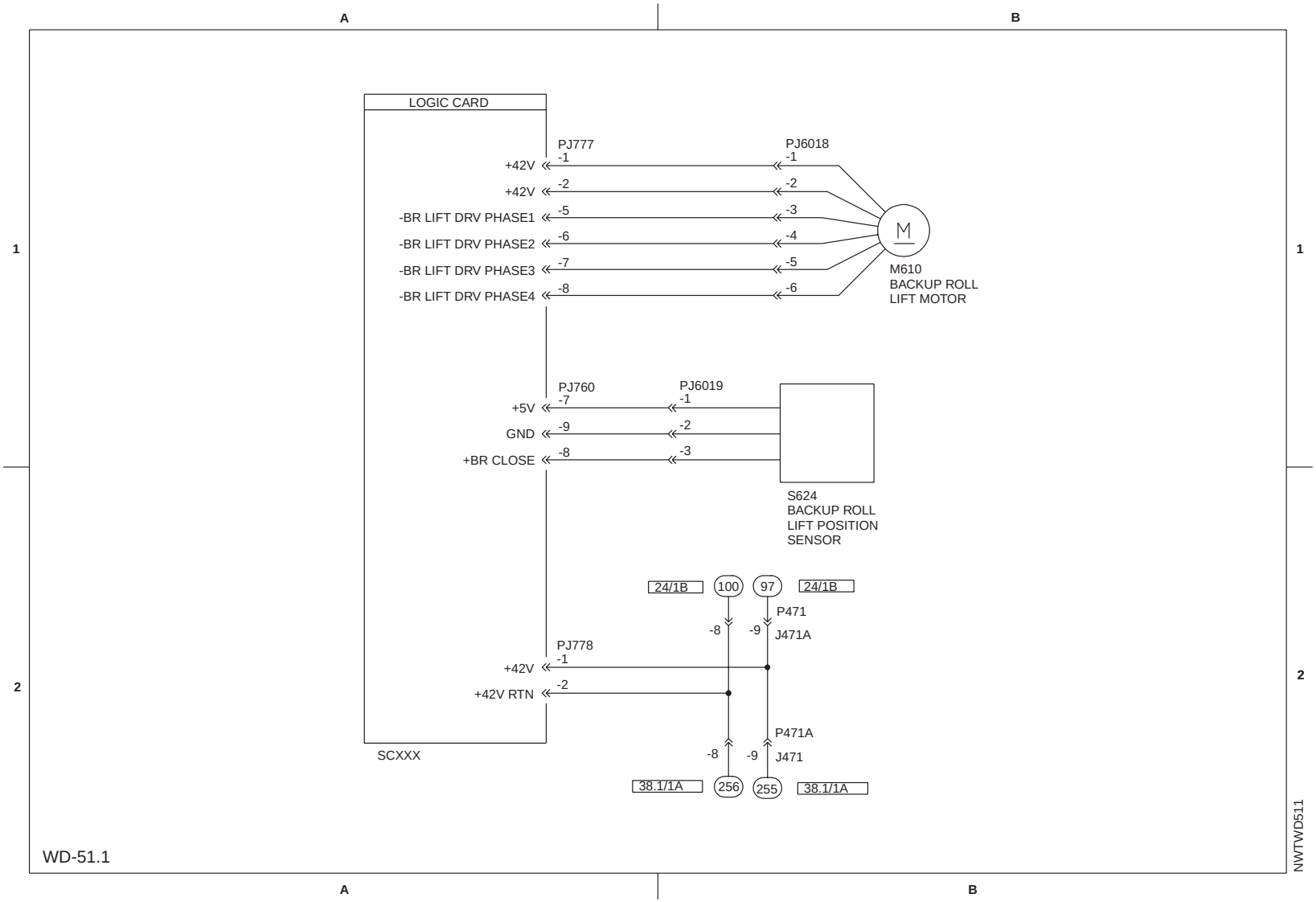
WD50 - Motor M602:



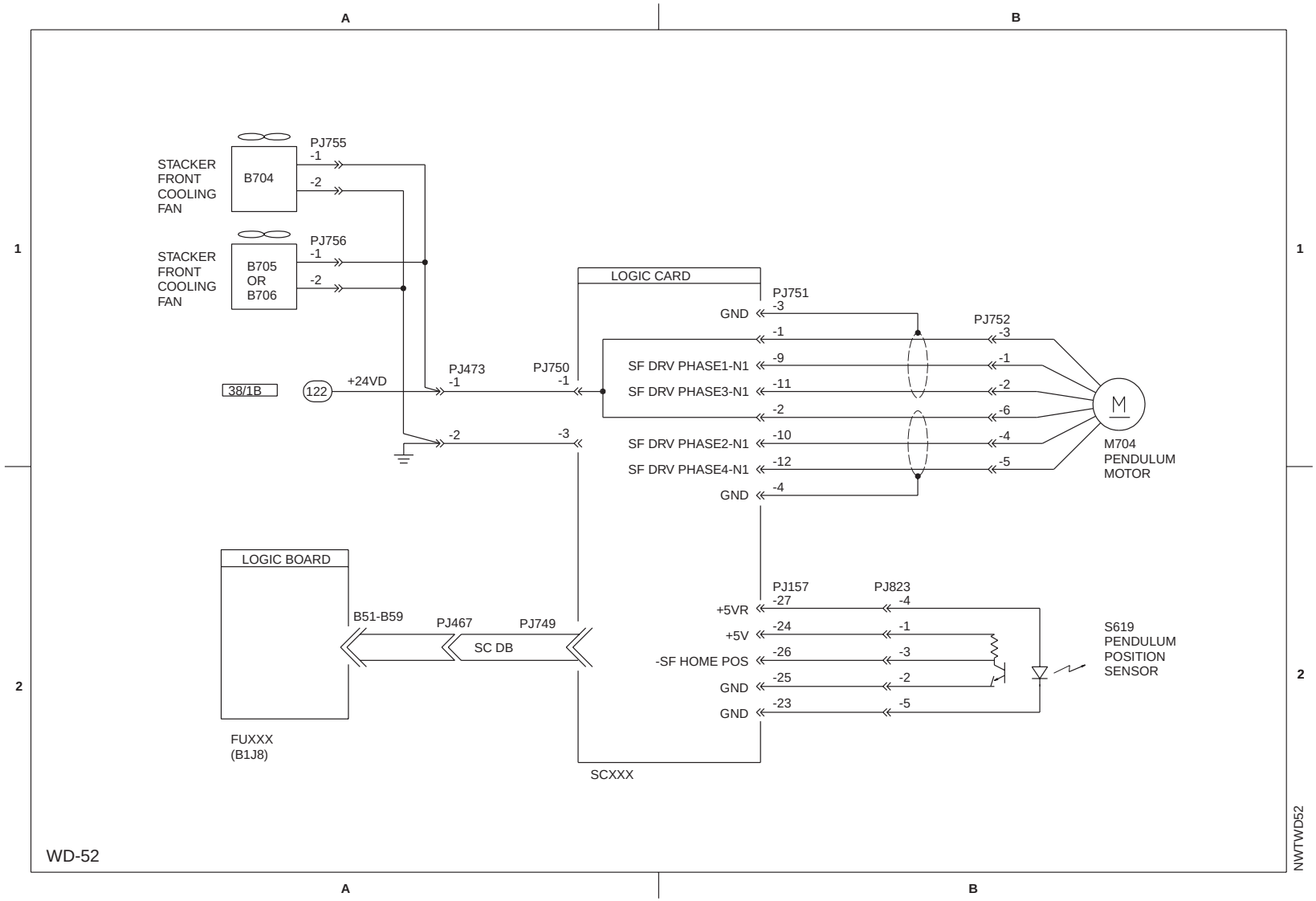
WD51 - Motor M607:



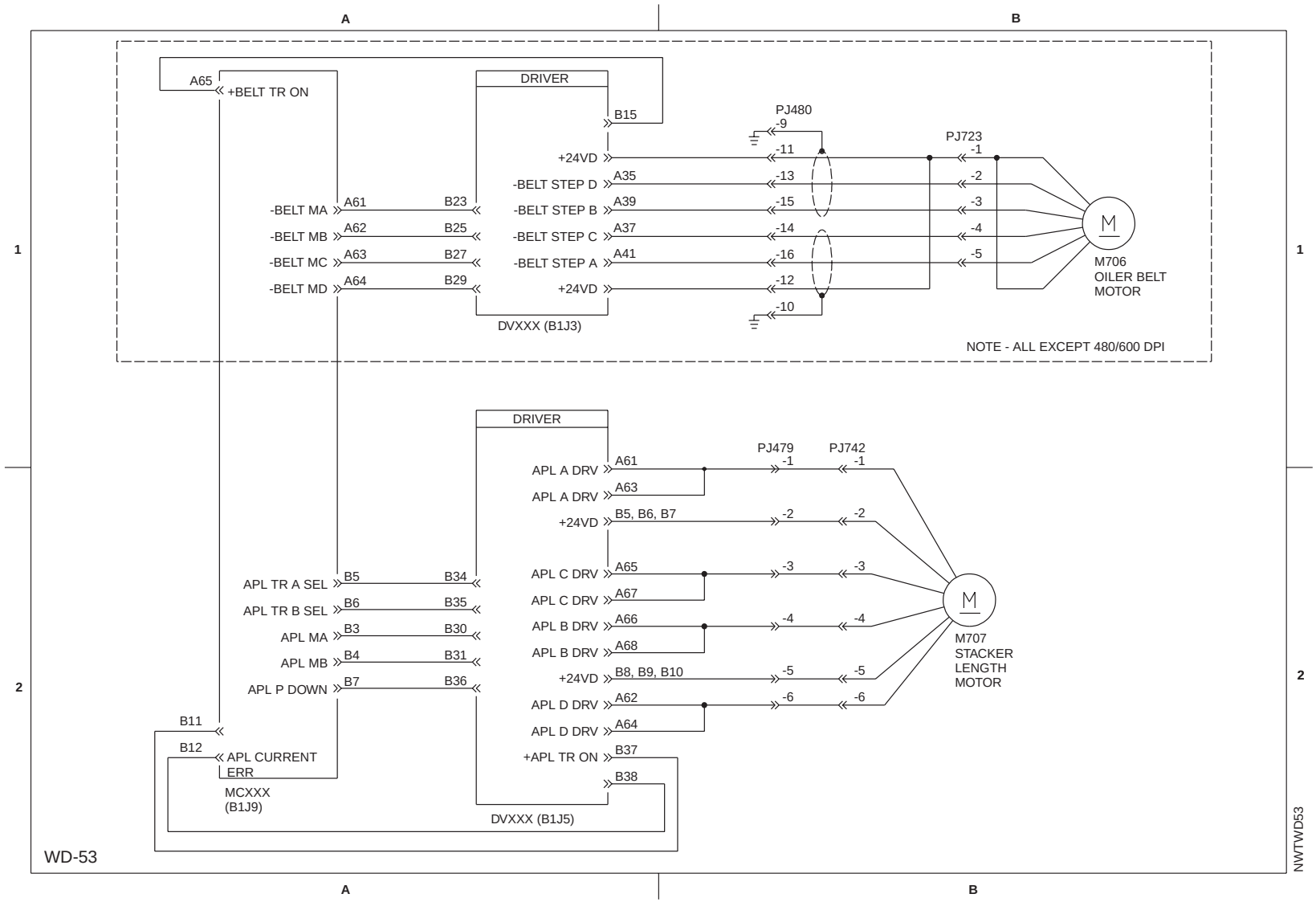
WD51.1 - Motor M610:



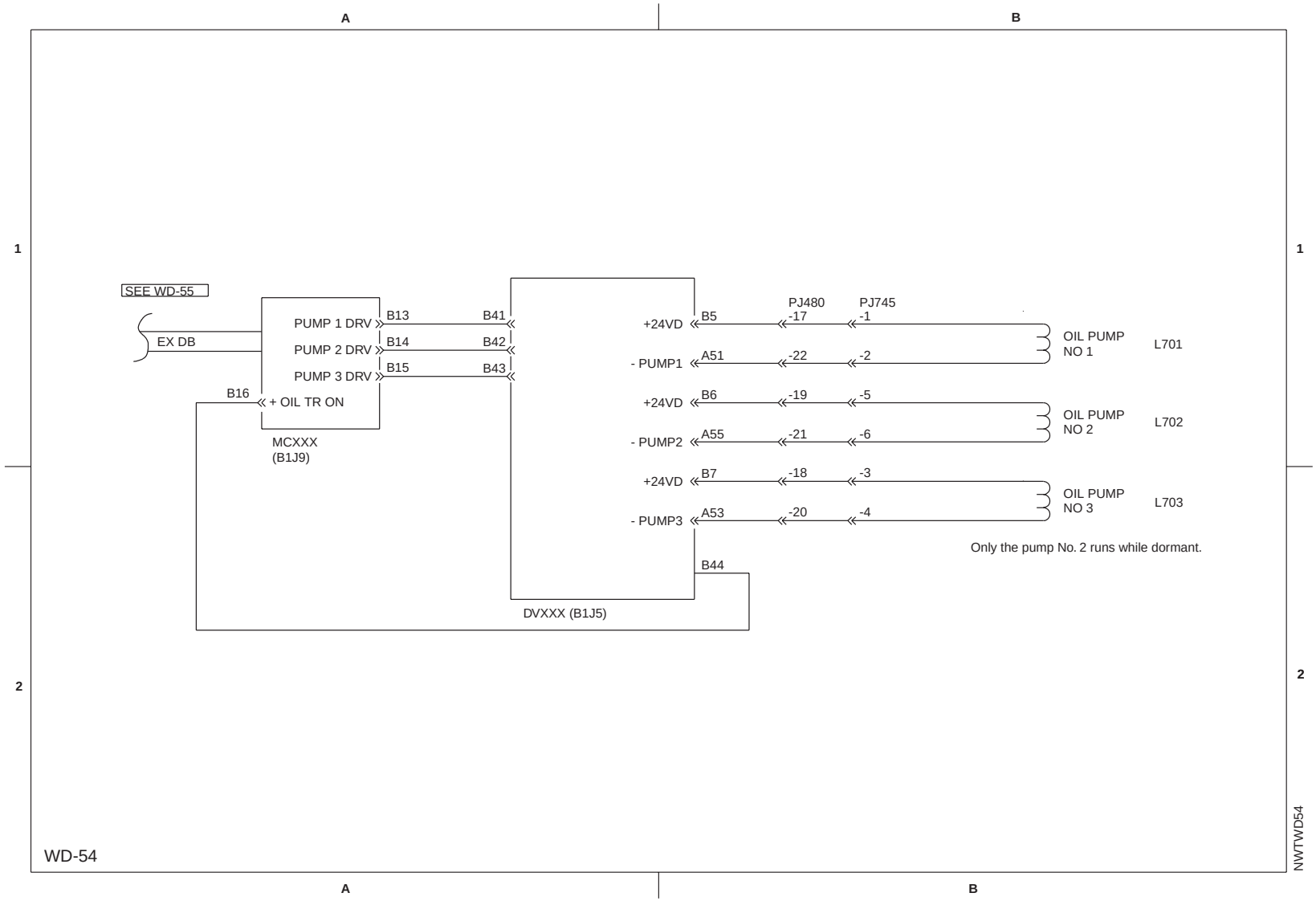
WD52 - Motor M704:



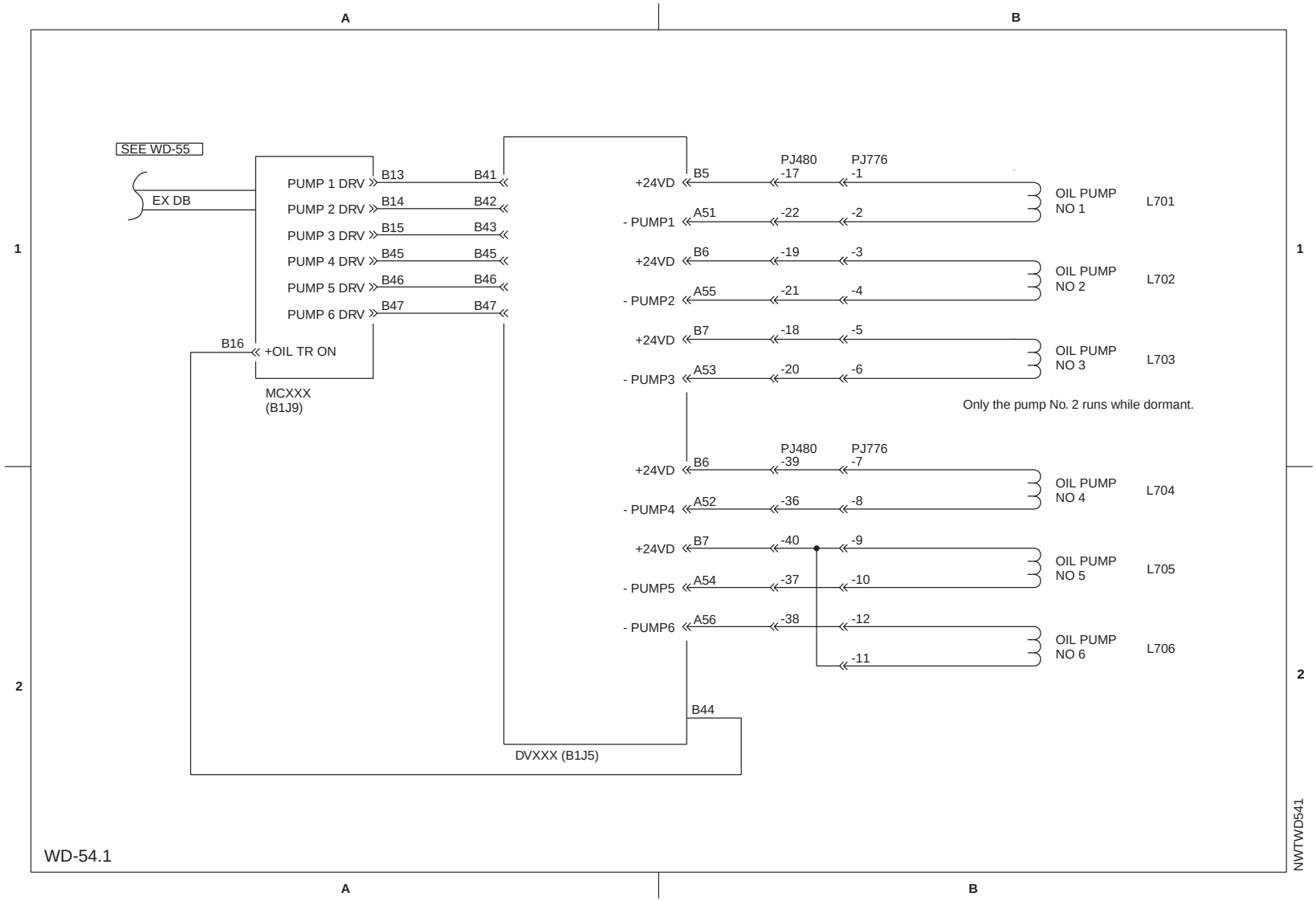
WD53 - Motors M706 and M707:



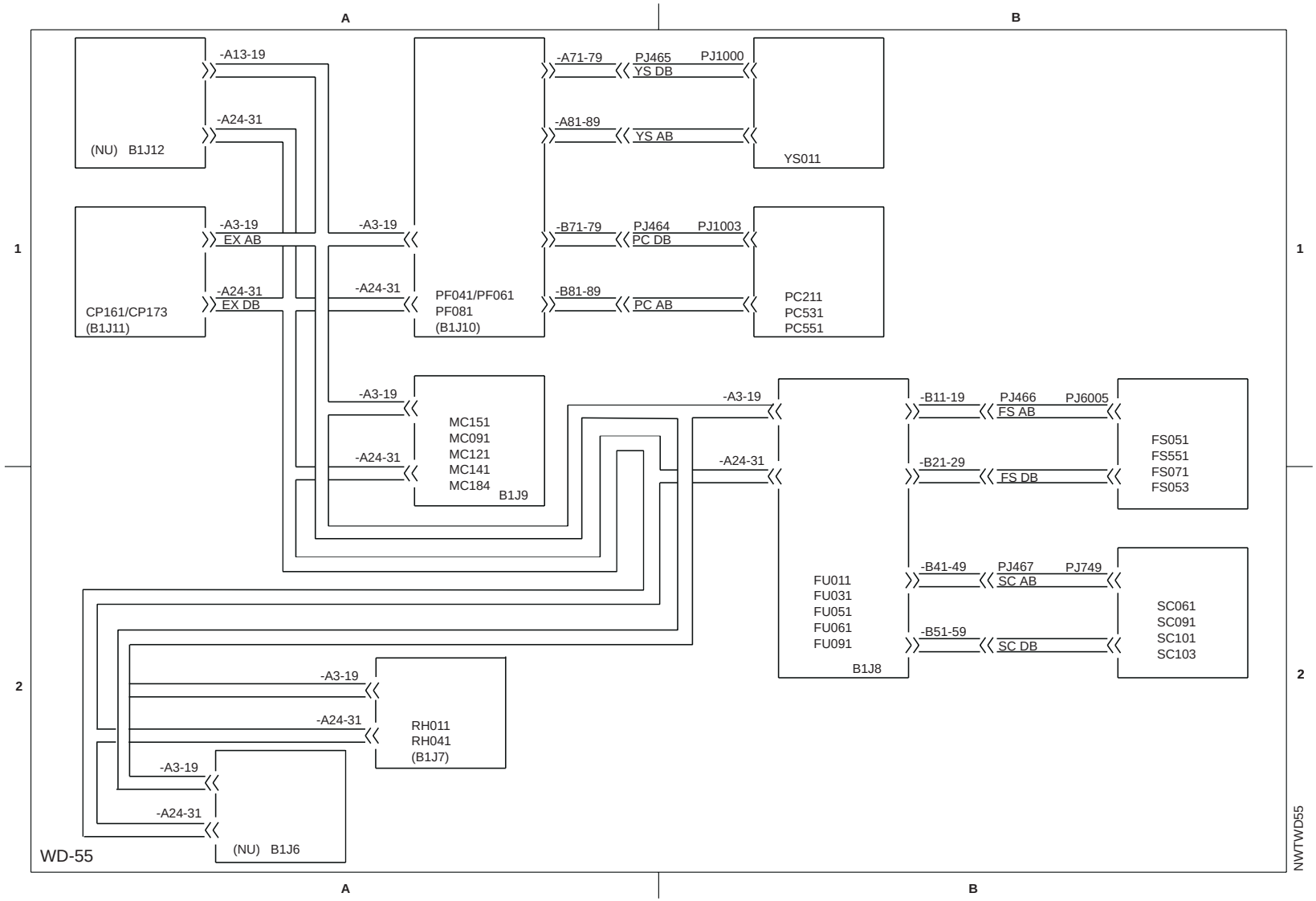
WD54 - Oil Pumps L701, L702 & L703:



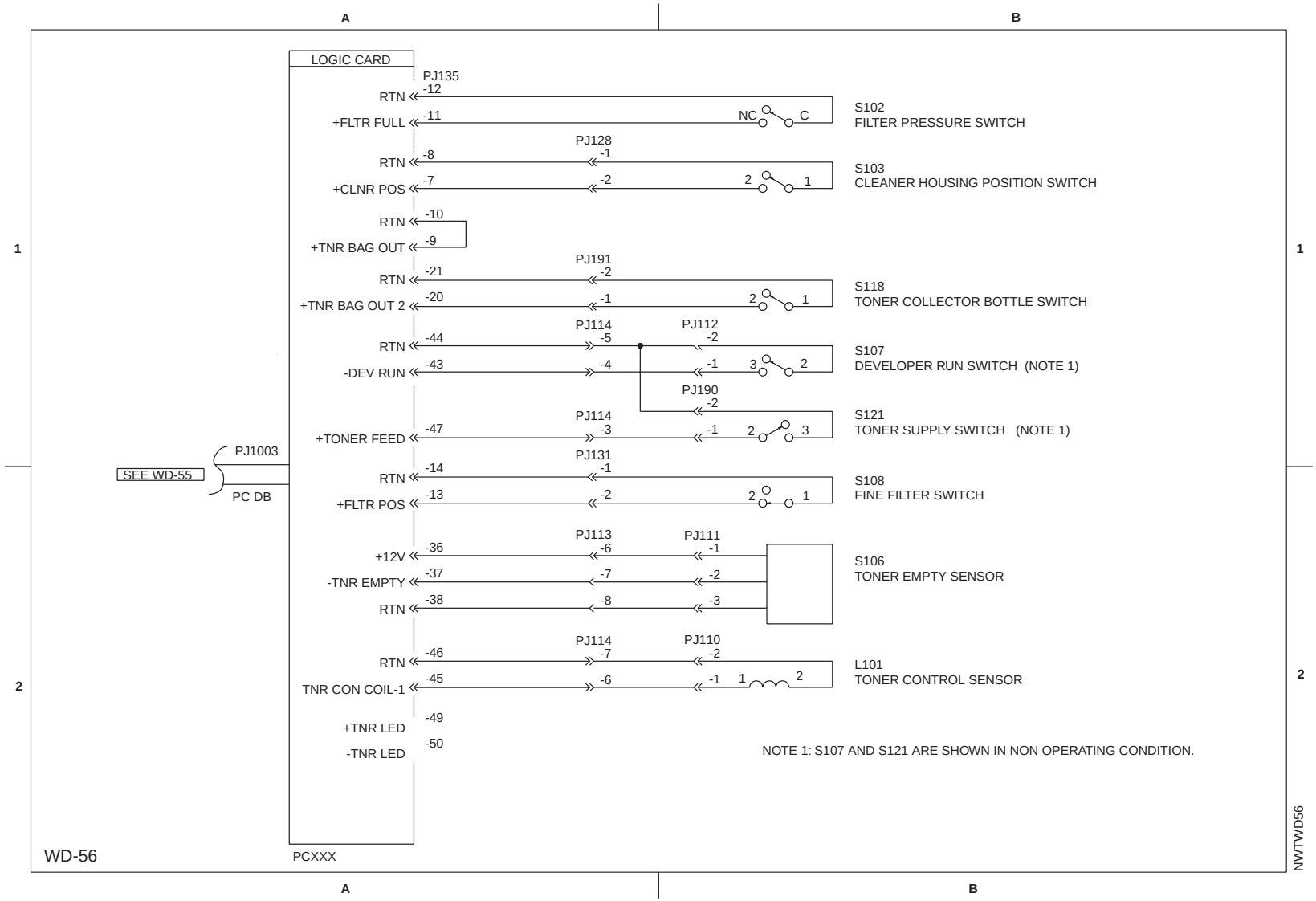
WD54.1 - Oil Pumps L701, L702, L703, L704, L705, & L706:



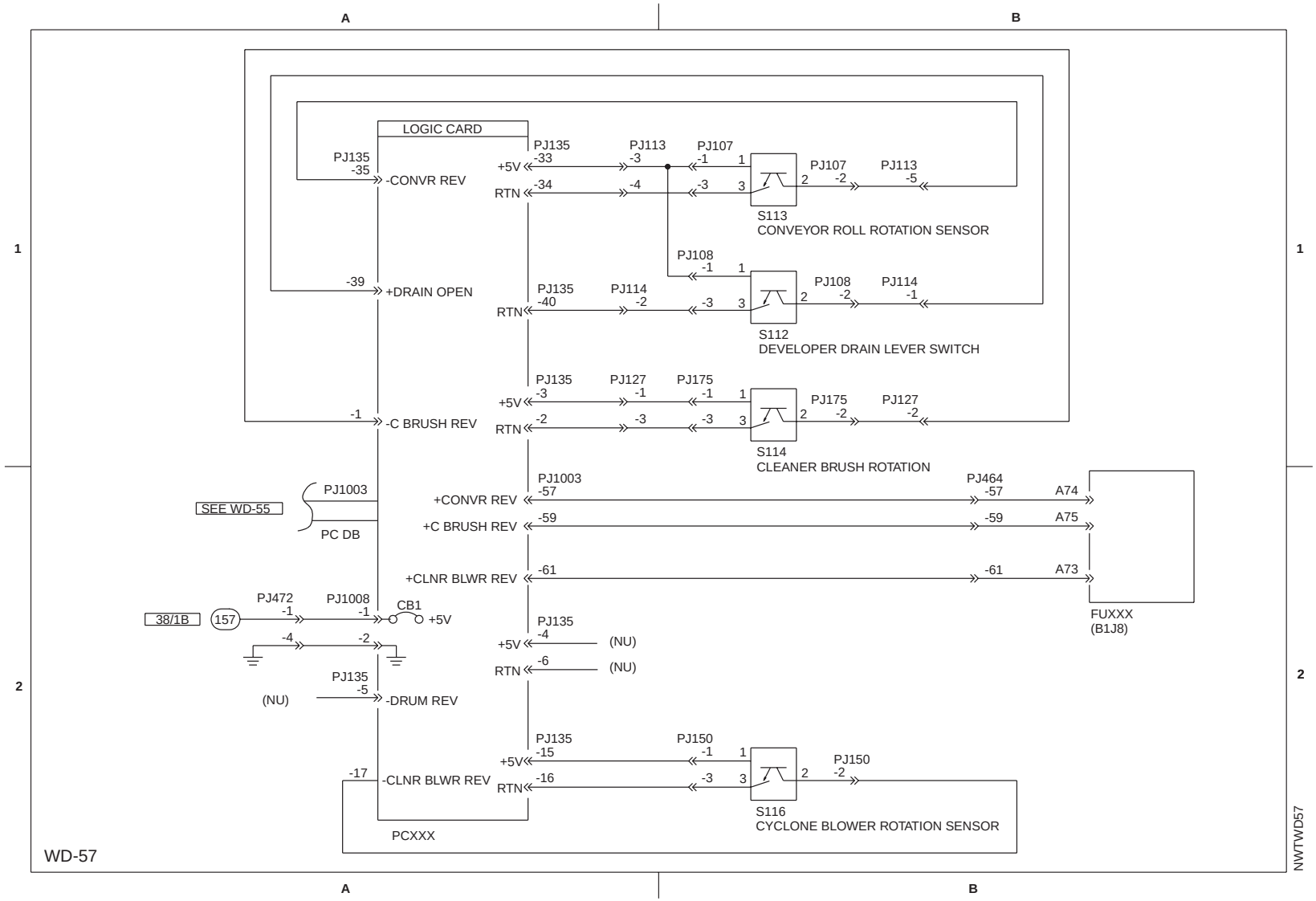
WD55 - Address/Data Bus Networks:



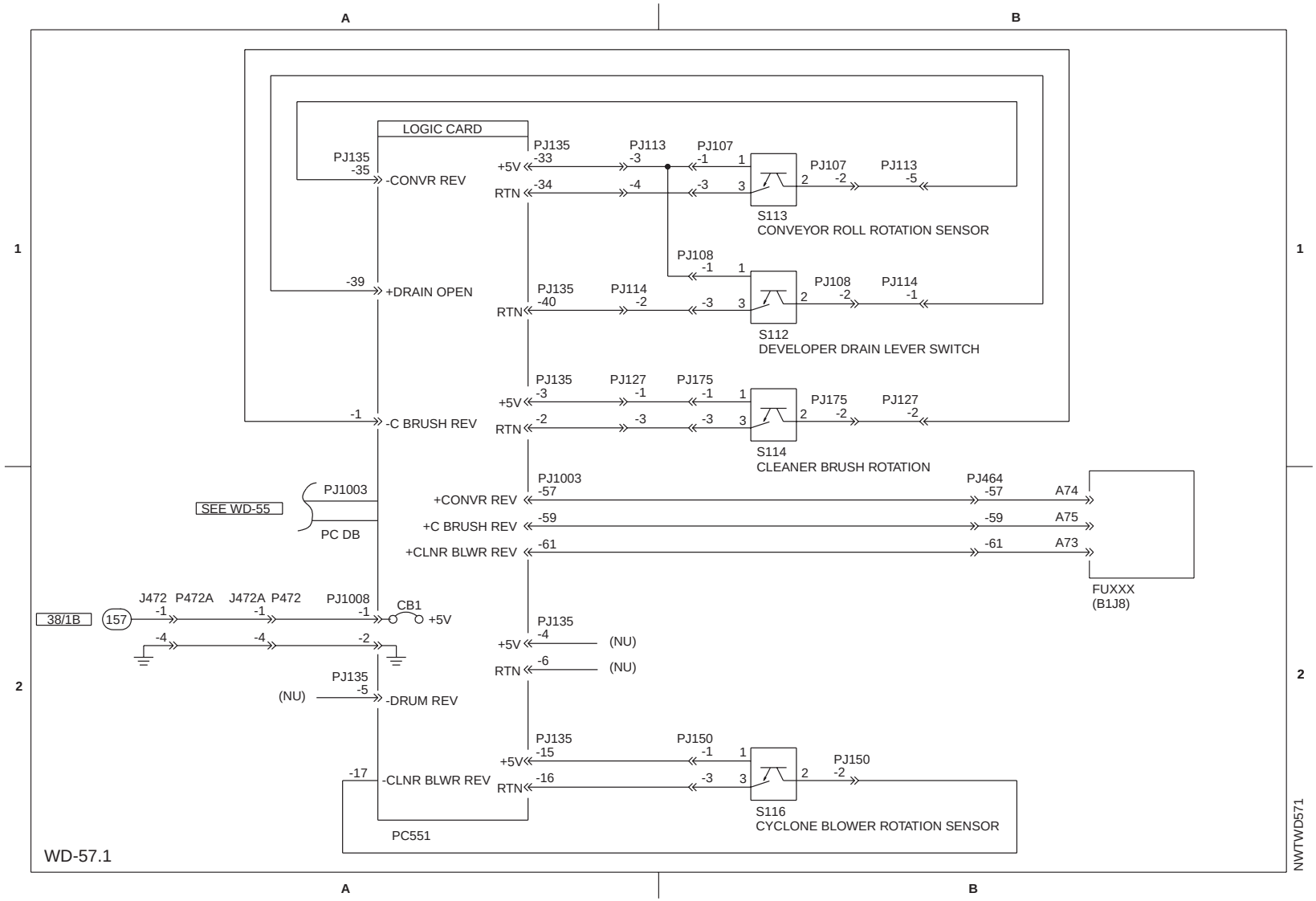
WD56 - Process Sensors and Switches (PC211, PC531, & PC551 cards):



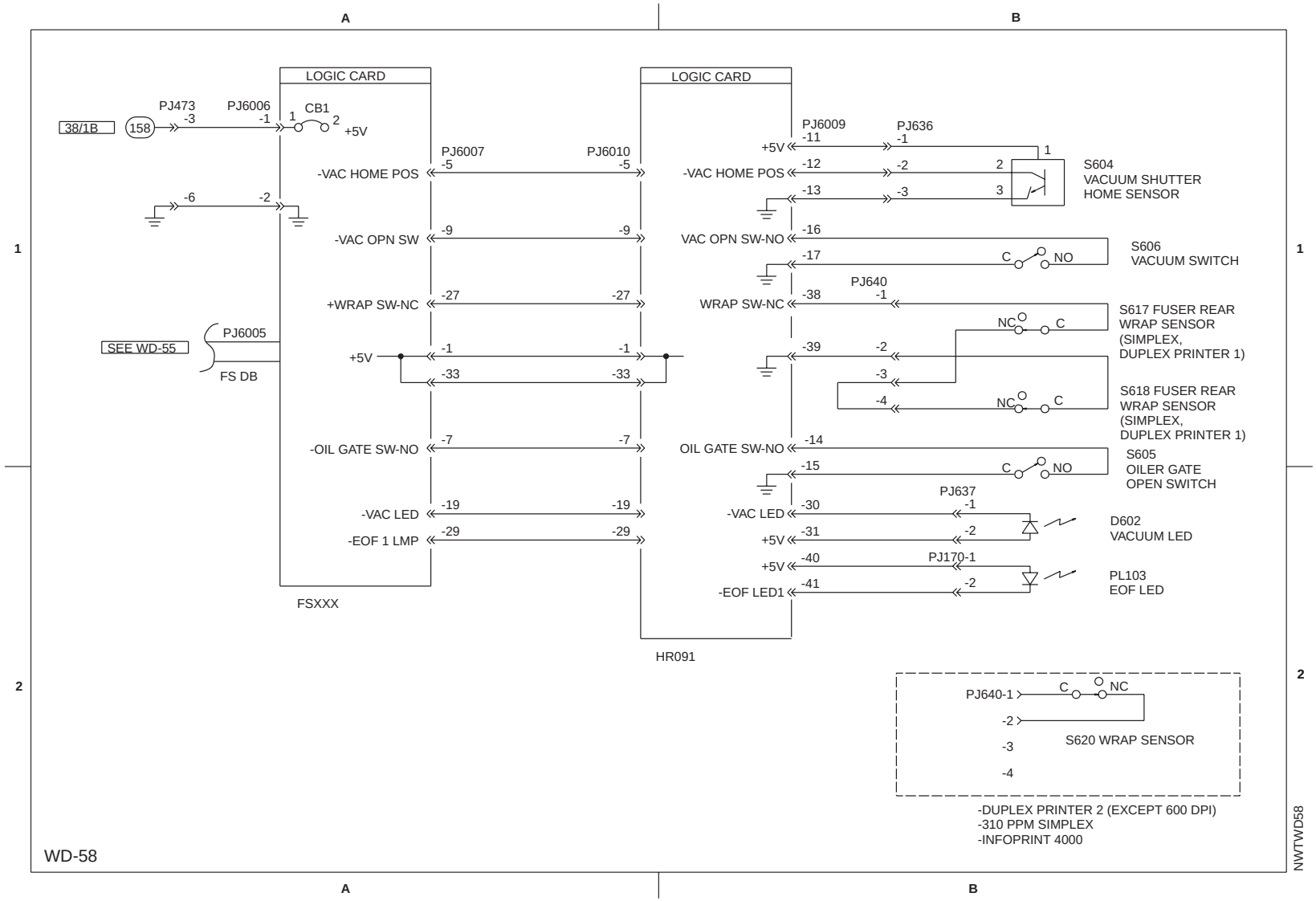
WD57- Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Fixed Resolution Printhead):



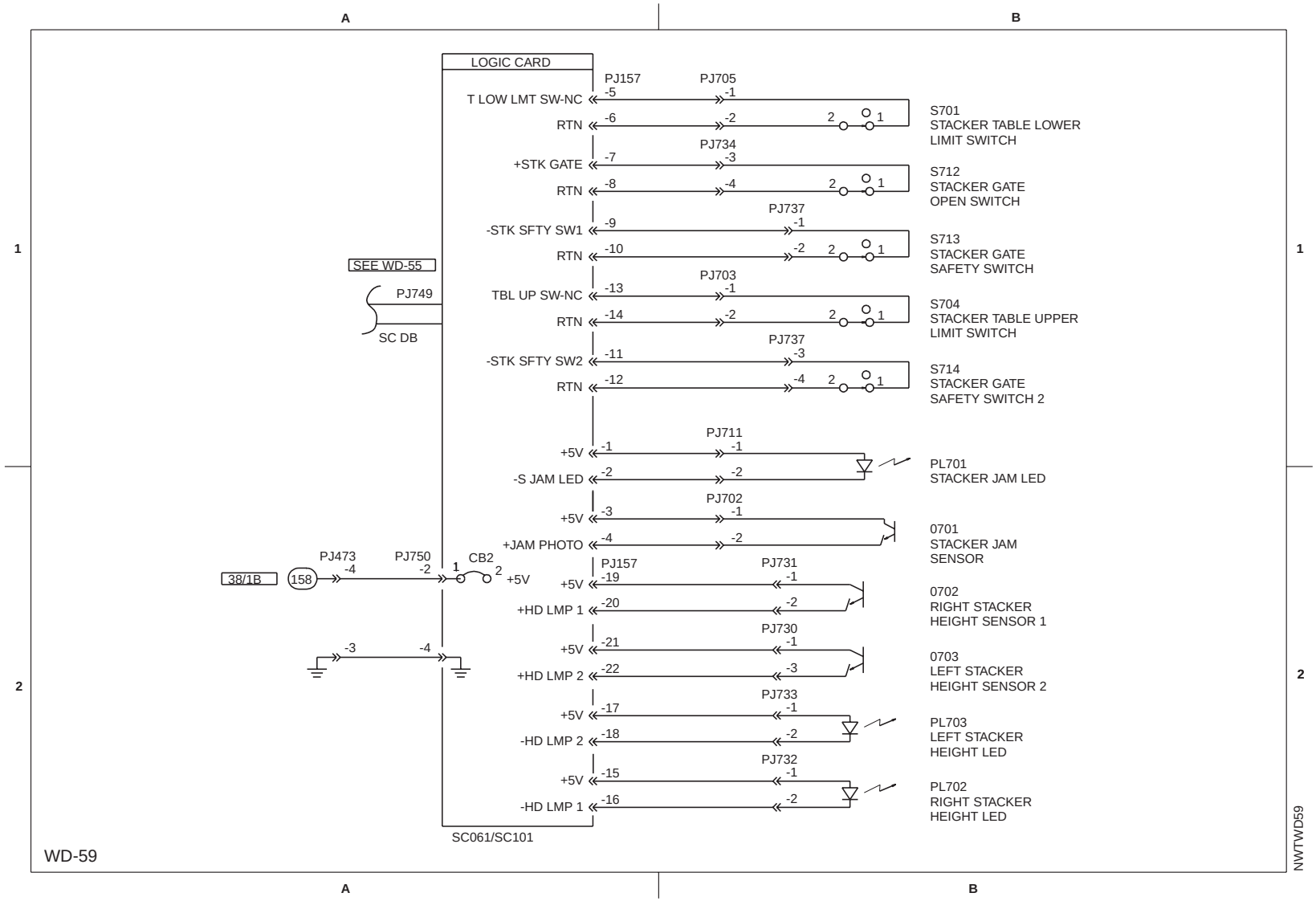
WD57.1 - Process Sensors (S112, S113, S114, & S116) (PCxxx card) (Switchable Resolution Printhead):



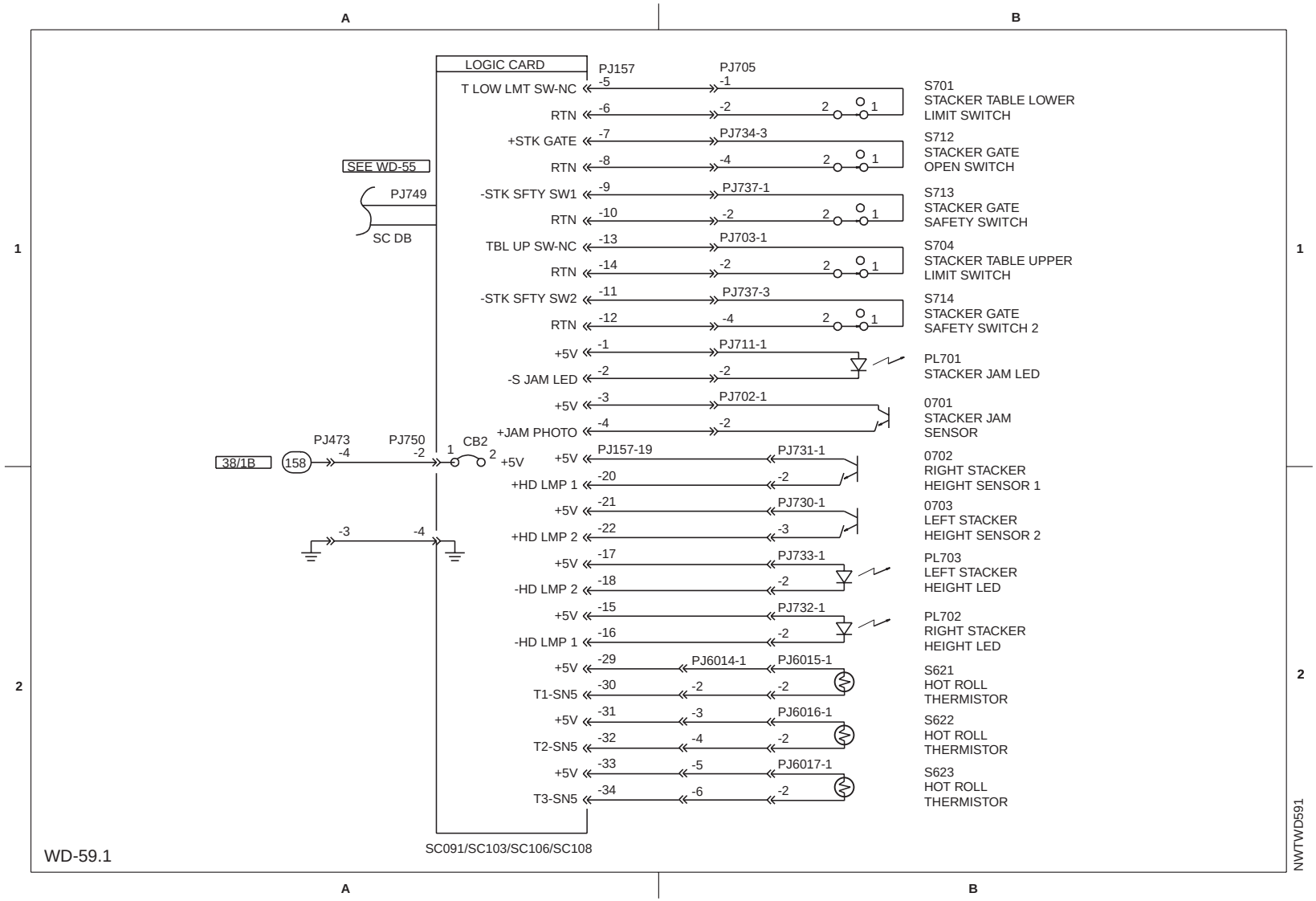
WD58 - Fuser and Stacker Sensors (FSxxx & HR091):



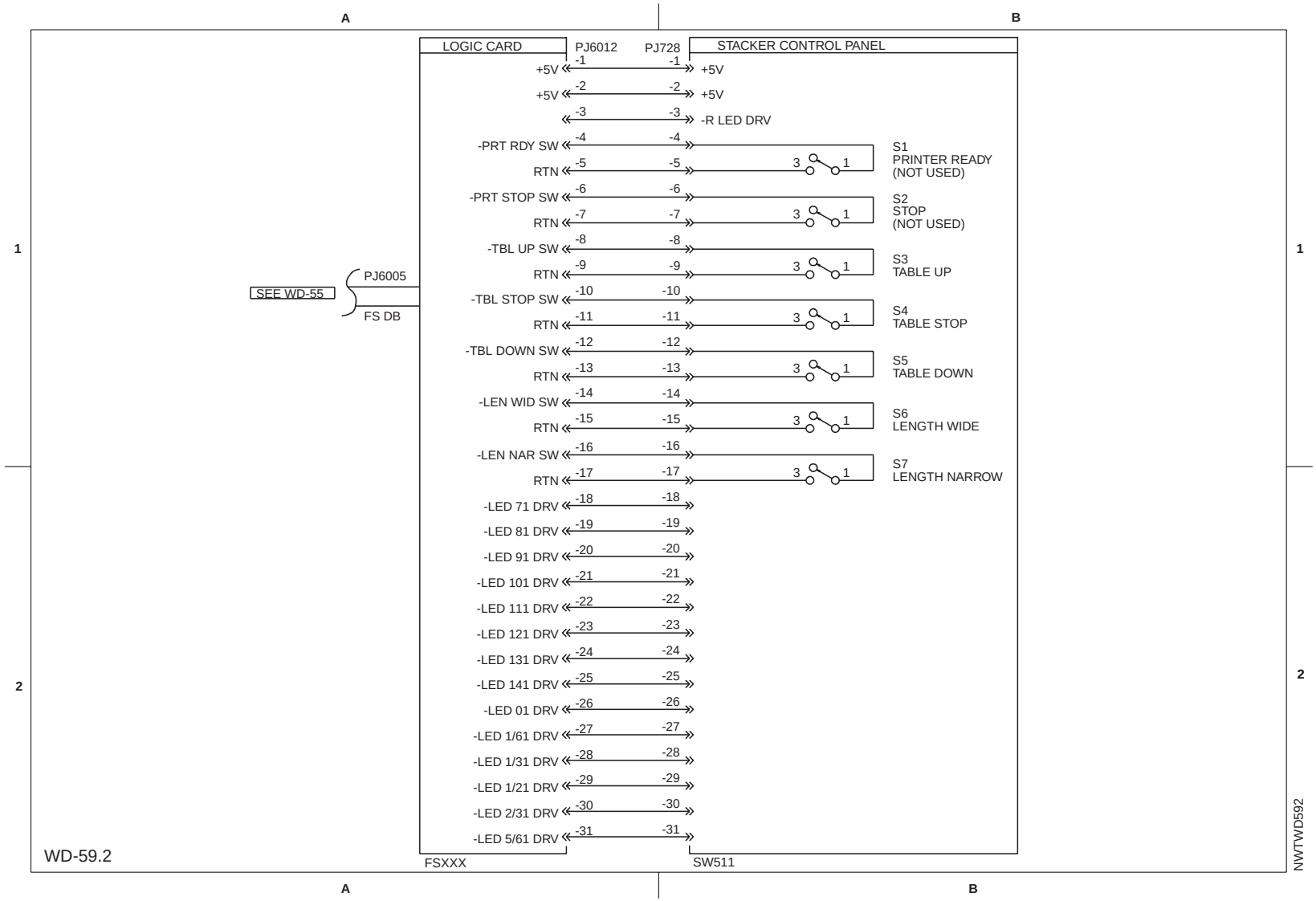
WD59 - Stacker Sensors and EOF Lamps (SC061 & SC101):



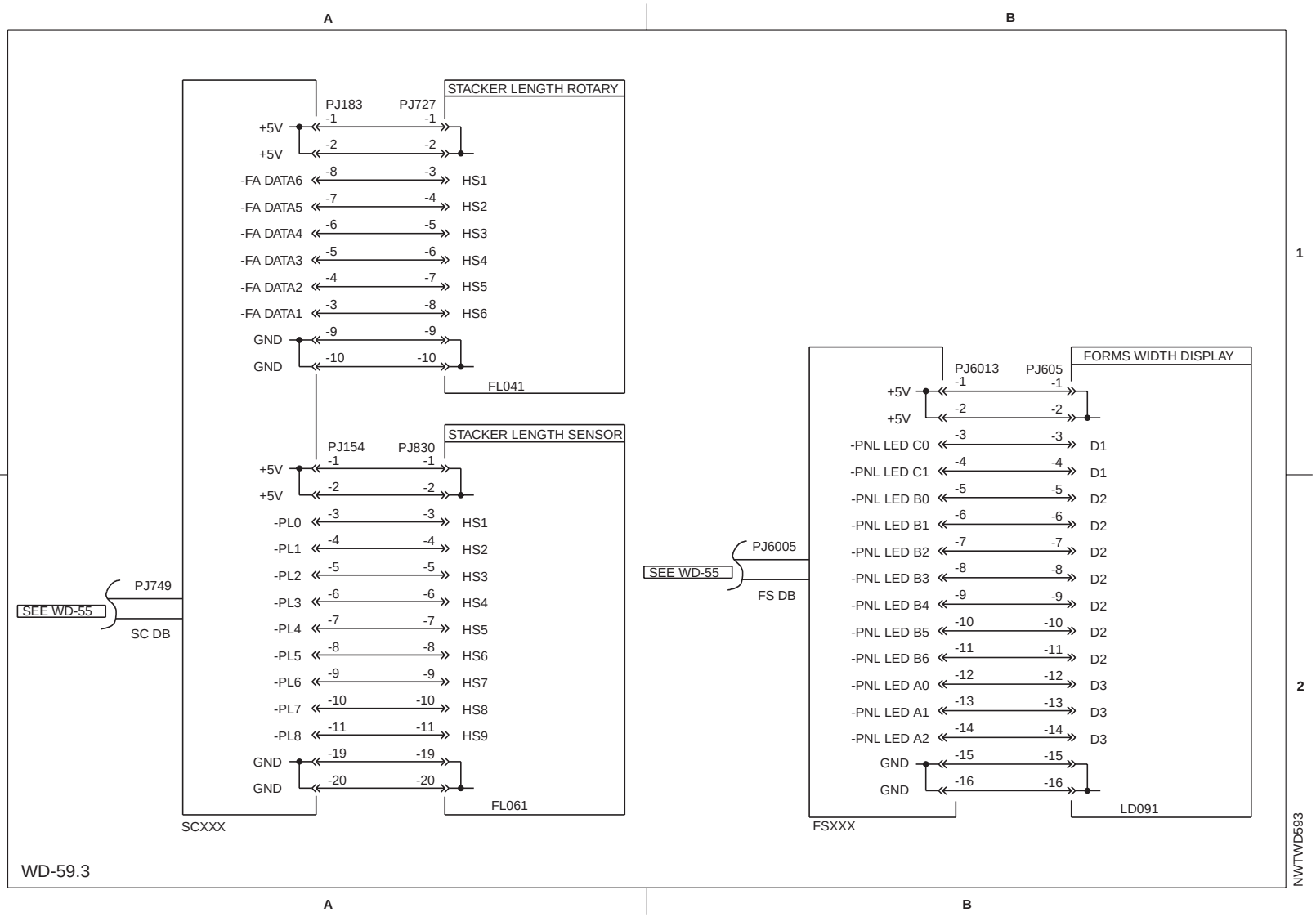
WD59.1 - Stacker Sensors and EOF Lamps (SC091, SC103, SC106, & SC108 Card):



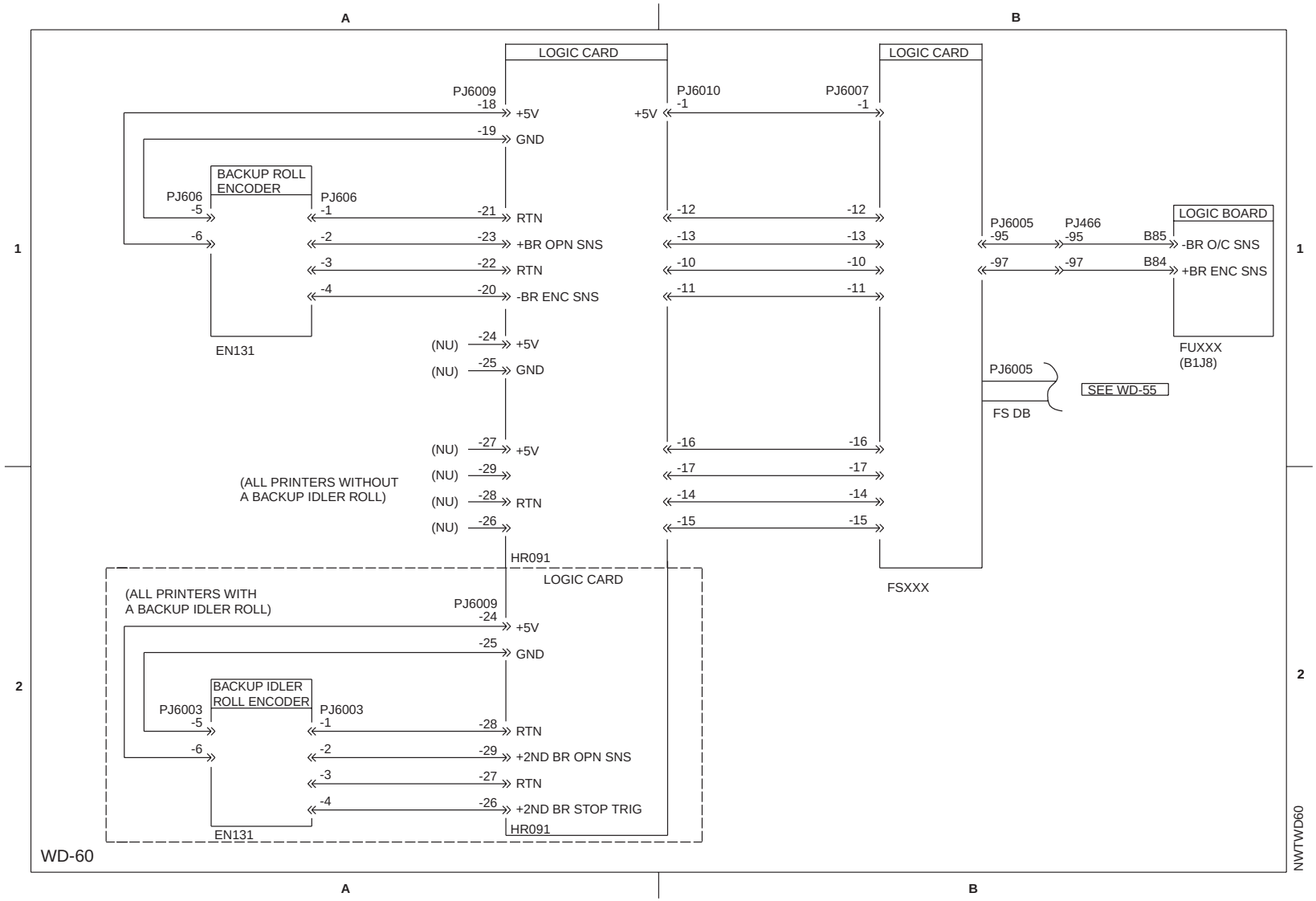
WD59.2 - Stacker Switch Panel (SW511 & FSxxx Card):



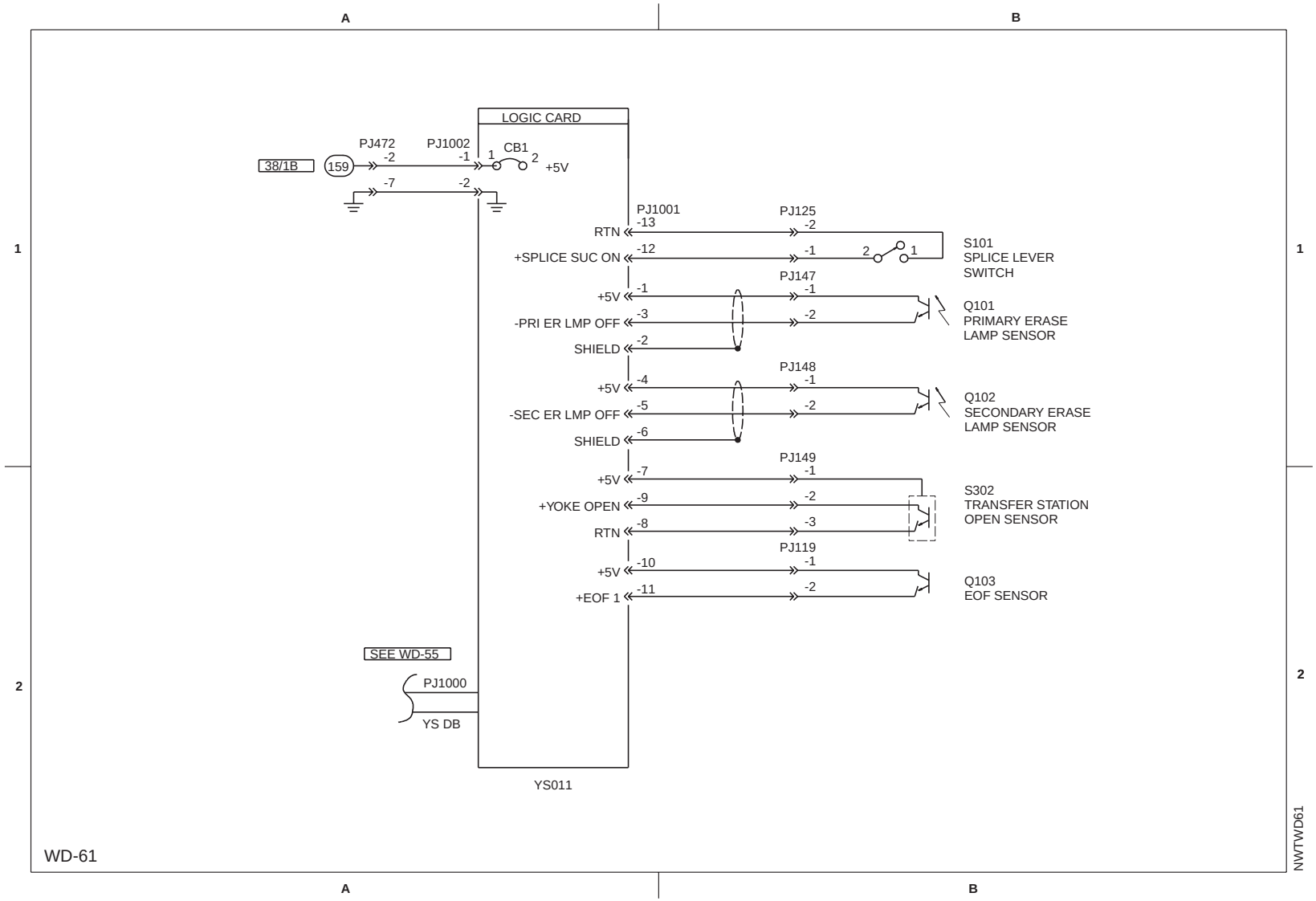
WD59.3 - Stacker Switch Panel (Forms Length & Width Cards):



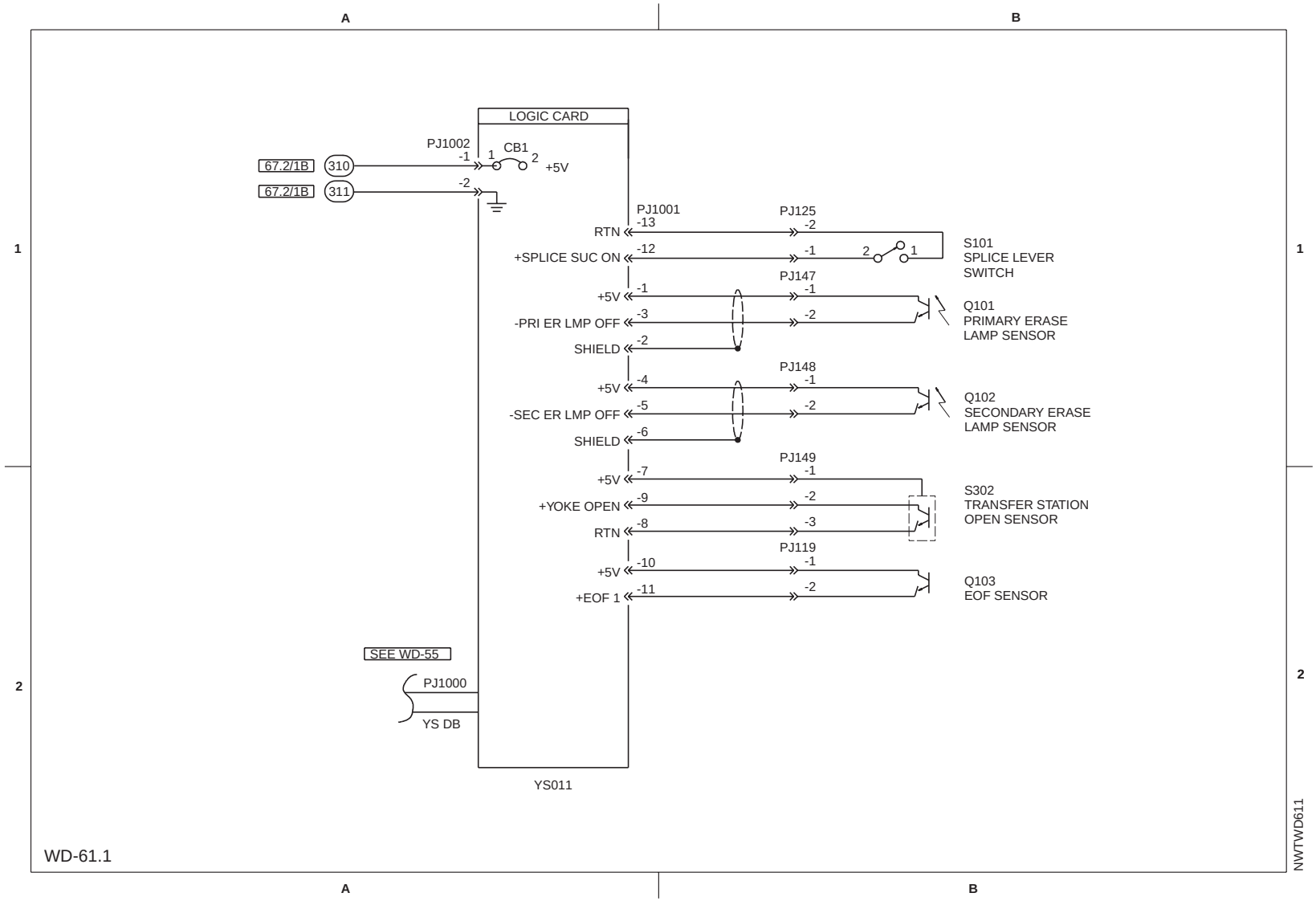
WD60 - Backup Roll and Backup Idler Roll Encoders (HR091 & FSxxx Cards):



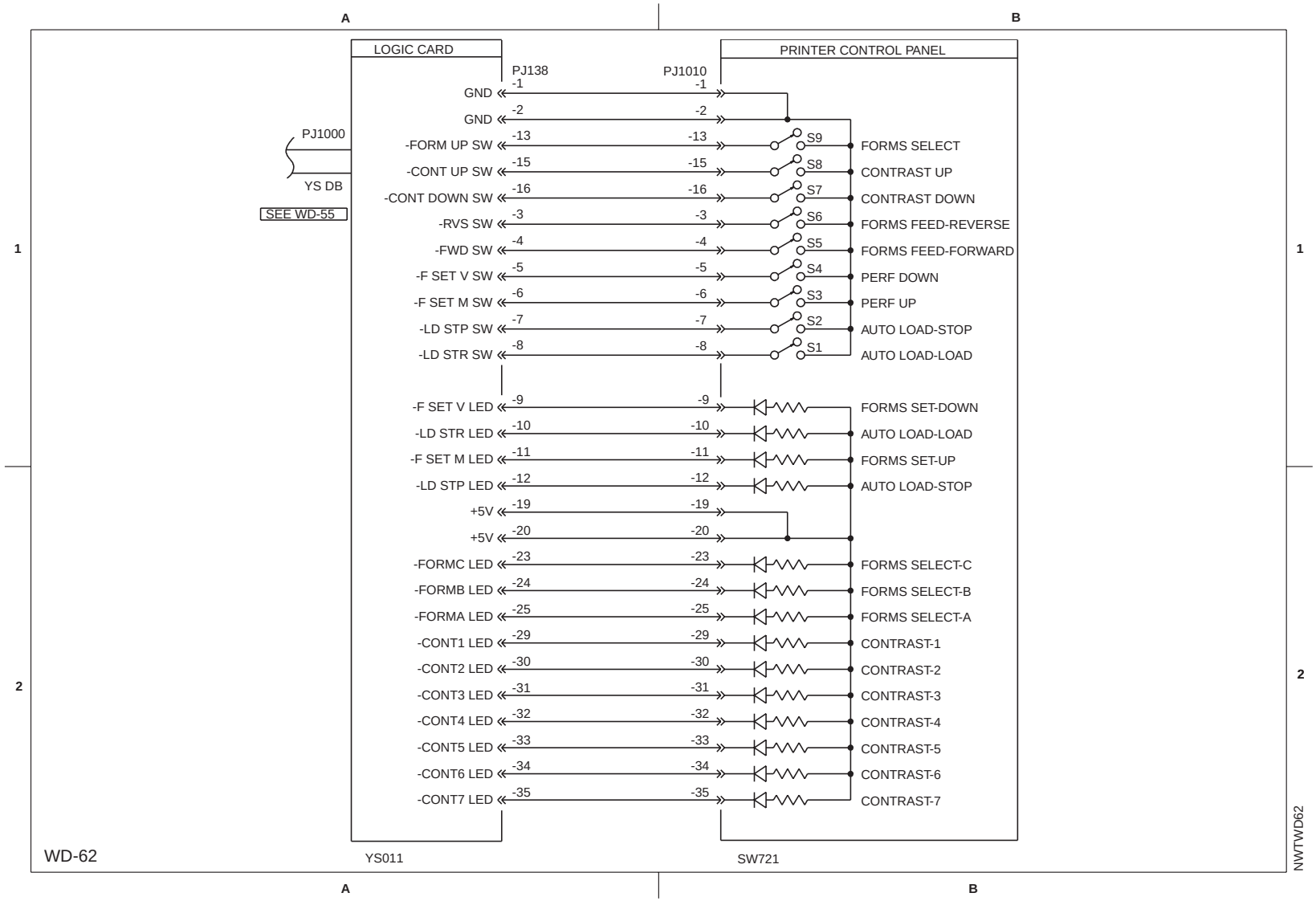
WD61 - Switches and Sensors (YS011 Card) (Fixed Resolution Printhead):



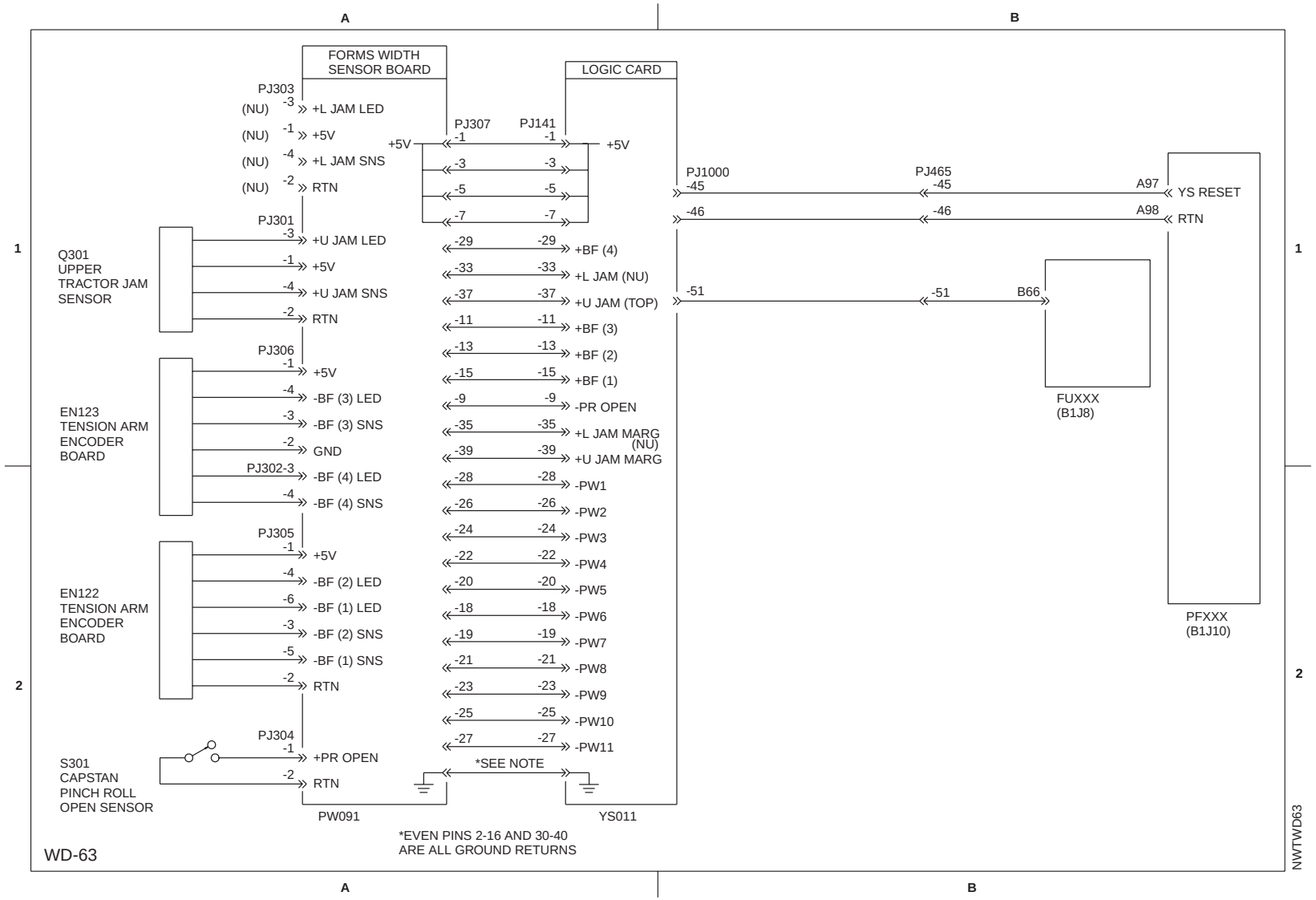
WD61.1 - Switches and Sensors (YS011 Card) (Switchable Resolution Printhead):



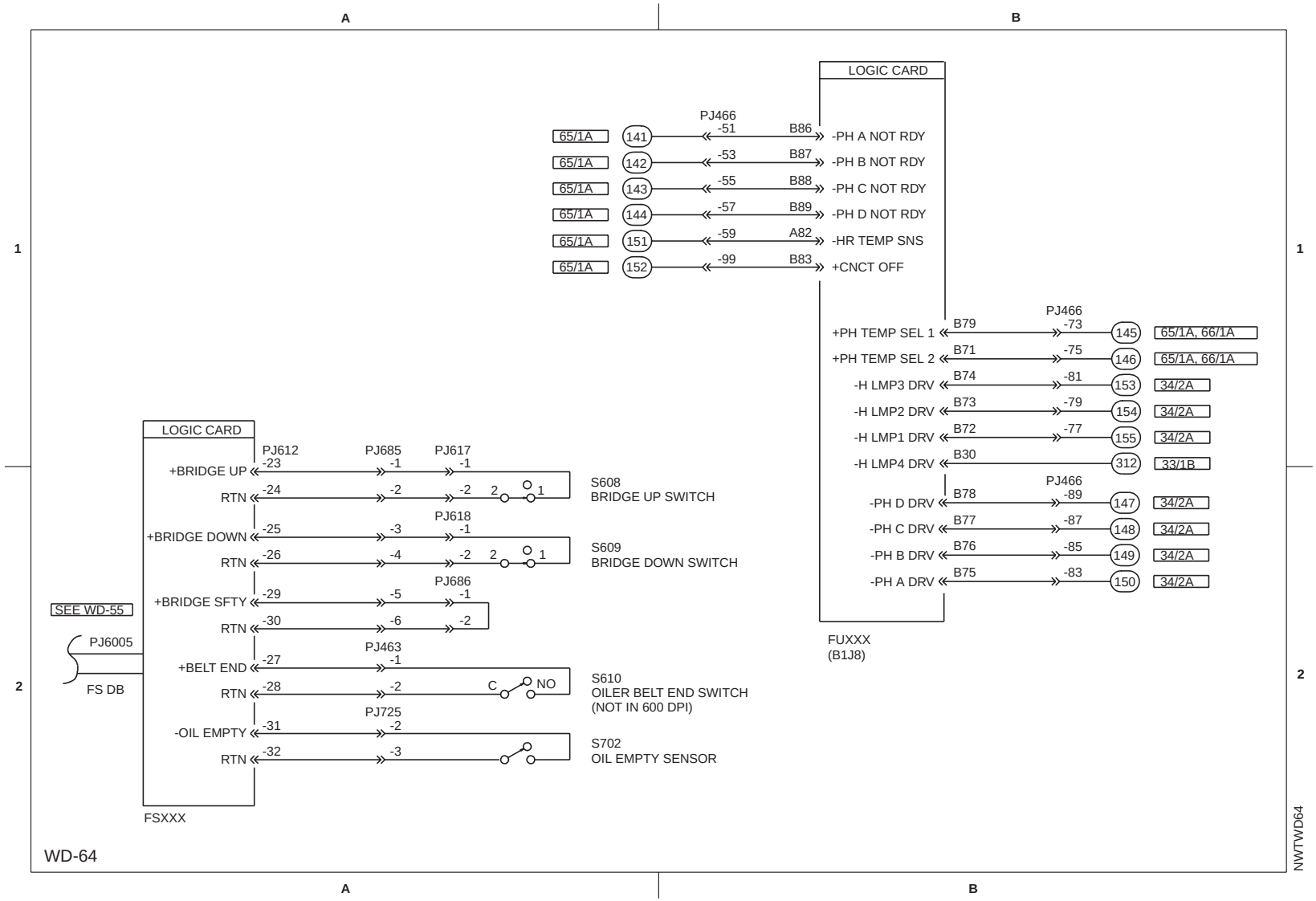
WD62 - Switches and Sensors (YS011 Card):



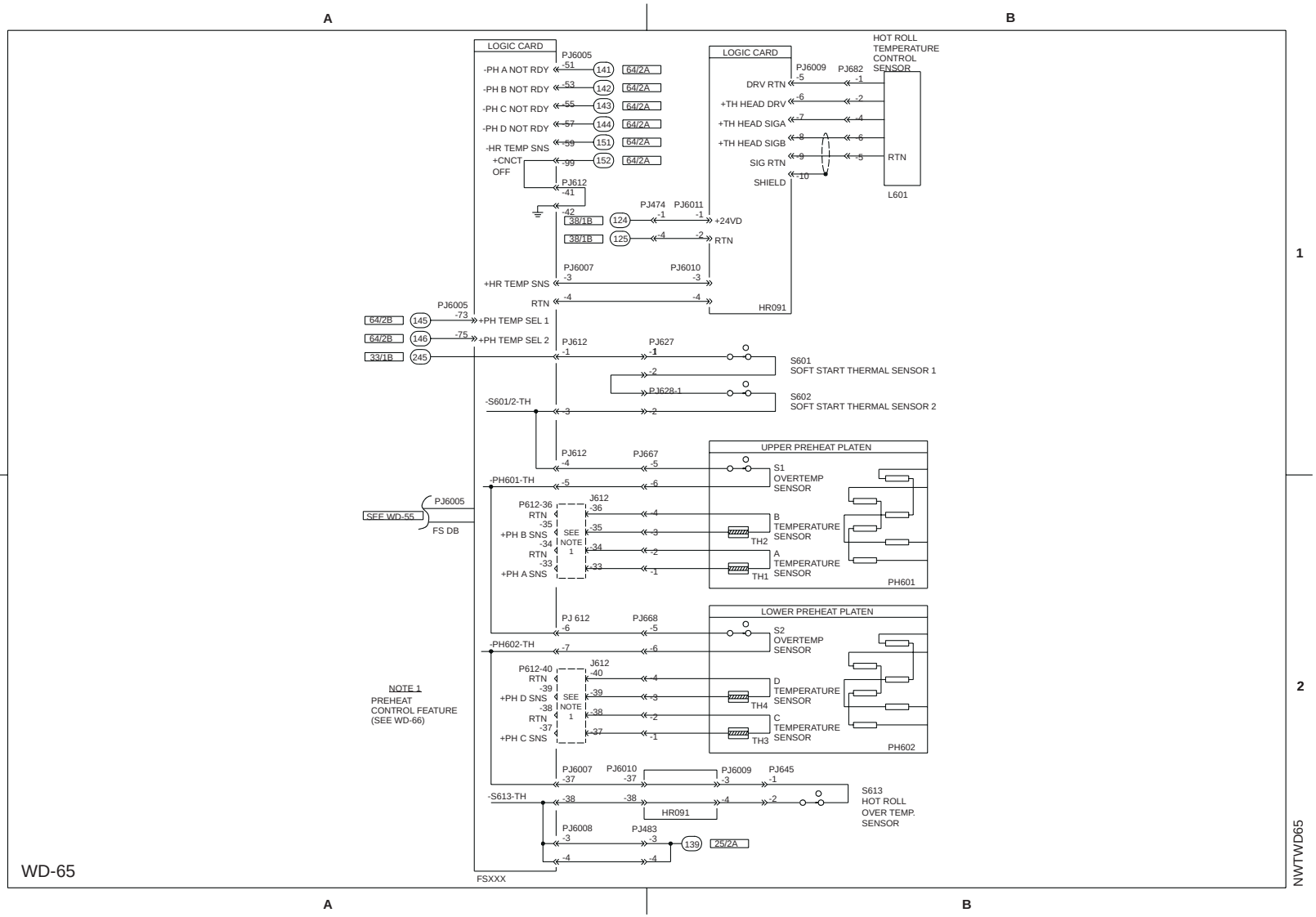
WD63 - Forms Path Sensors (YS011 Card):



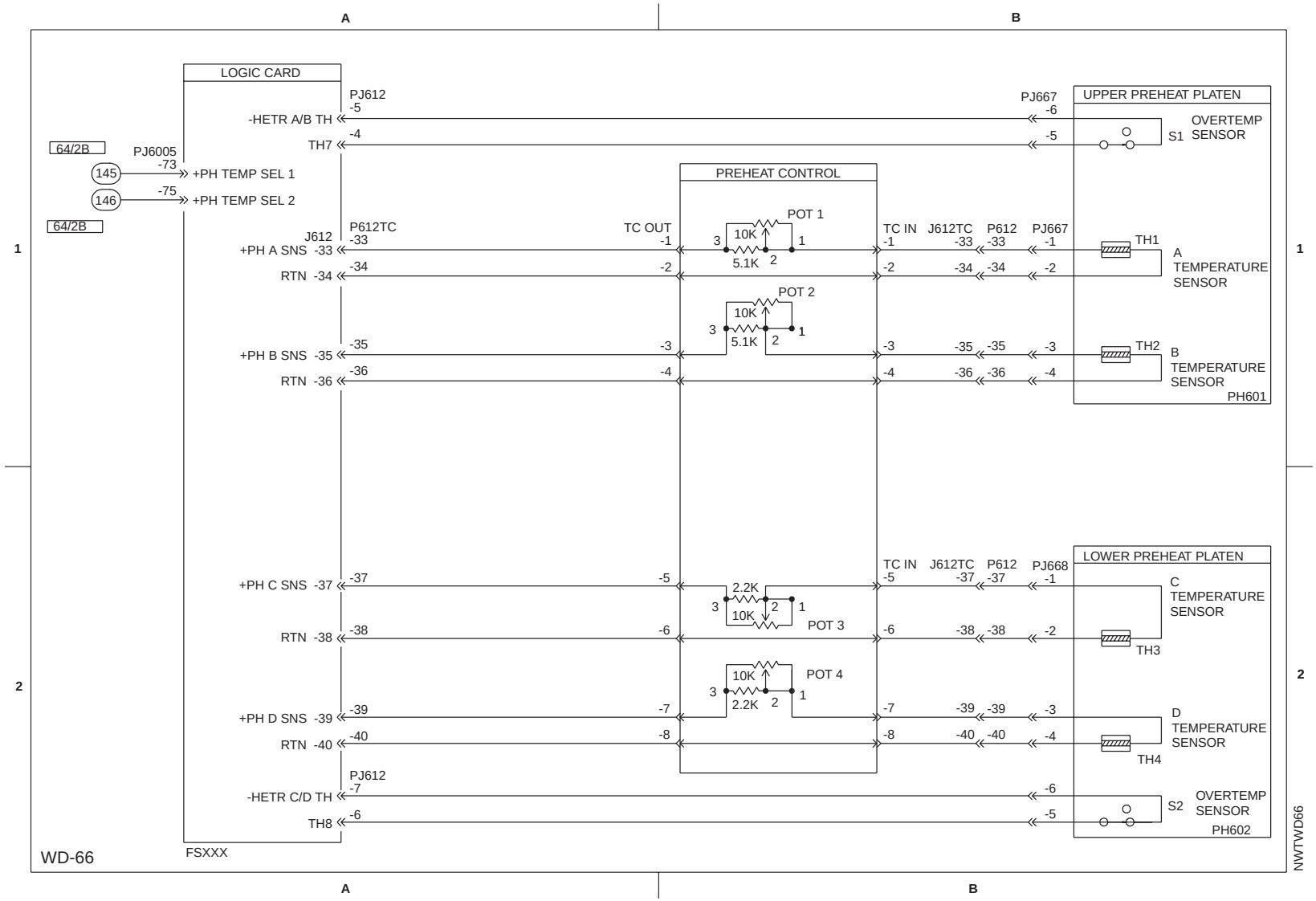
WD64 - Fuser Sensors (FSxxx and FUxxx Cards):



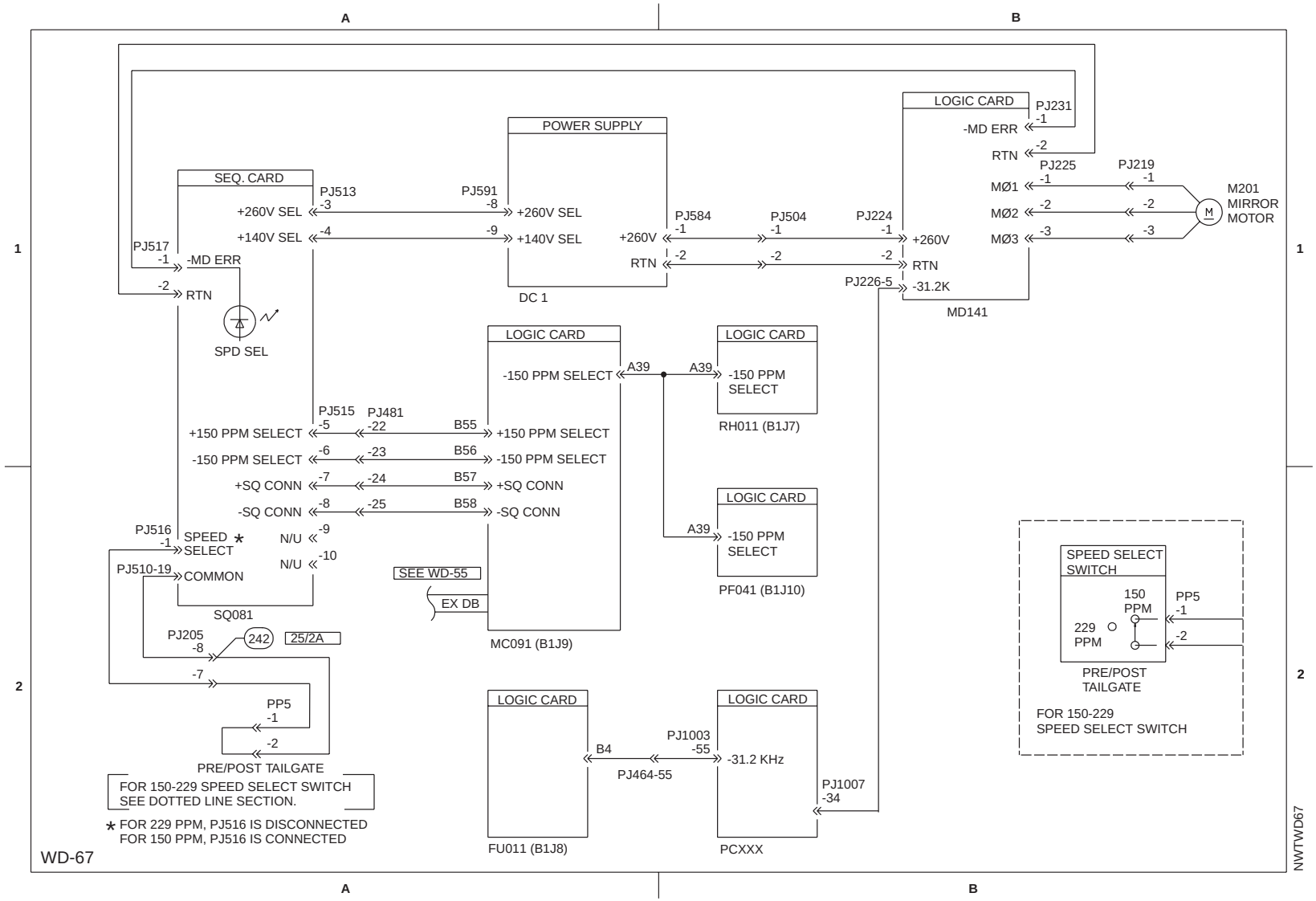
WD65 - Fuser Sensors (FSxxx):



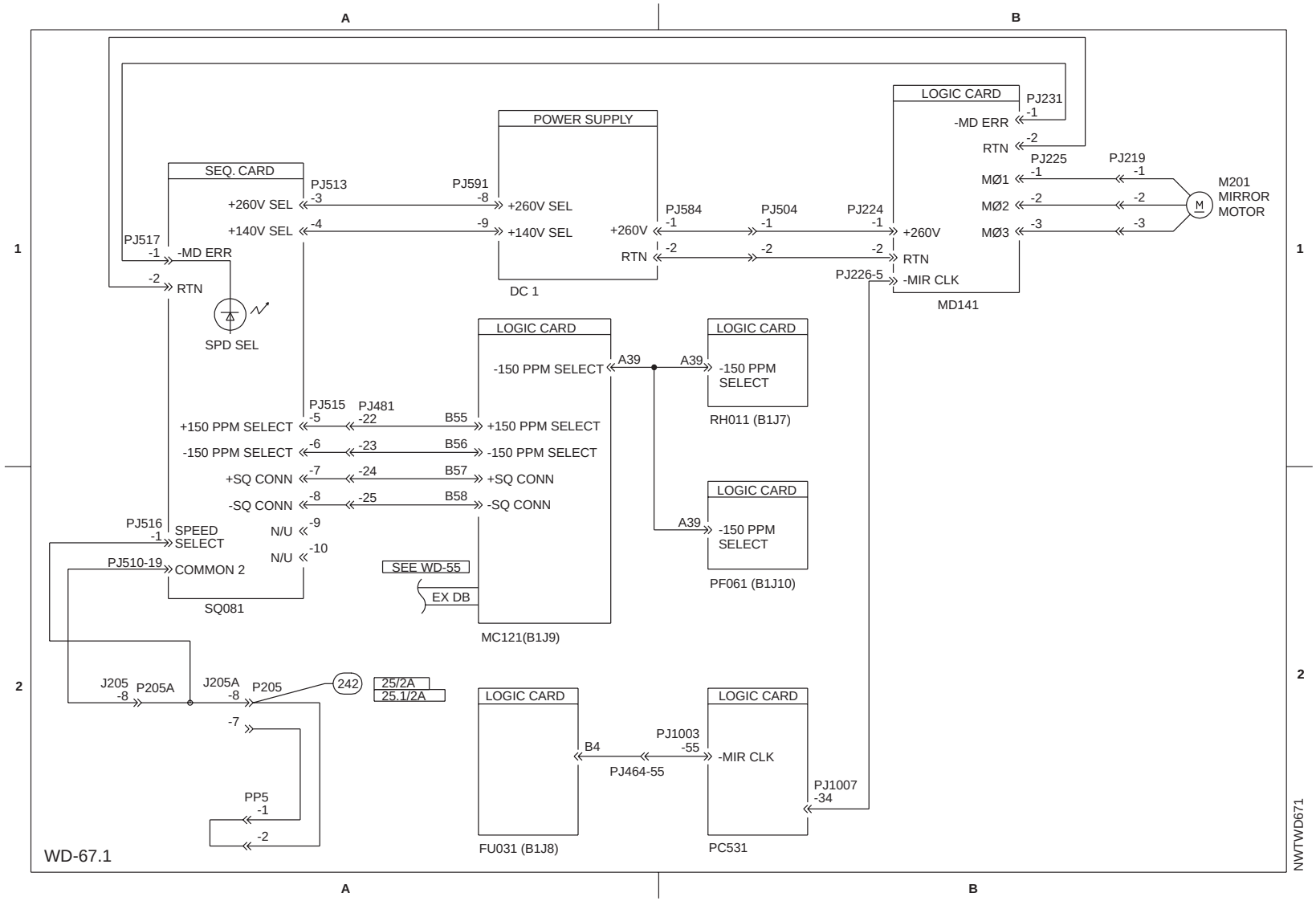
WD66 - Preheat Control:



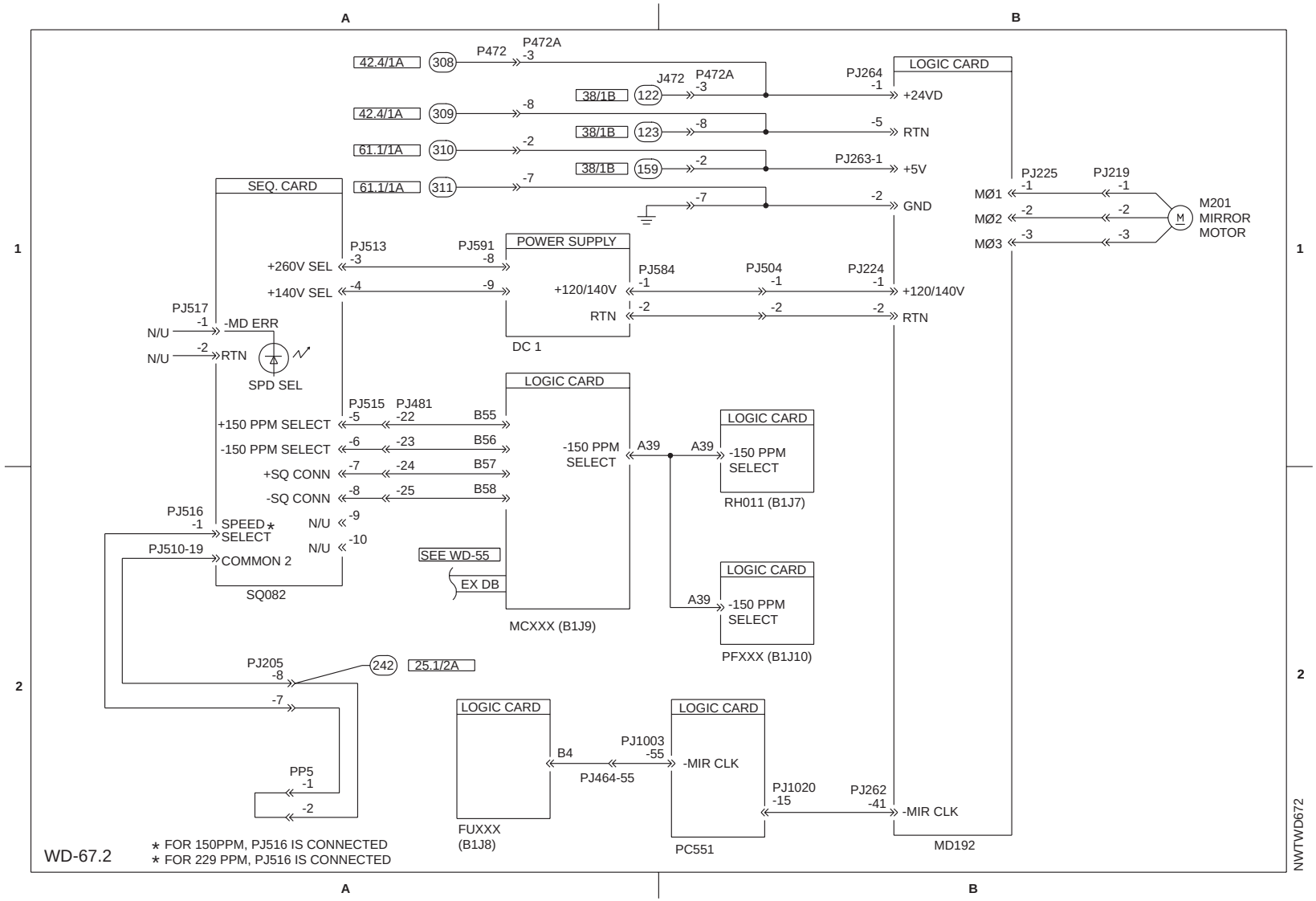
WD67 - Printer Speed Control (Single Beam Printhead):



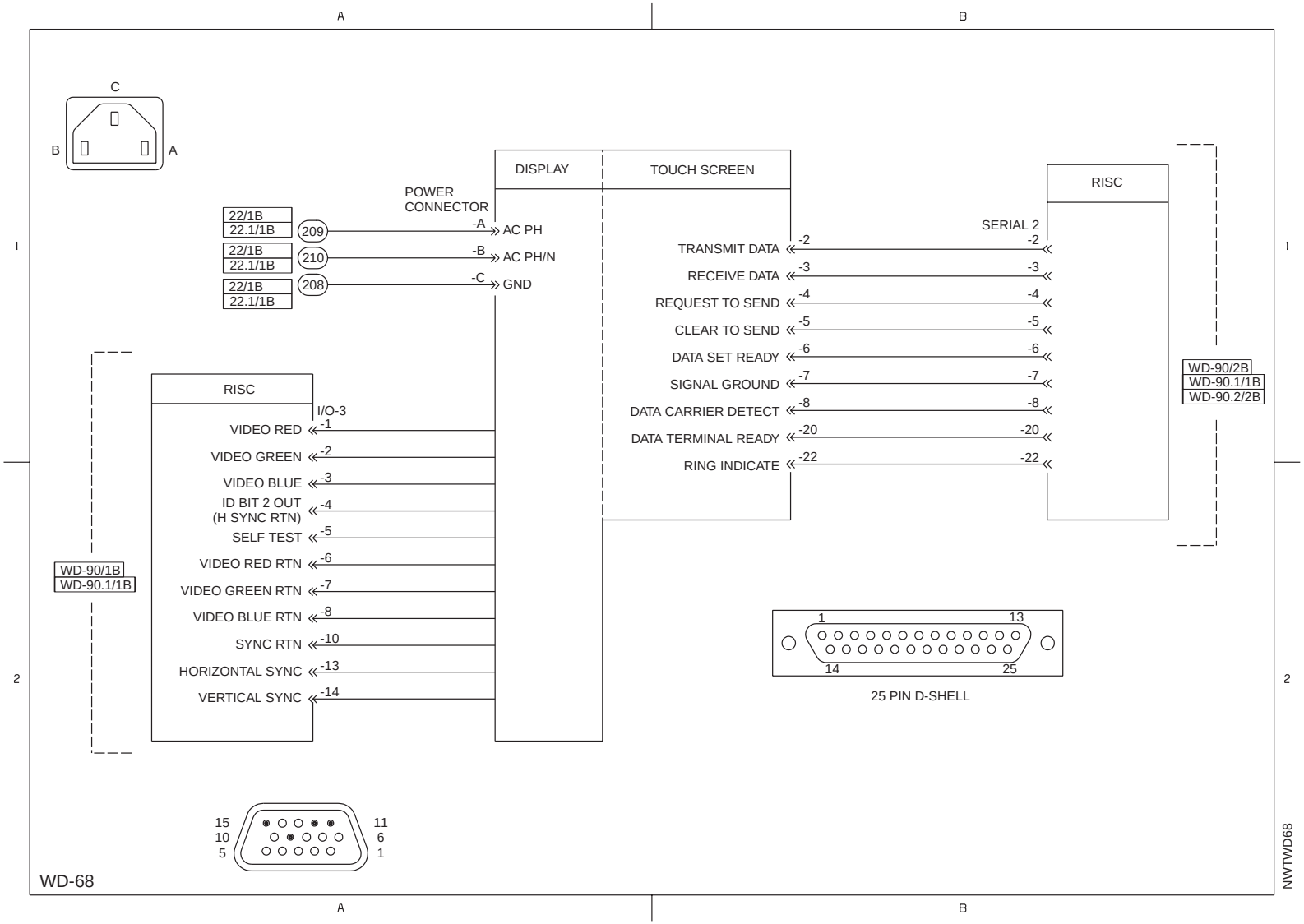
WD67.1 - Printer Speed Control (Two Beam 240 Printhead):



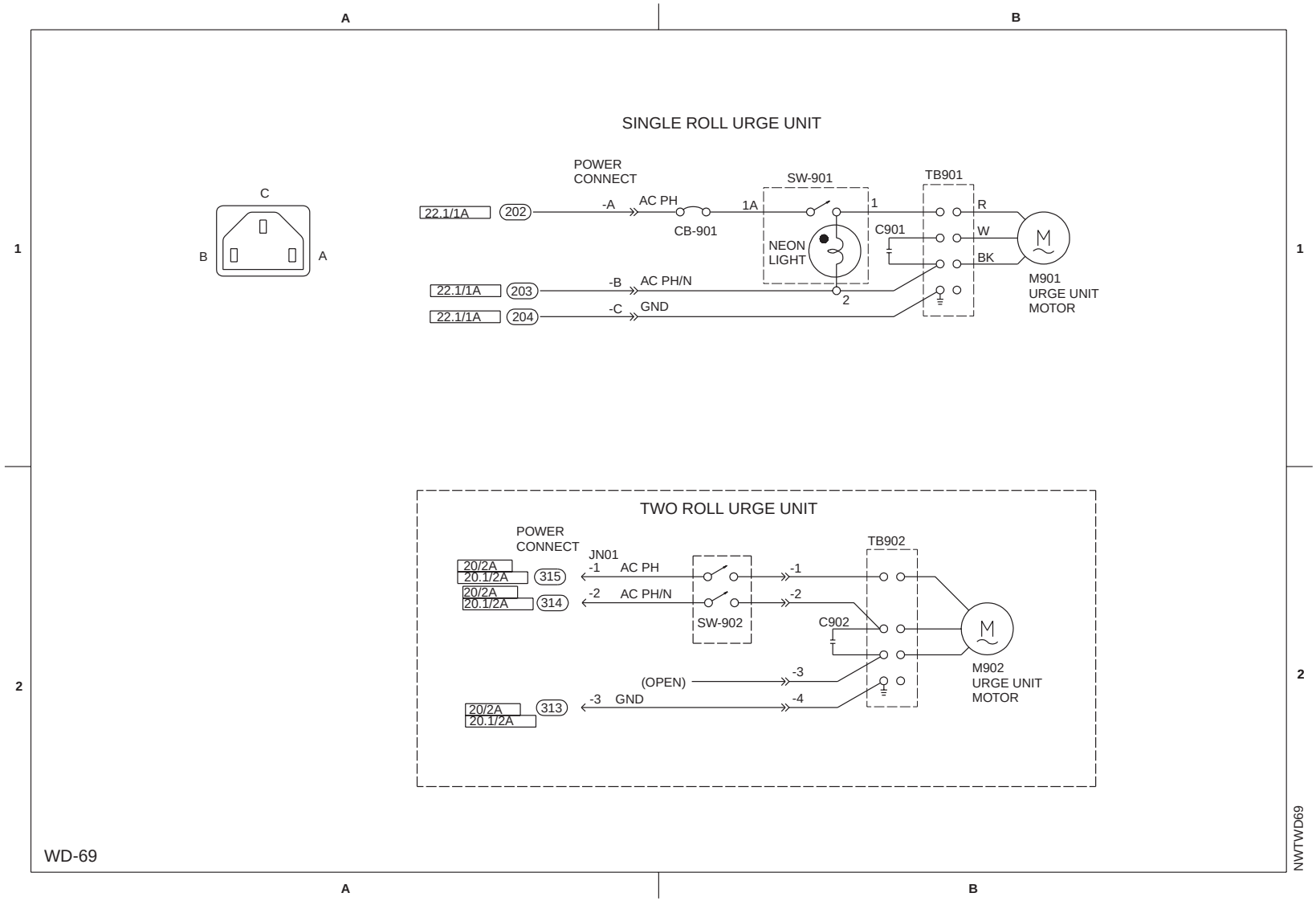
WD67.2 - Printer Speed Control (Two Beam 240/300, Four or Five Beam Printhead):



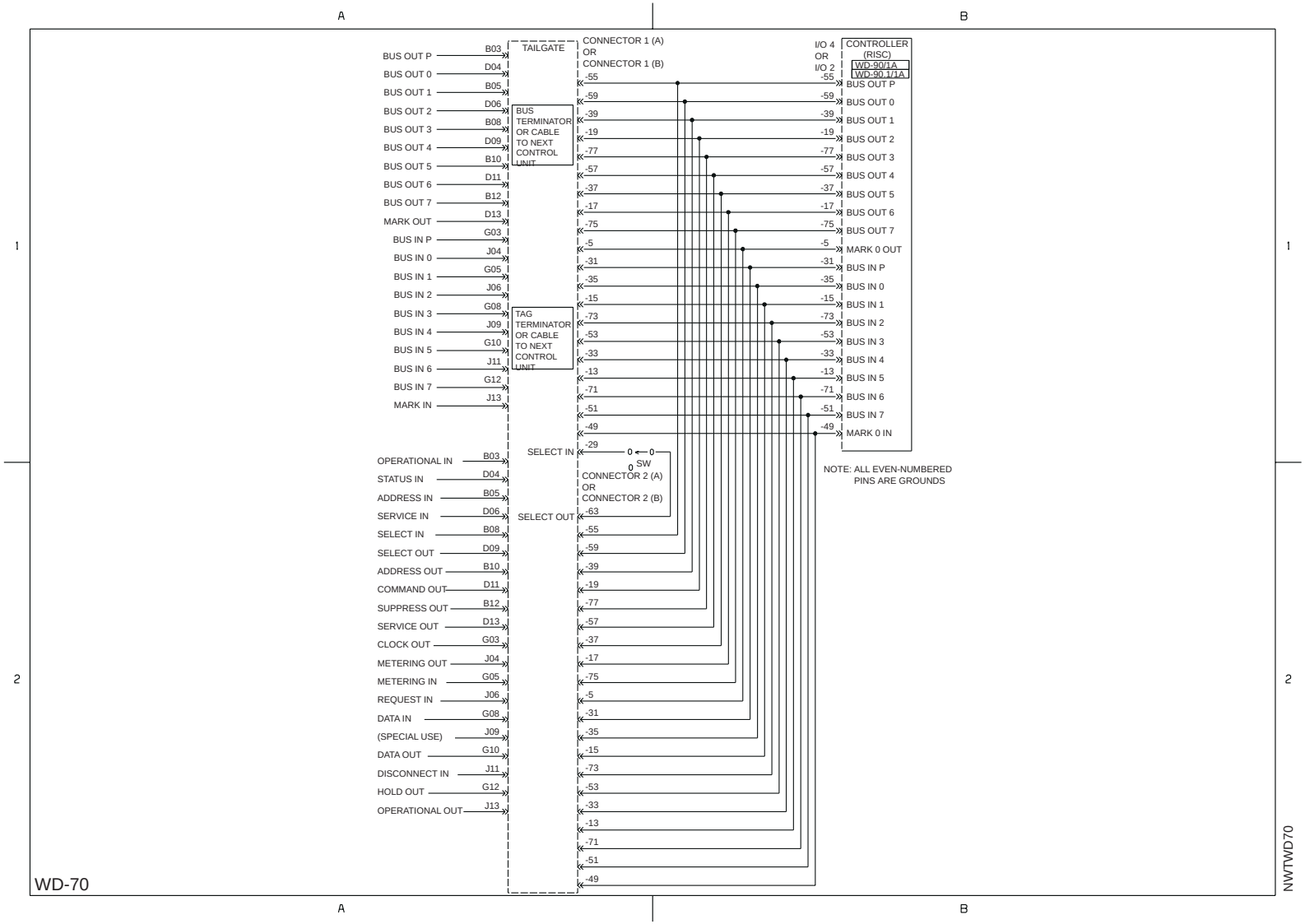
WD68 - Control Unit Display/Touch Screen:



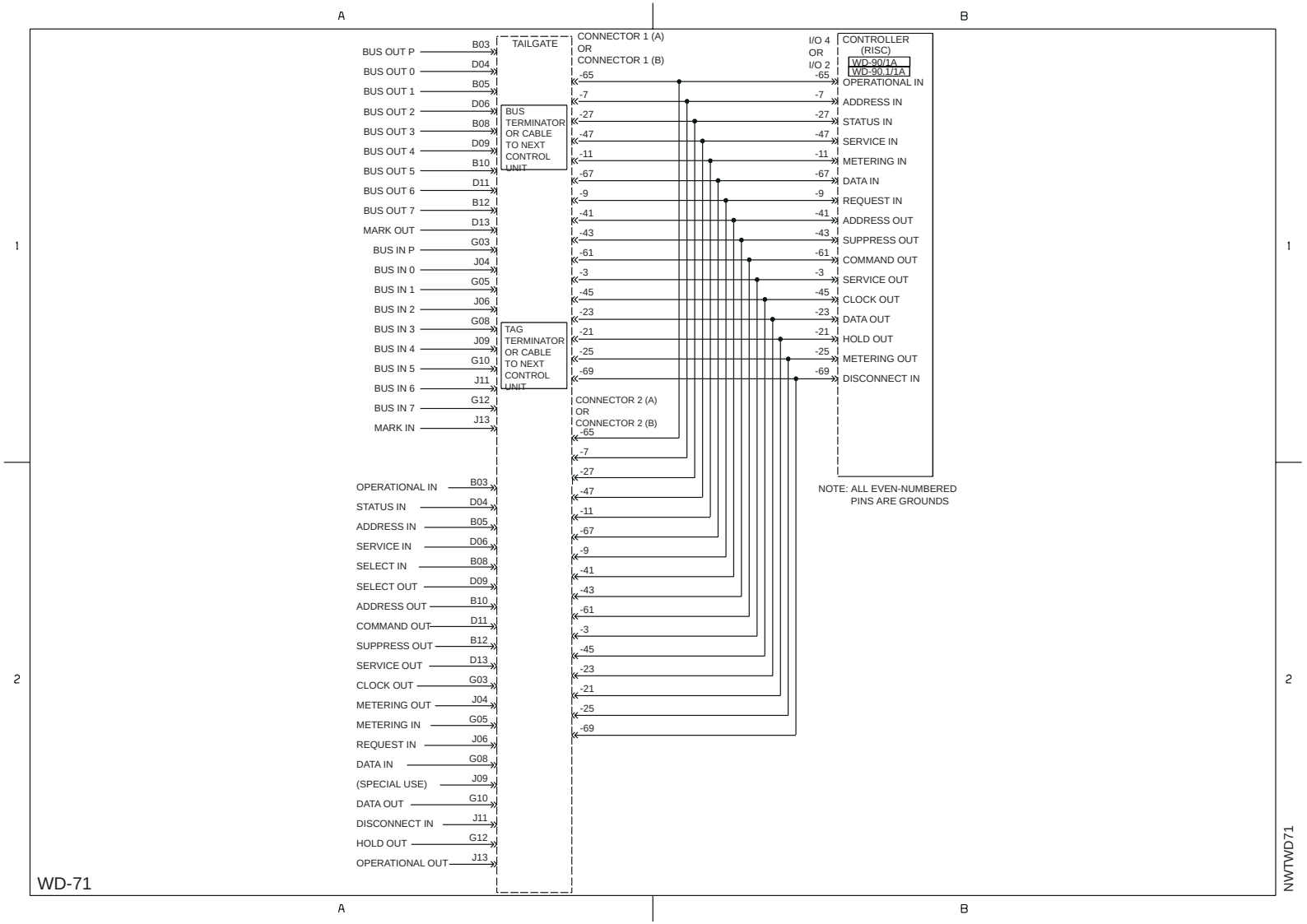
WD69 - Urge Unit (Duplex):



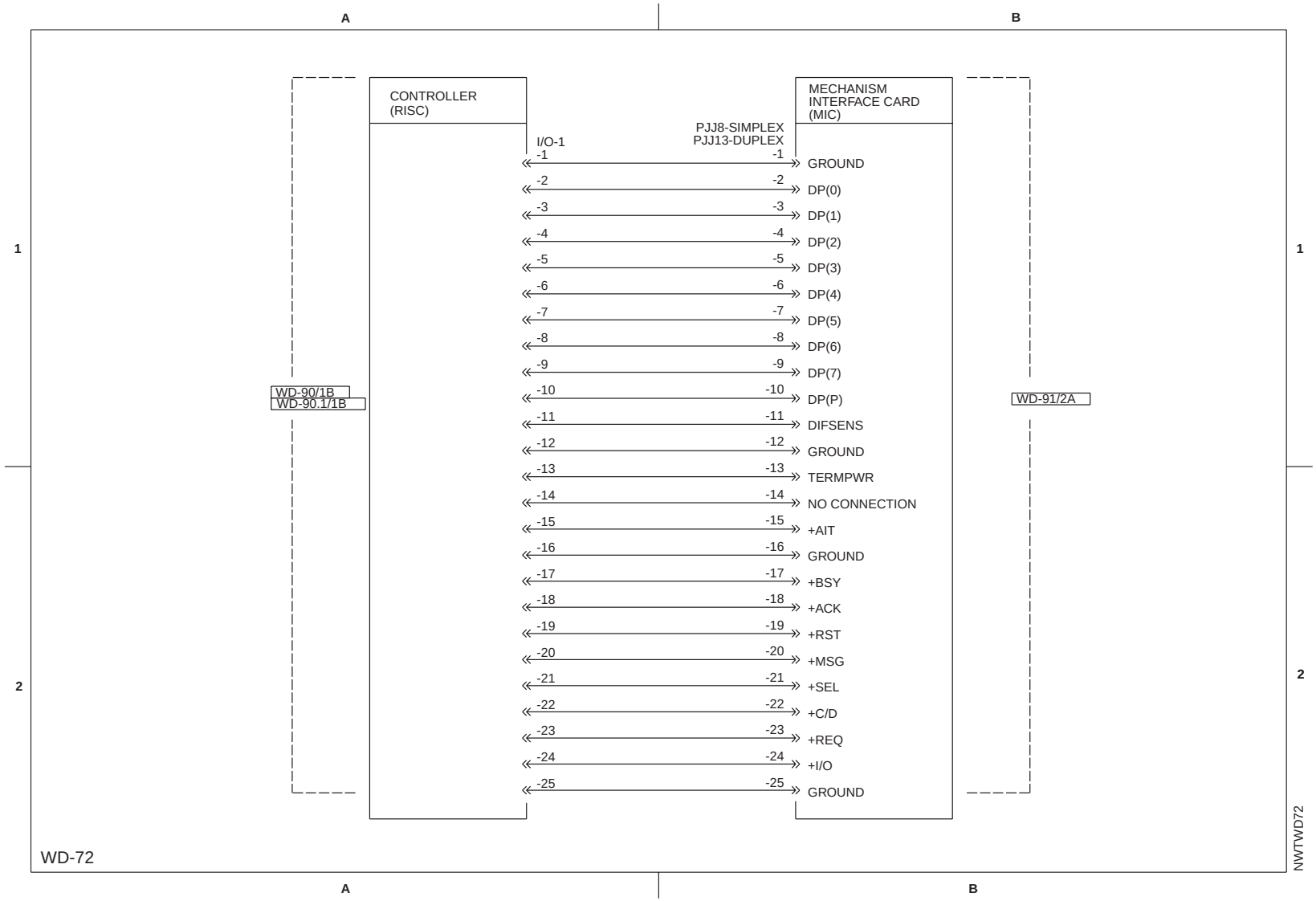
WD70 - Parallel Channel Signal Tailgate to Controller (1 of 2):



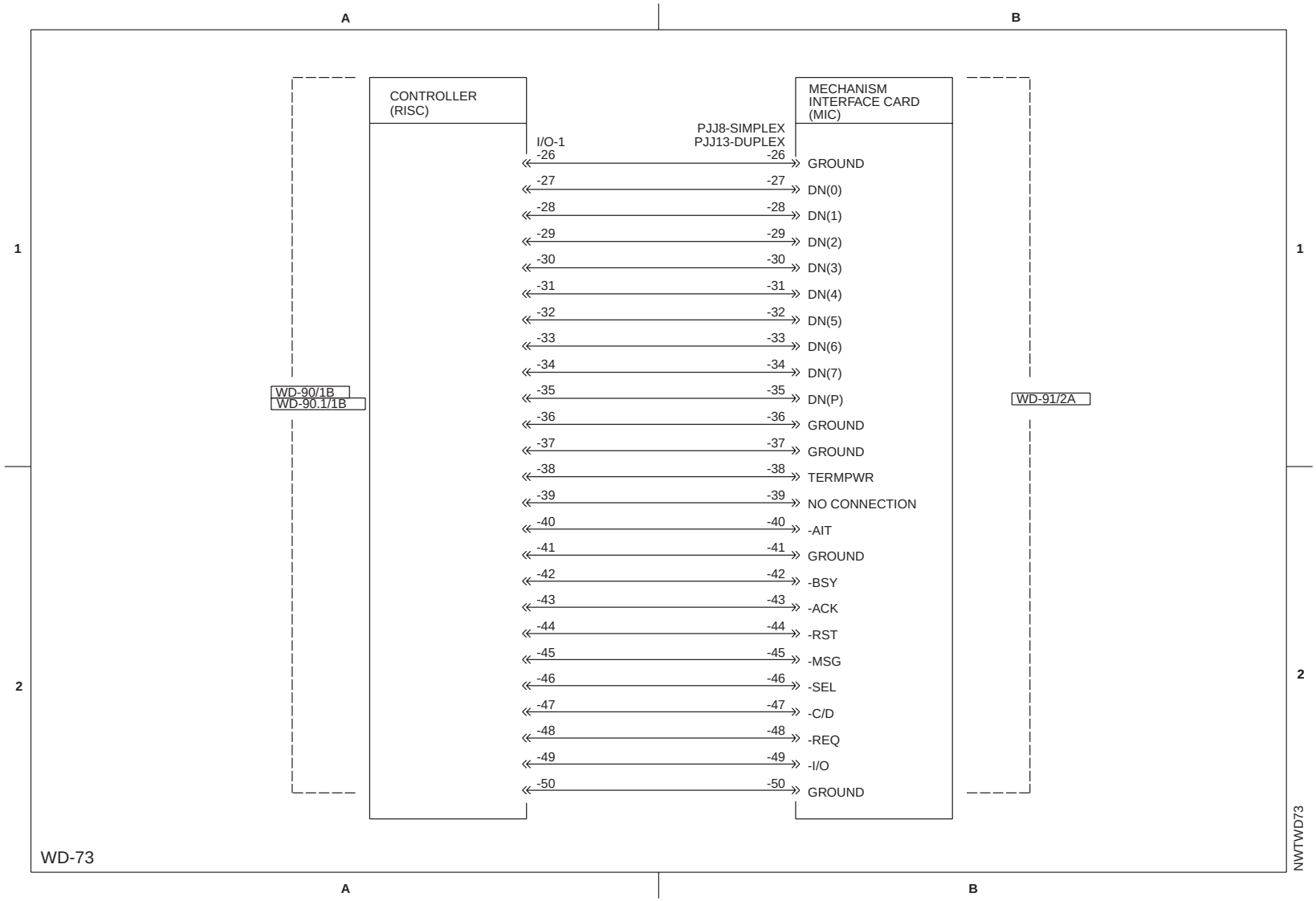
WD71 - Parallel Channel Signal Tailgate to Controller (2 of 2):



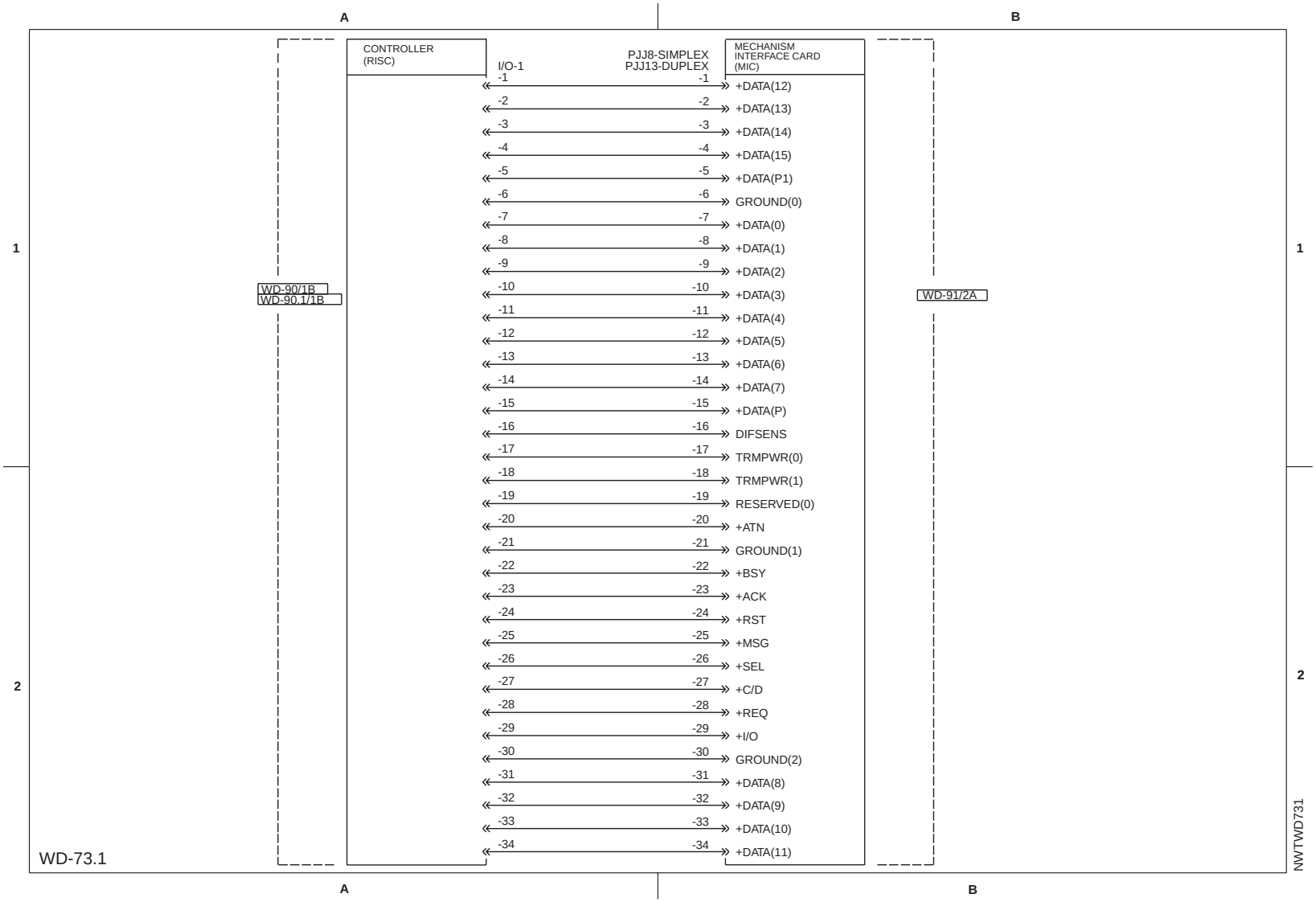
WD72 - RS/6000 Controller to Narrow SCSI Mechanism Interface Card (1 of 2):



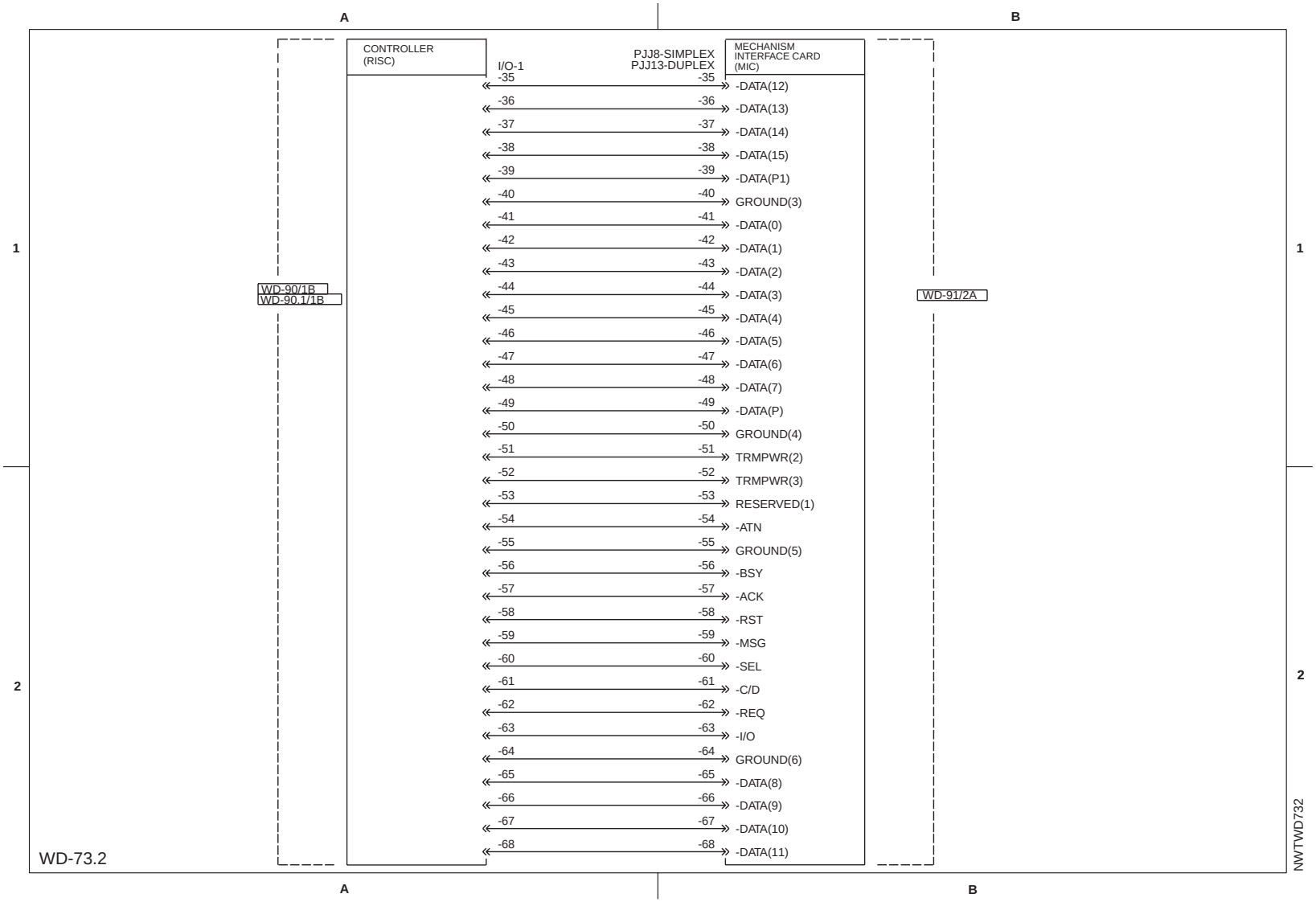
WD73 - RS/6000 Controller to Narrow SCSI Mechanism Interface Card (2 of 2):



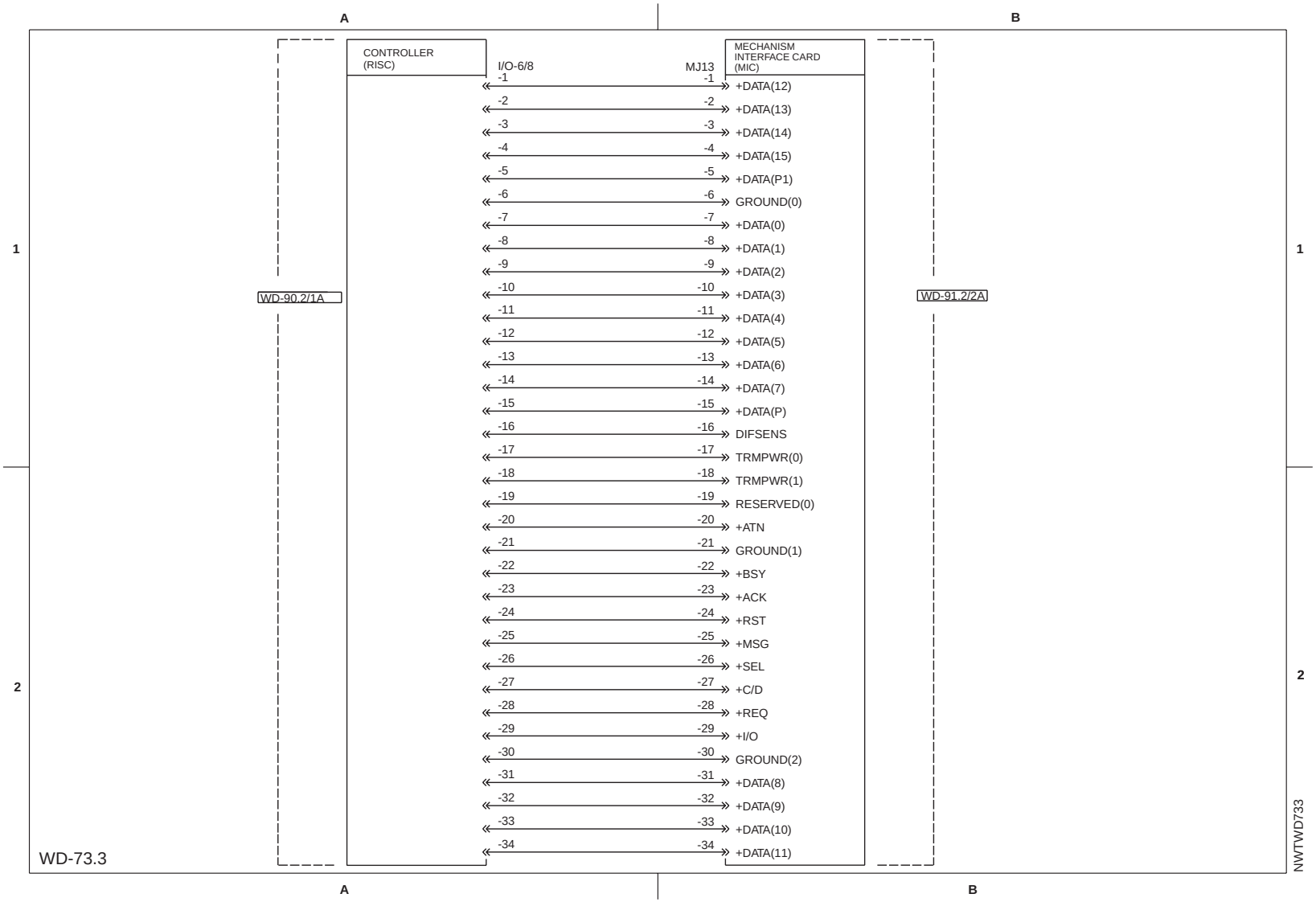
WD73.1 - RS/6000 Controller to Wide SCSI MIC (3900 0Wx & DWx Models, Infoprint 4000 ISx & IDx Models) (1 of 2):



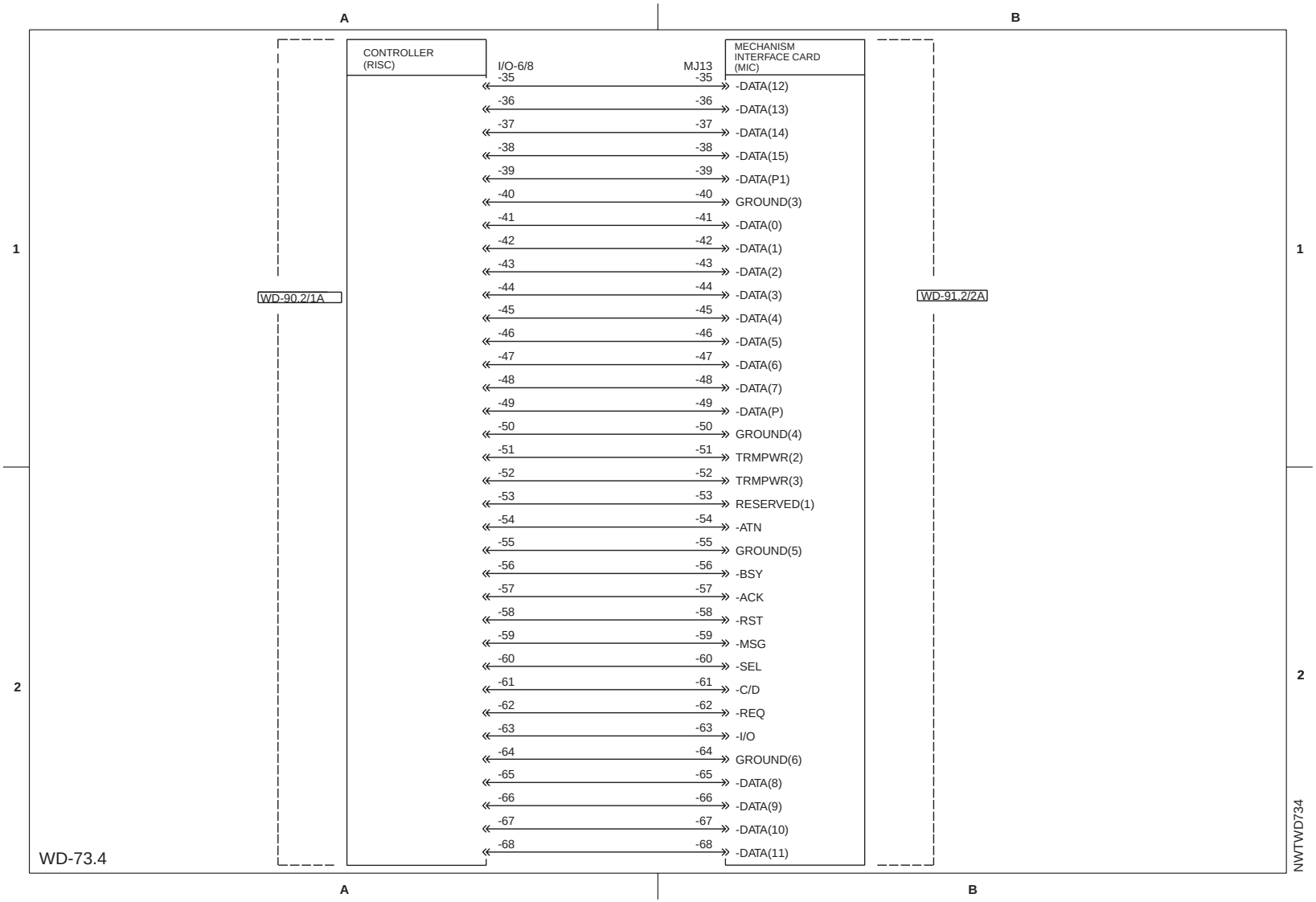
WD73.2 - RS/6000 Controller to Wide SCSI MIC (3900 0Wx & DWx Models, Infoprint 4000 ISx & IDx Models) (2 of 2):



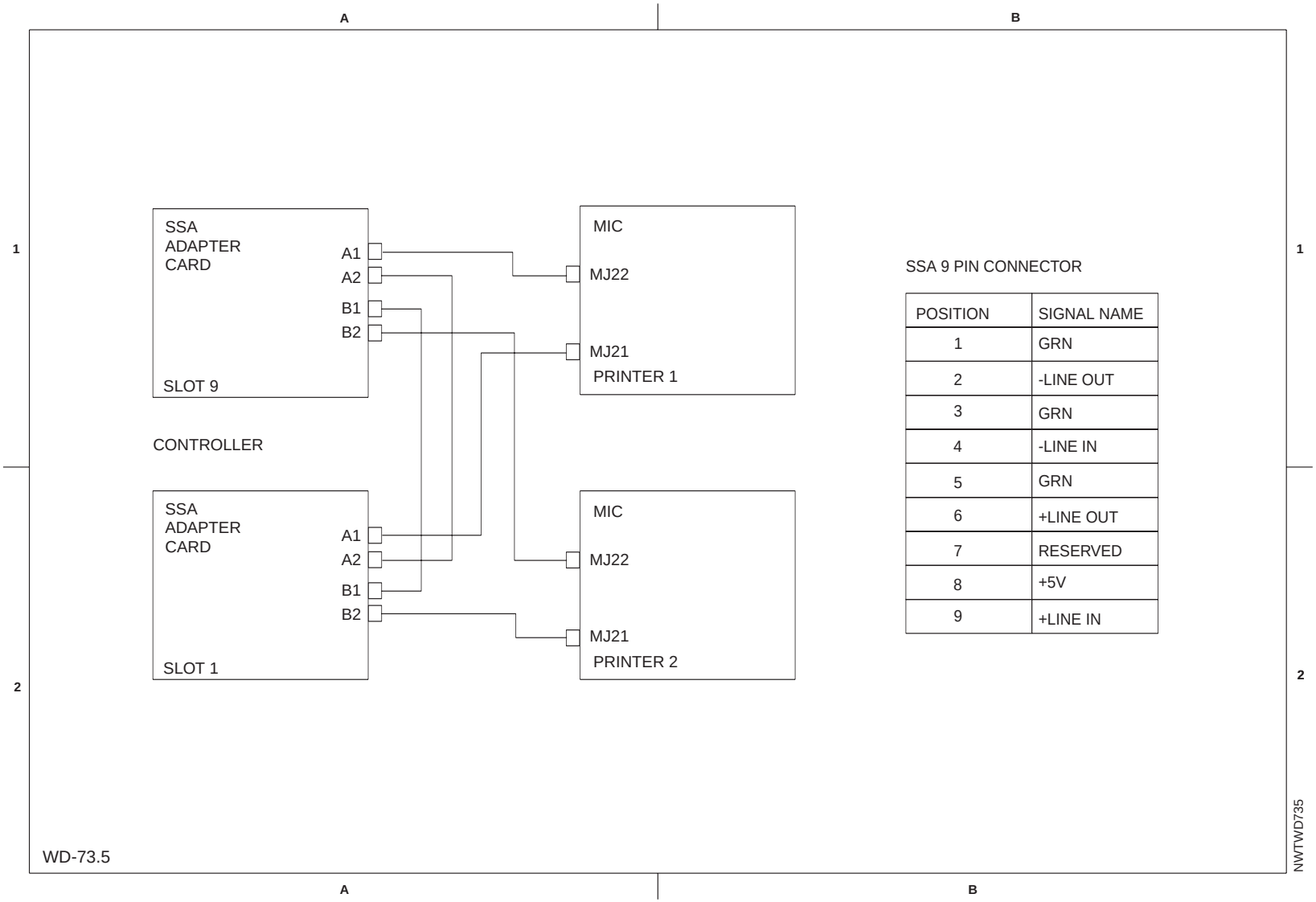
WD73.3 - RS/6000 Controller to Wide SCSI MIC (IR1/IR2) (1 of 2):



WD73.4 - RS/6000 Controller to Wide SCSI MIC (IR1/IR2) (2 of 2):



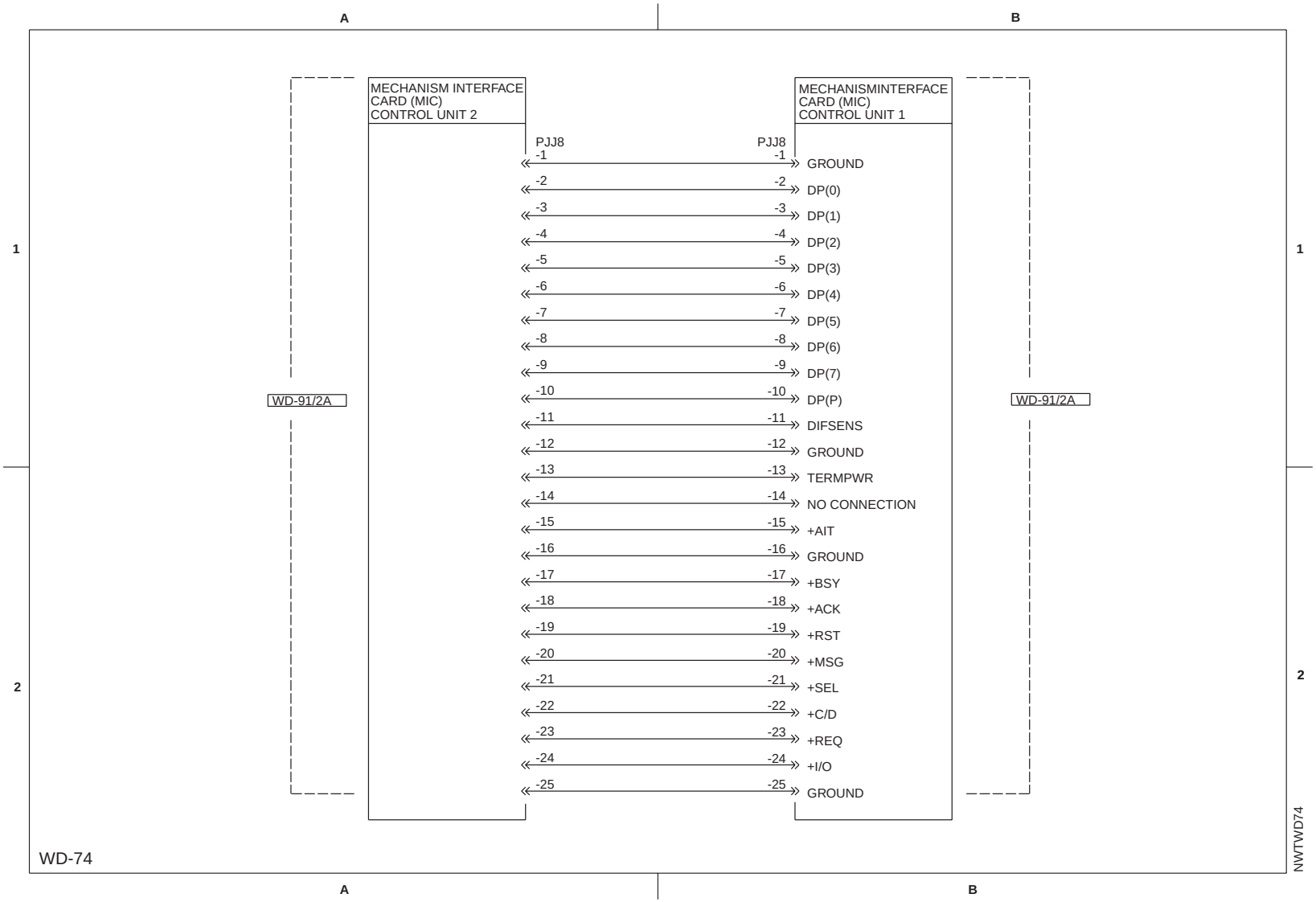
WD73.5 - Control Unit (IR3/IR4) Controller (RISC) to SSA MIC:



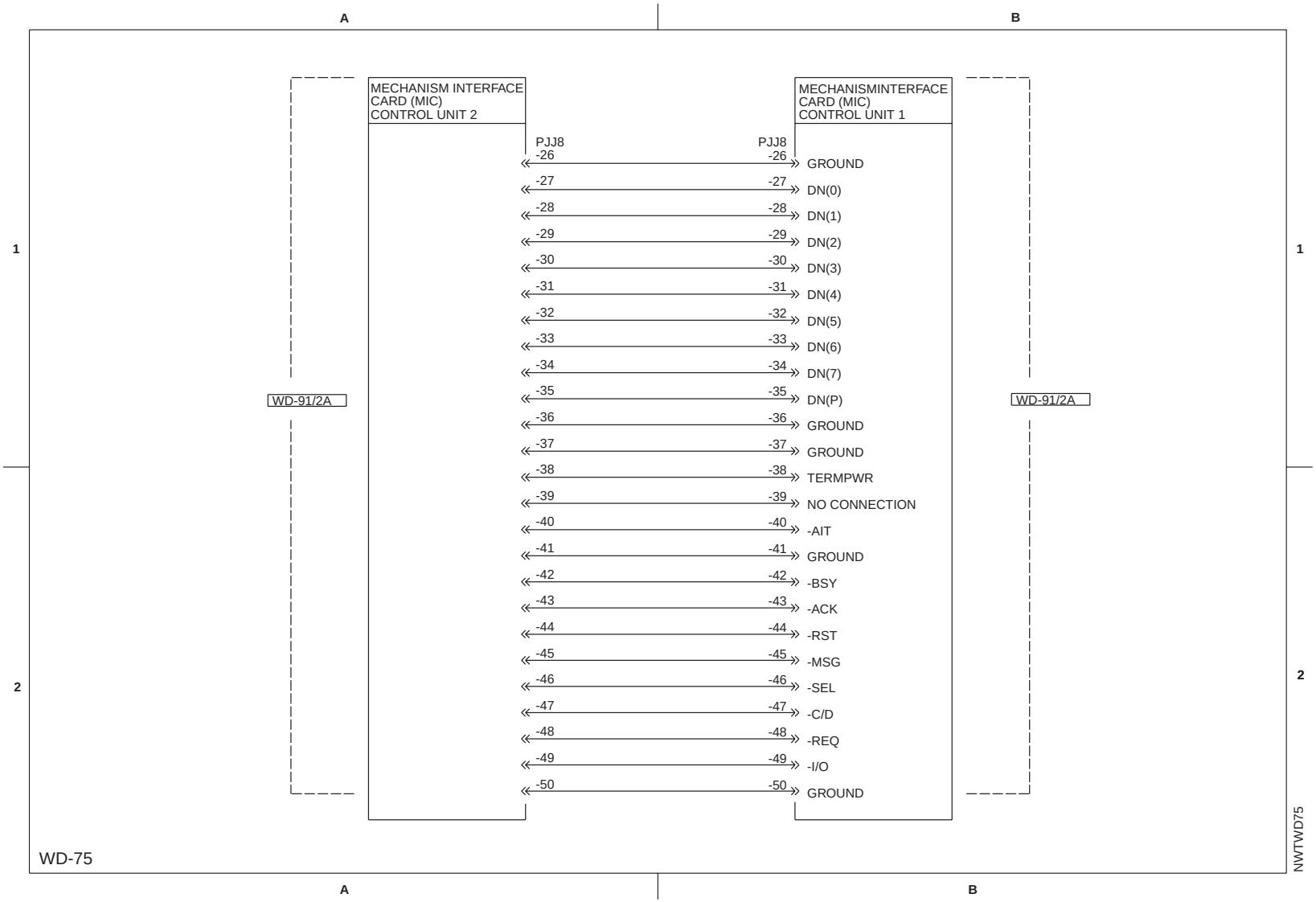
SSA 9 PIN CONNECTOR

POSITION	SIGNAL NAME
1	GRN
2	-LINE OUT
3	GRN
4	-LINE IN
5	GRN
6	+LINE OUT
7	RESERVED
8	+5V
9	+LINE IN

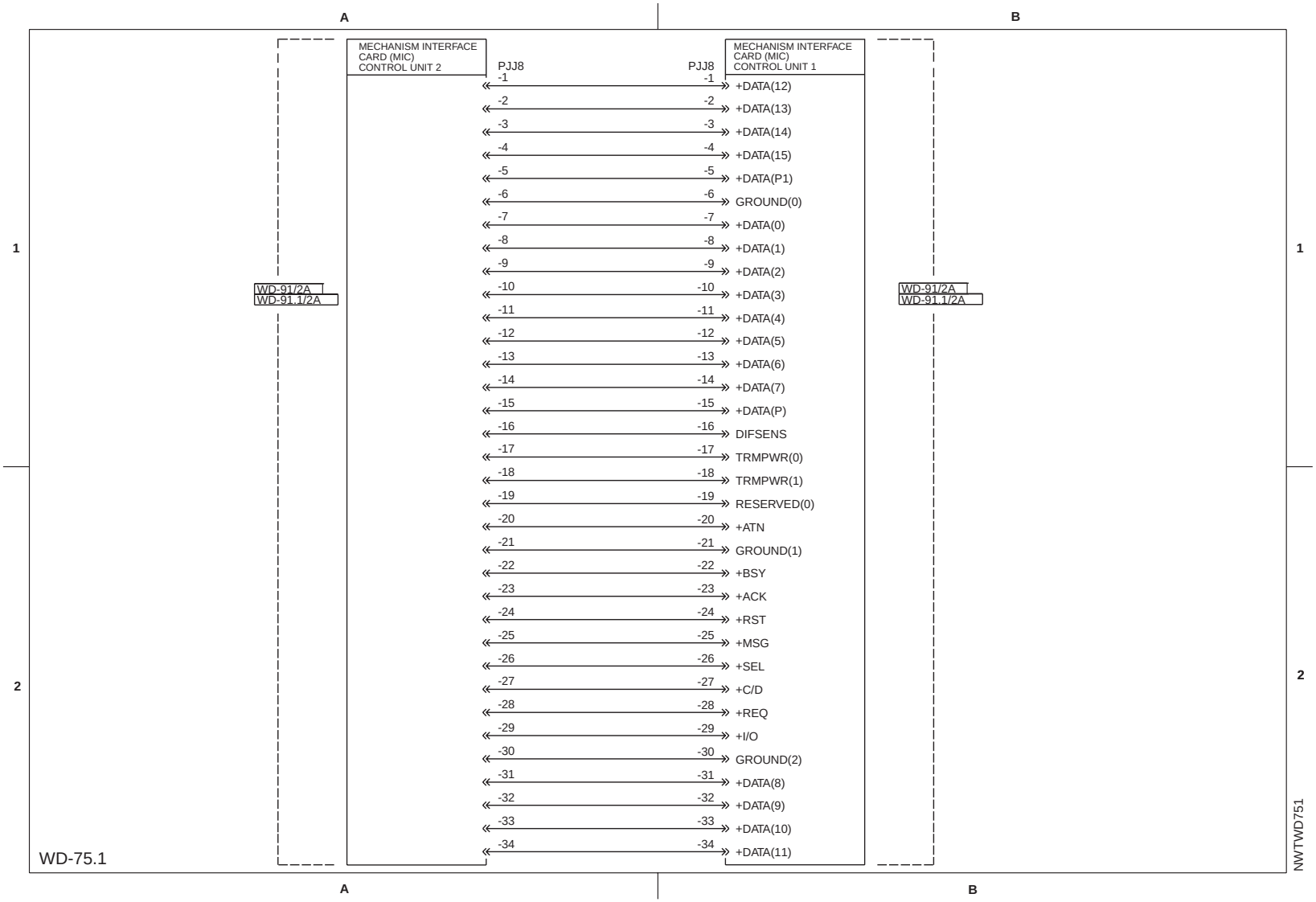
WD74 - MIC Control Unit 2 to MIC Control Unit 1 (Narrow SCSI) (1 of 2):



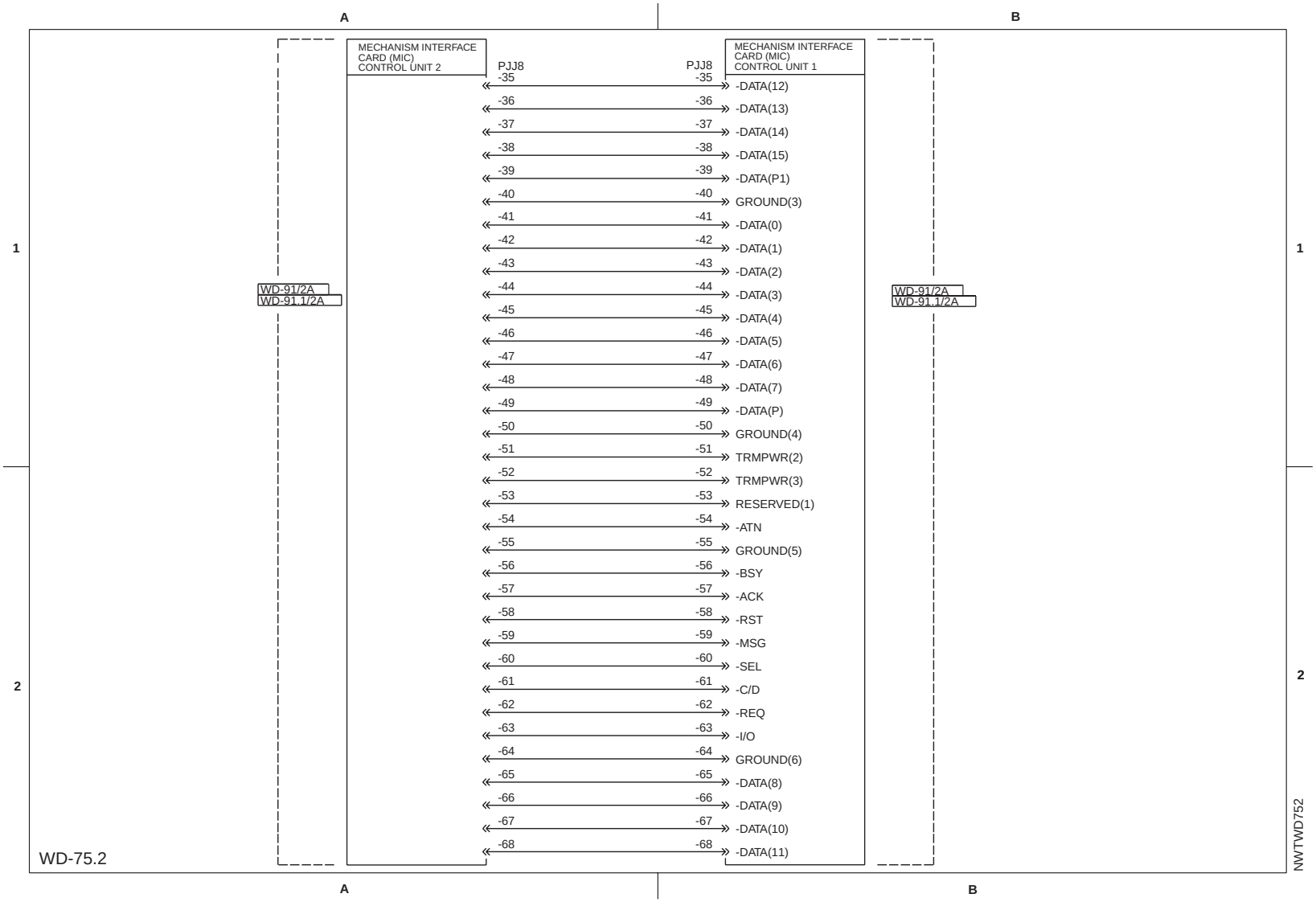
WD75 - MIC Control Unit 2 to MIC Control Unit 1 (Narrow SCSI) (2 of 2):



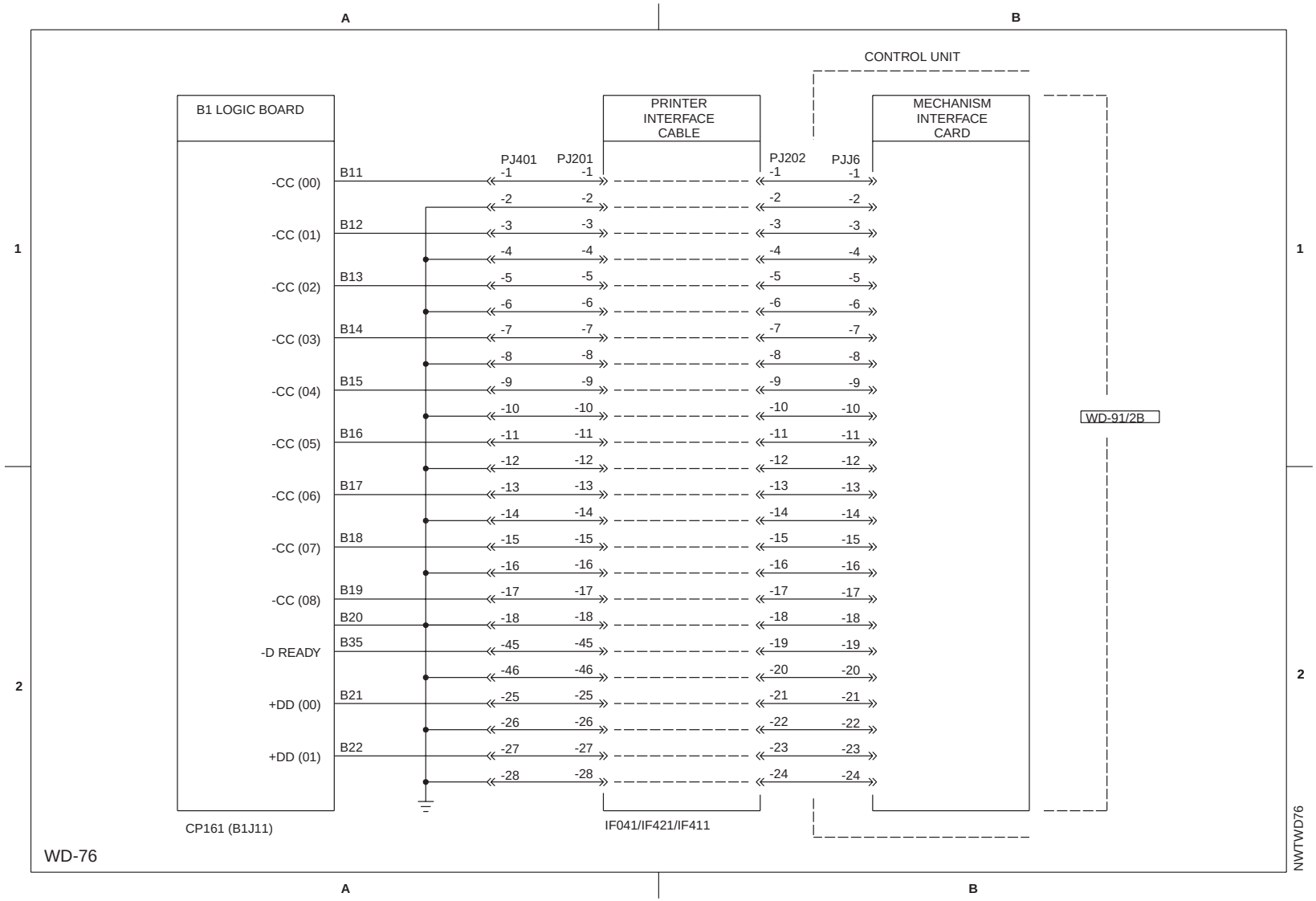
WD75.1 - Wide SCSI MIC Control Unit 2 to Wide SCSI MIC Control Unit 1 (all except 480/600 DPI & 324 PPM) (1 of 2):



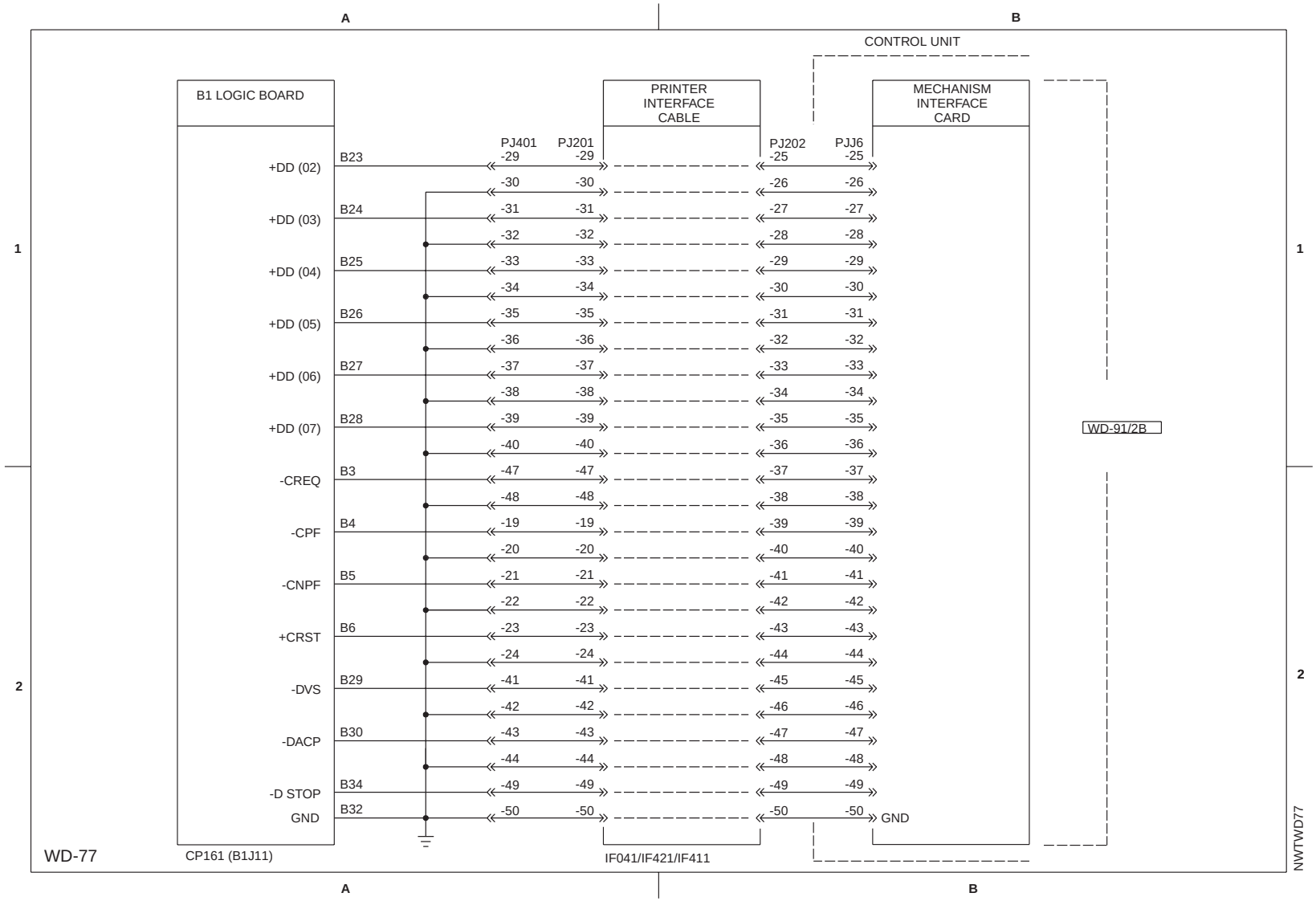
WD75.2 - Wide SCSI MIC Control Unit 2 to Wide SCSI MIC Control Unit 1 (all except 480/600 DPI & 324 PPM) (2 of 2):



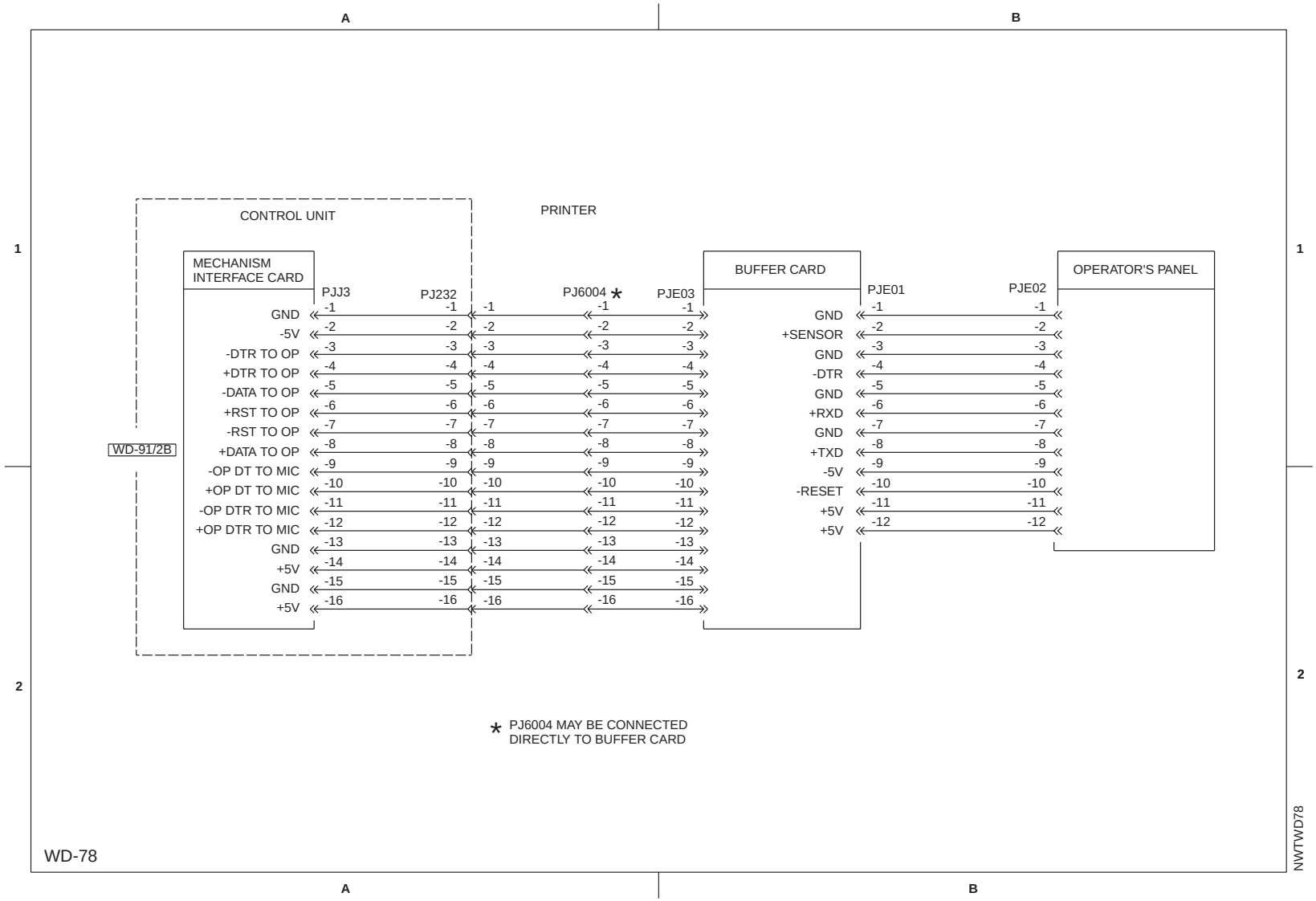
WD76 - MIC to Printer Control Cable (1 of 2):



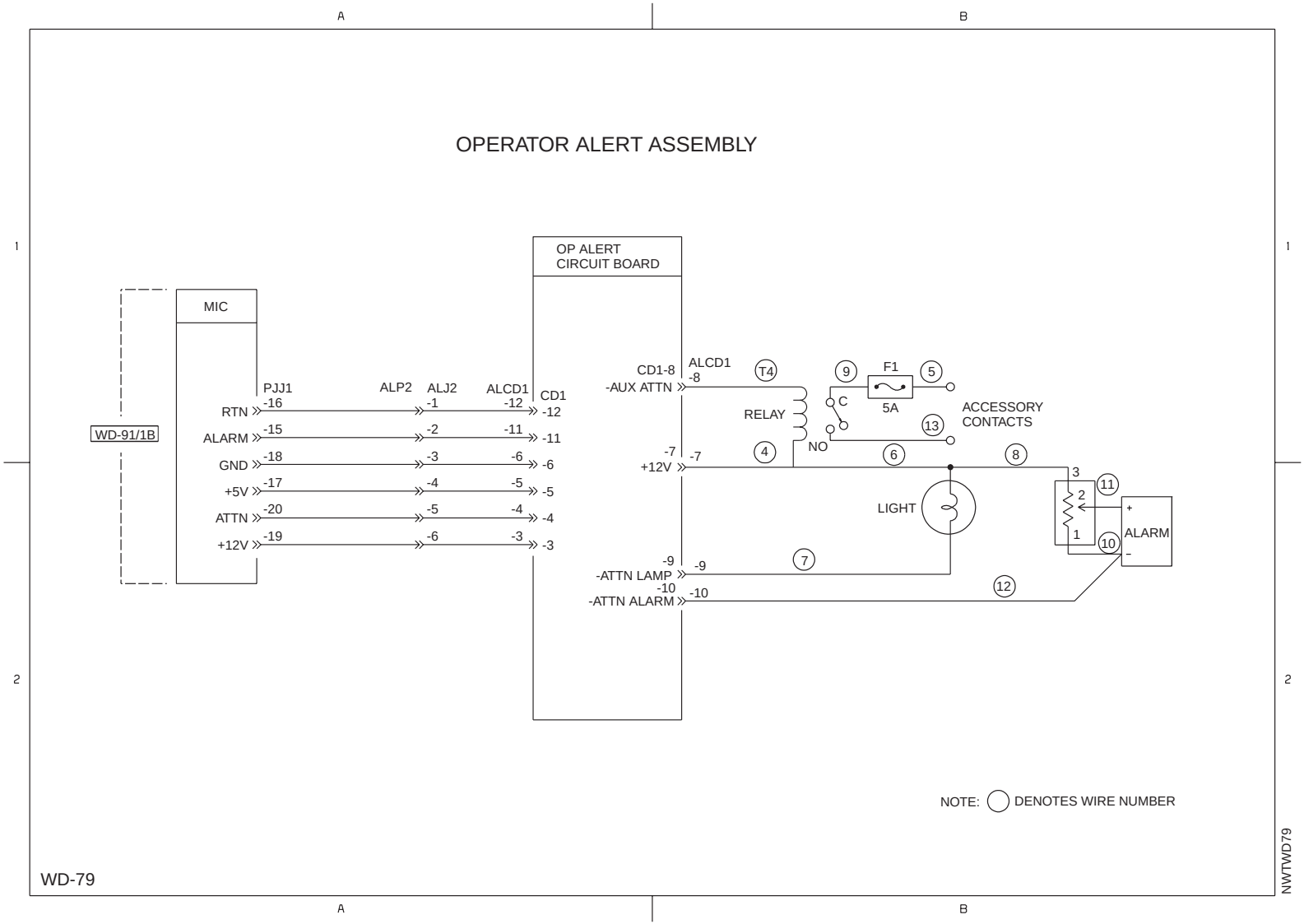
WD77 - MIC to Printer Control Cable (2 of 2):



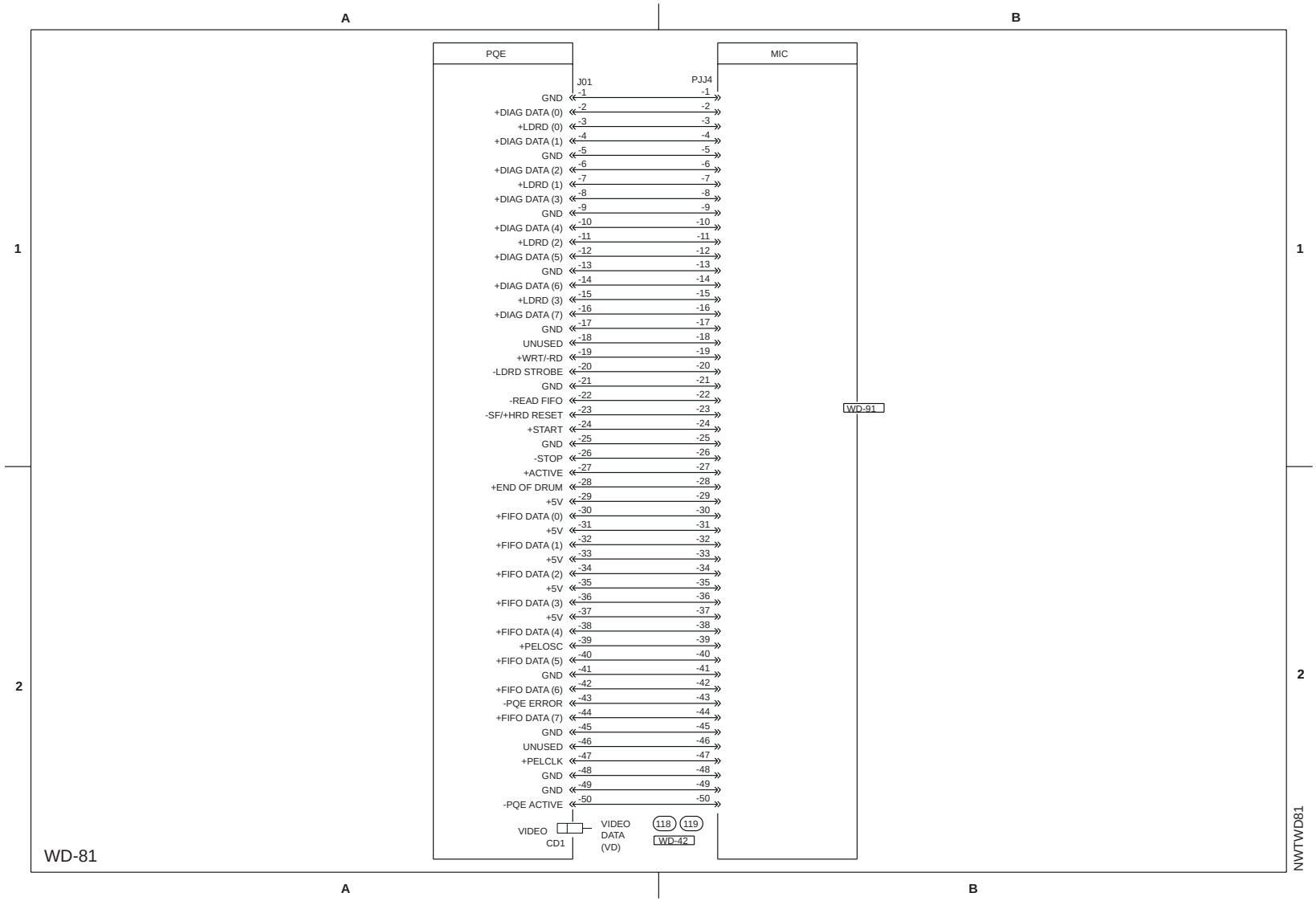
WD78 - MIC to Operator's Panel:



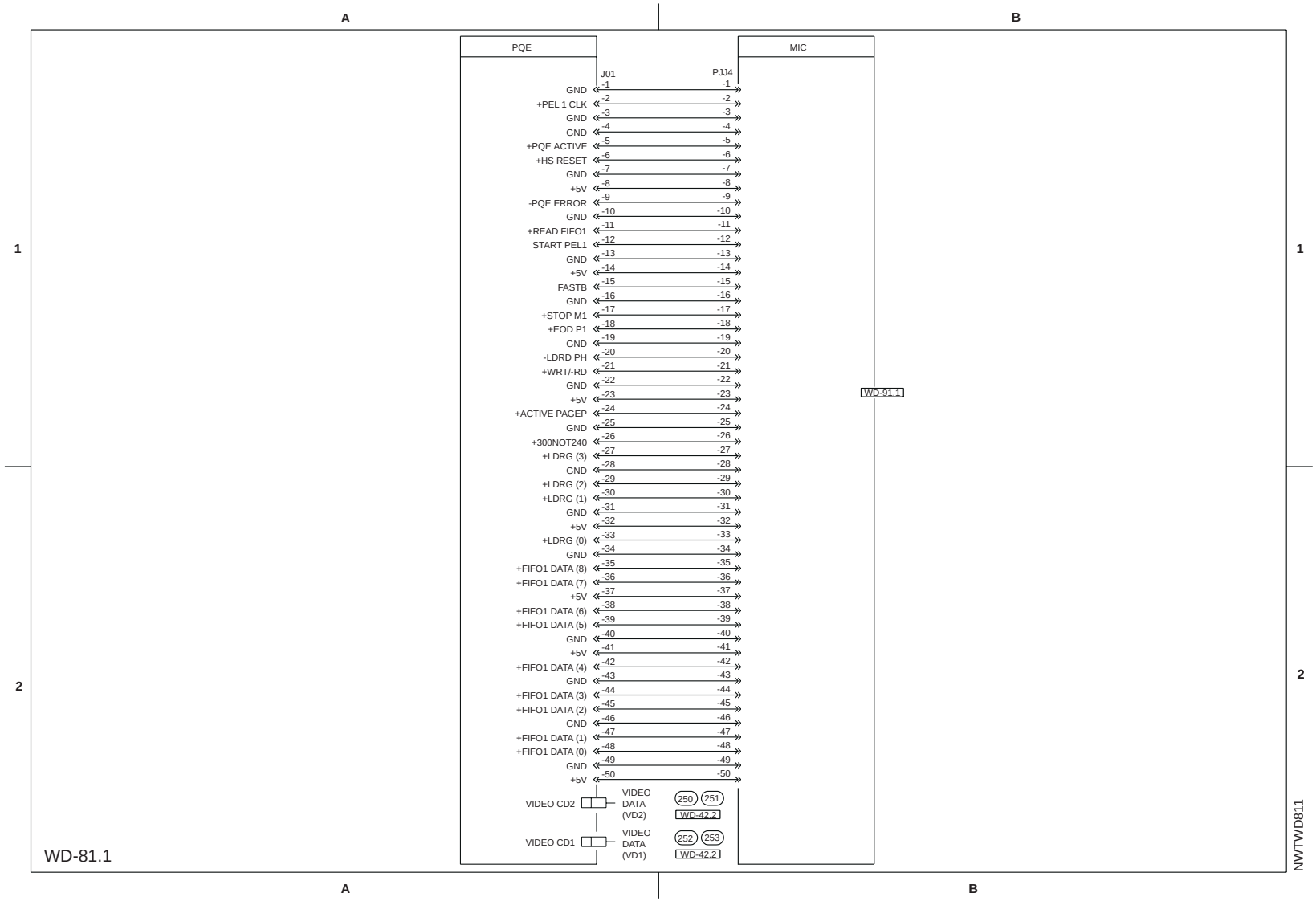
WD79 - MIC to Operator Alert Assembly:



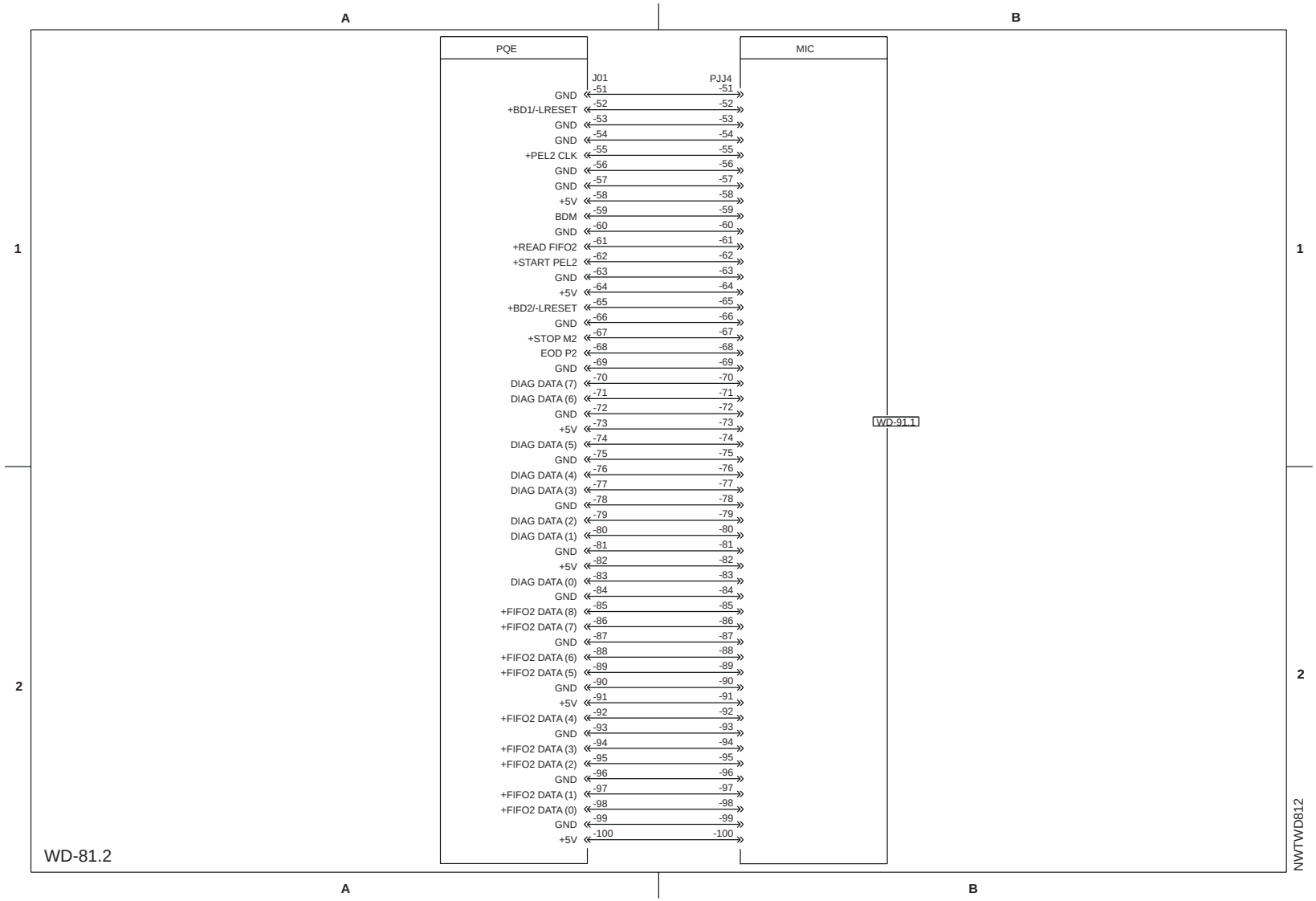
WD81 - PQE (Single Beam Printhead):



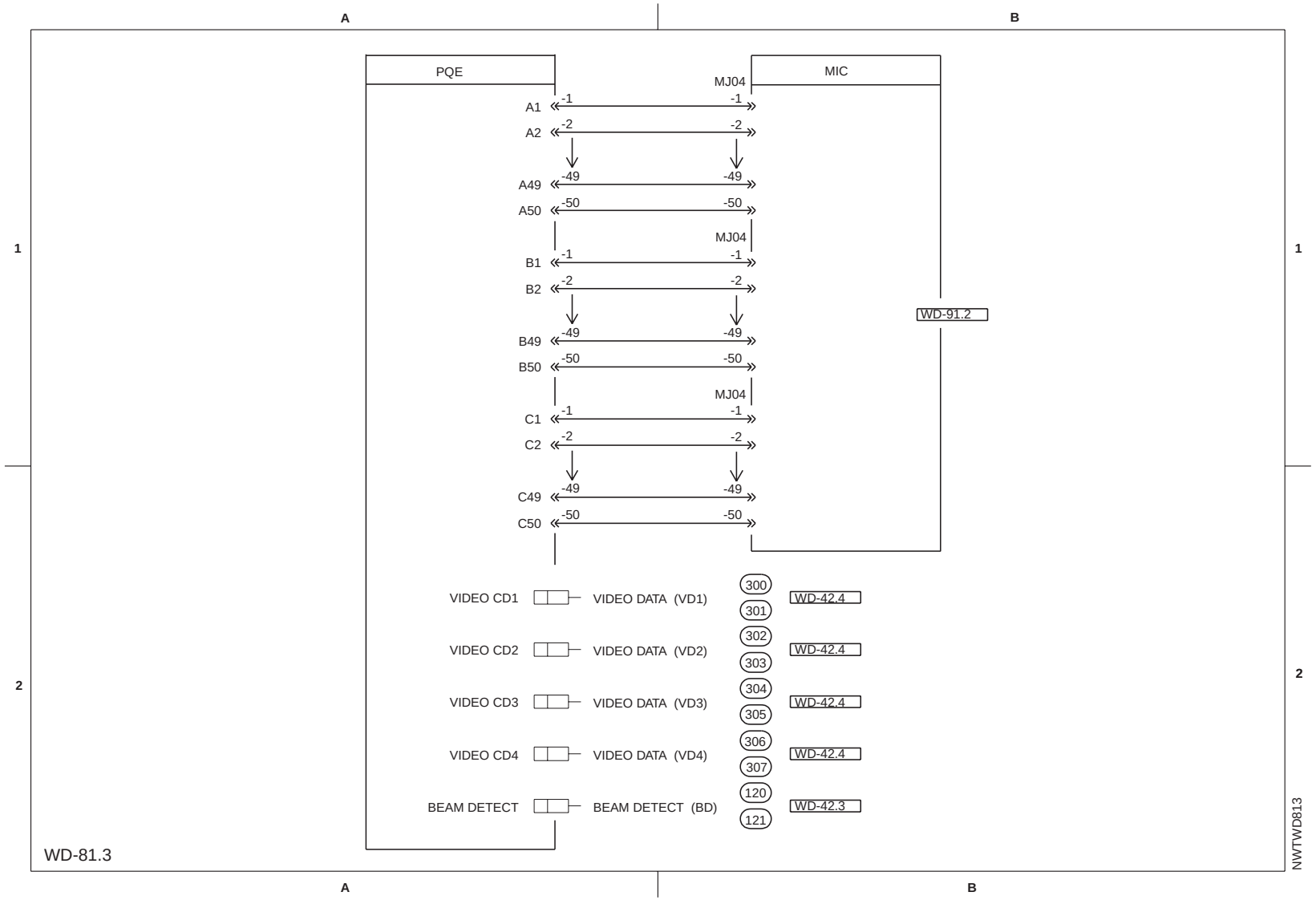
WD81.1 - PQE (Two Beam Printhead) (1 of 2):



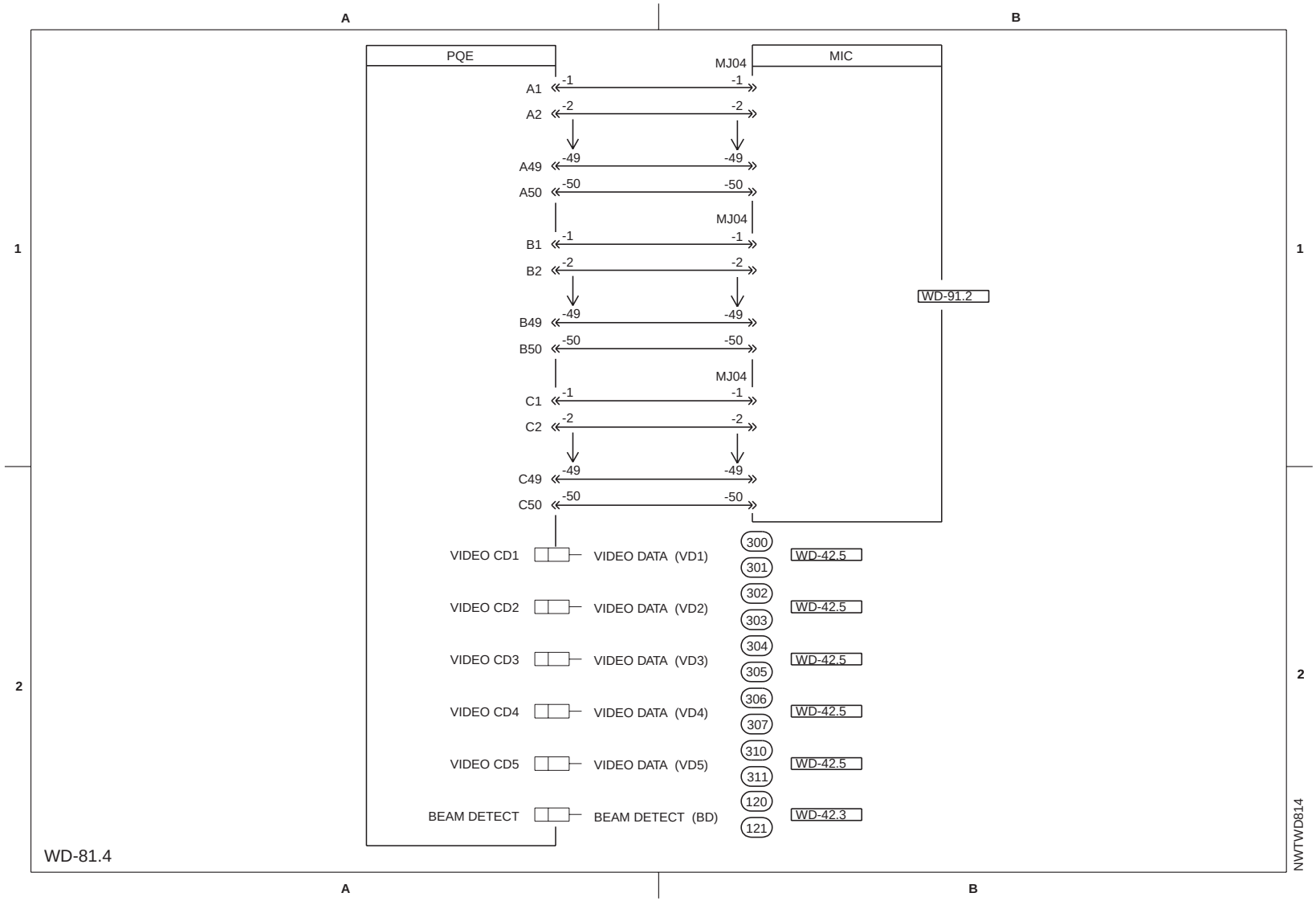
WD81.2 - PQE (Two Beam Printhead) (2 of 2):



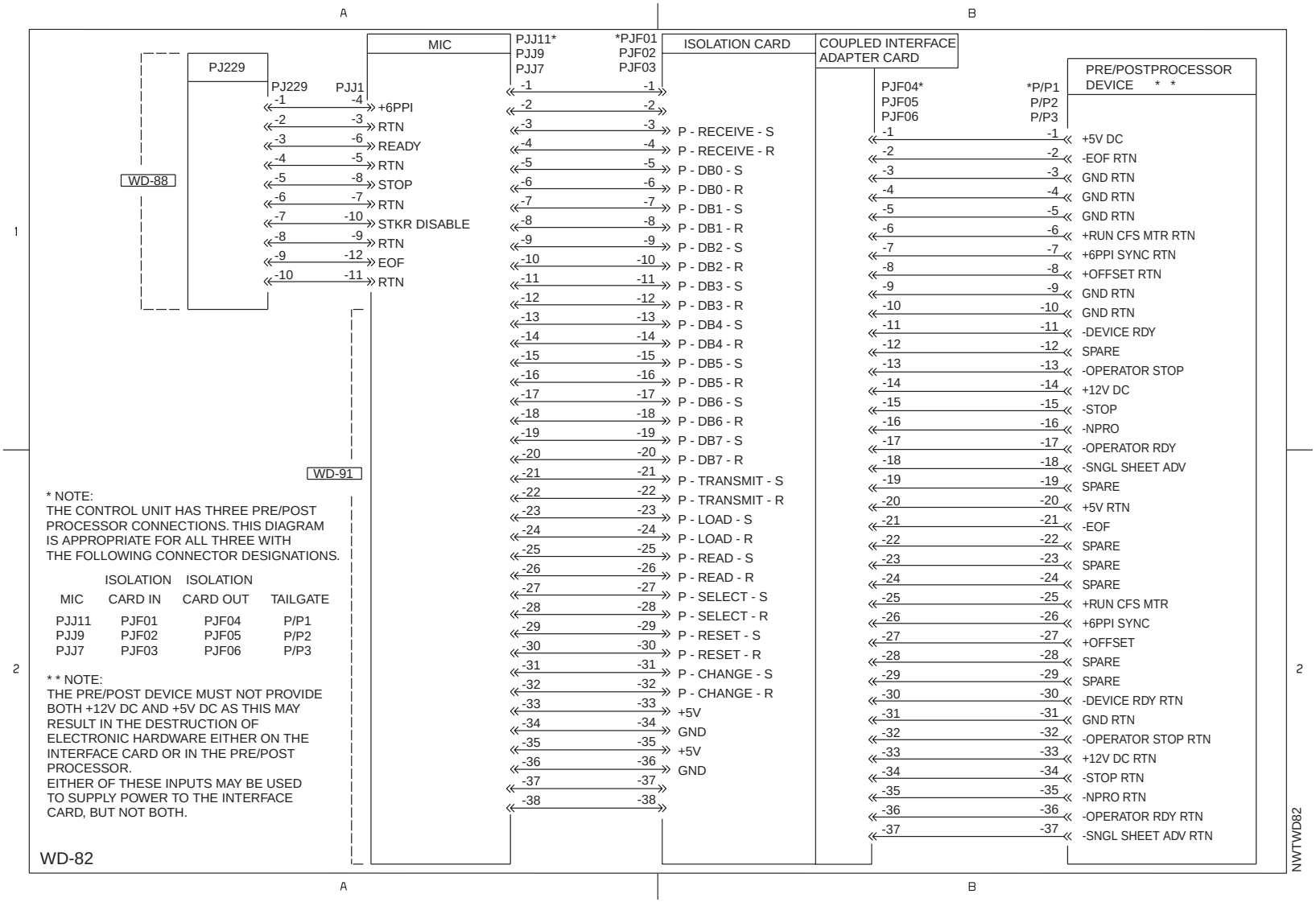
WD81.3 - PQE (Four Beam Printhead):



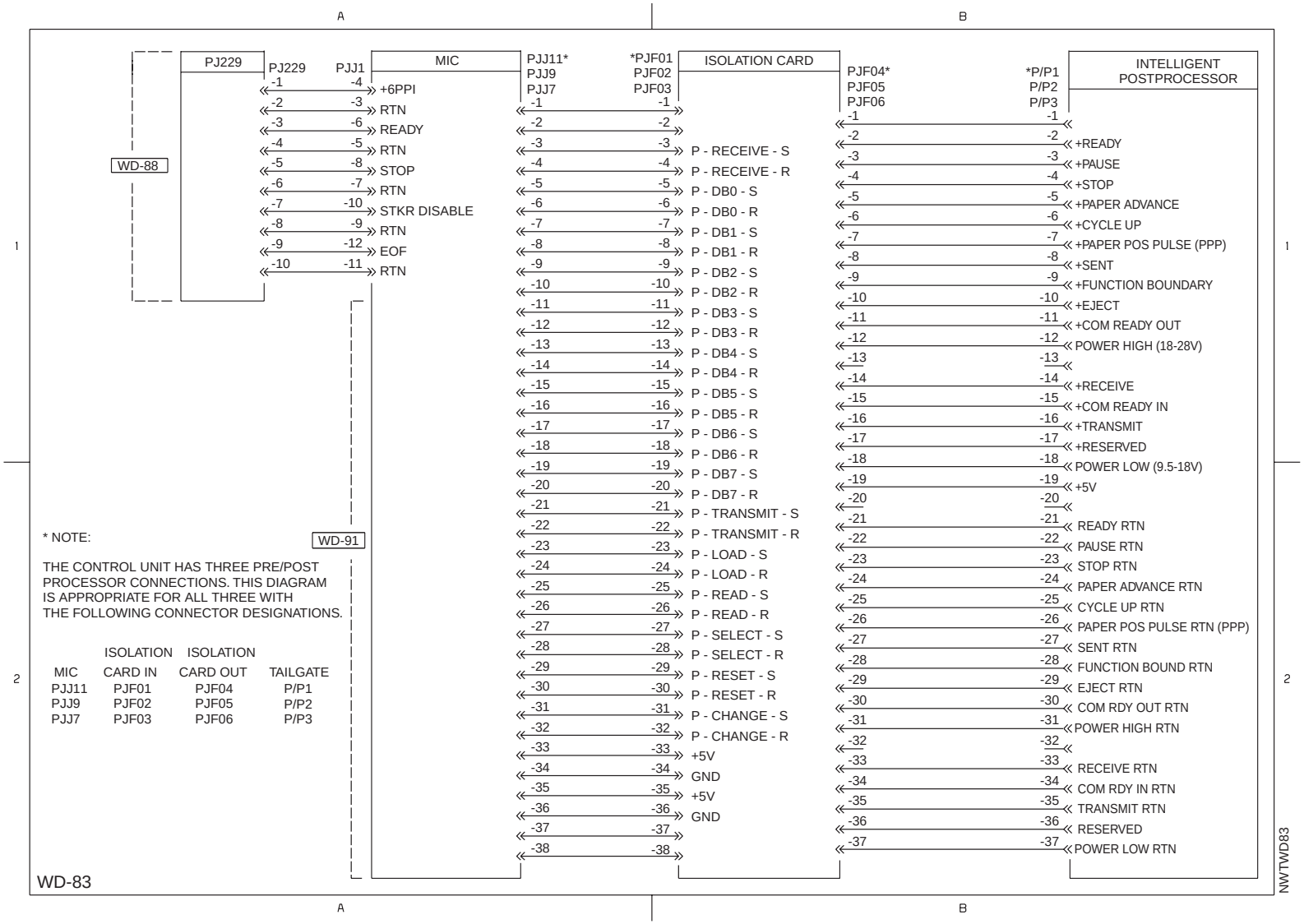
WD81.4 - PQE (Five Beam Printhead):



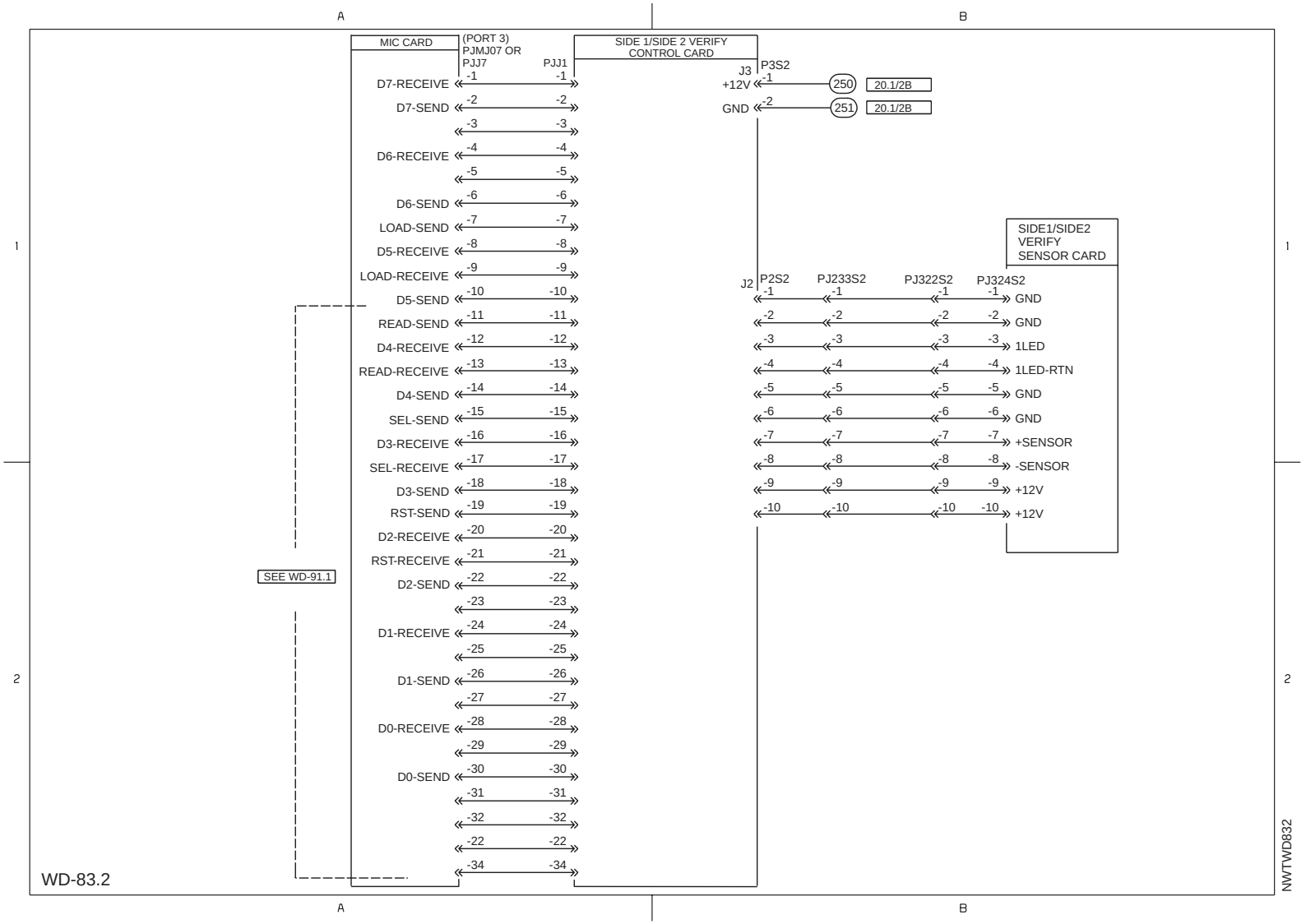
WD82 - MIC to Coupled Pre/Postprocessor Interface:



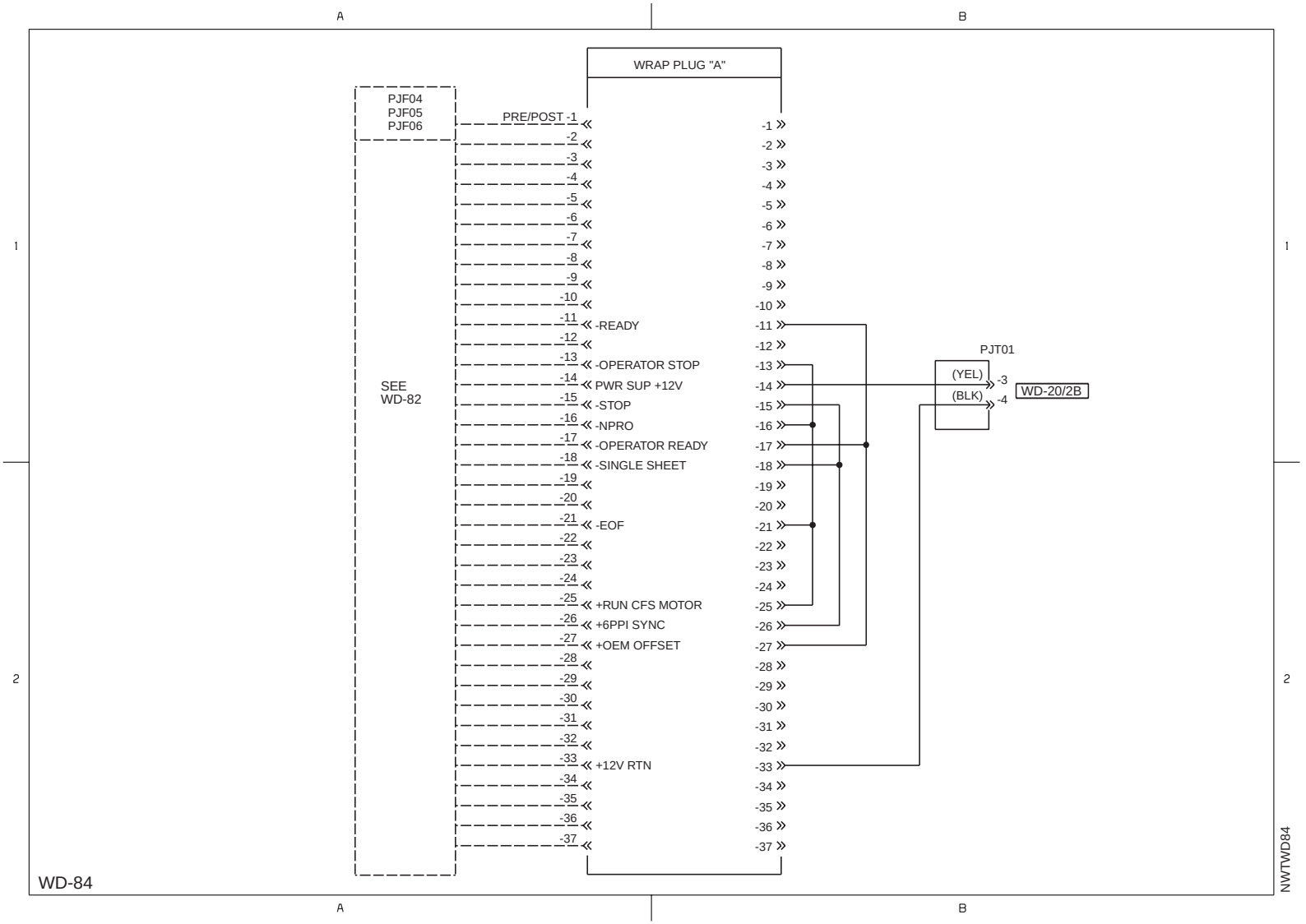
WD83 - MIC to Intelligent Postprocessor:



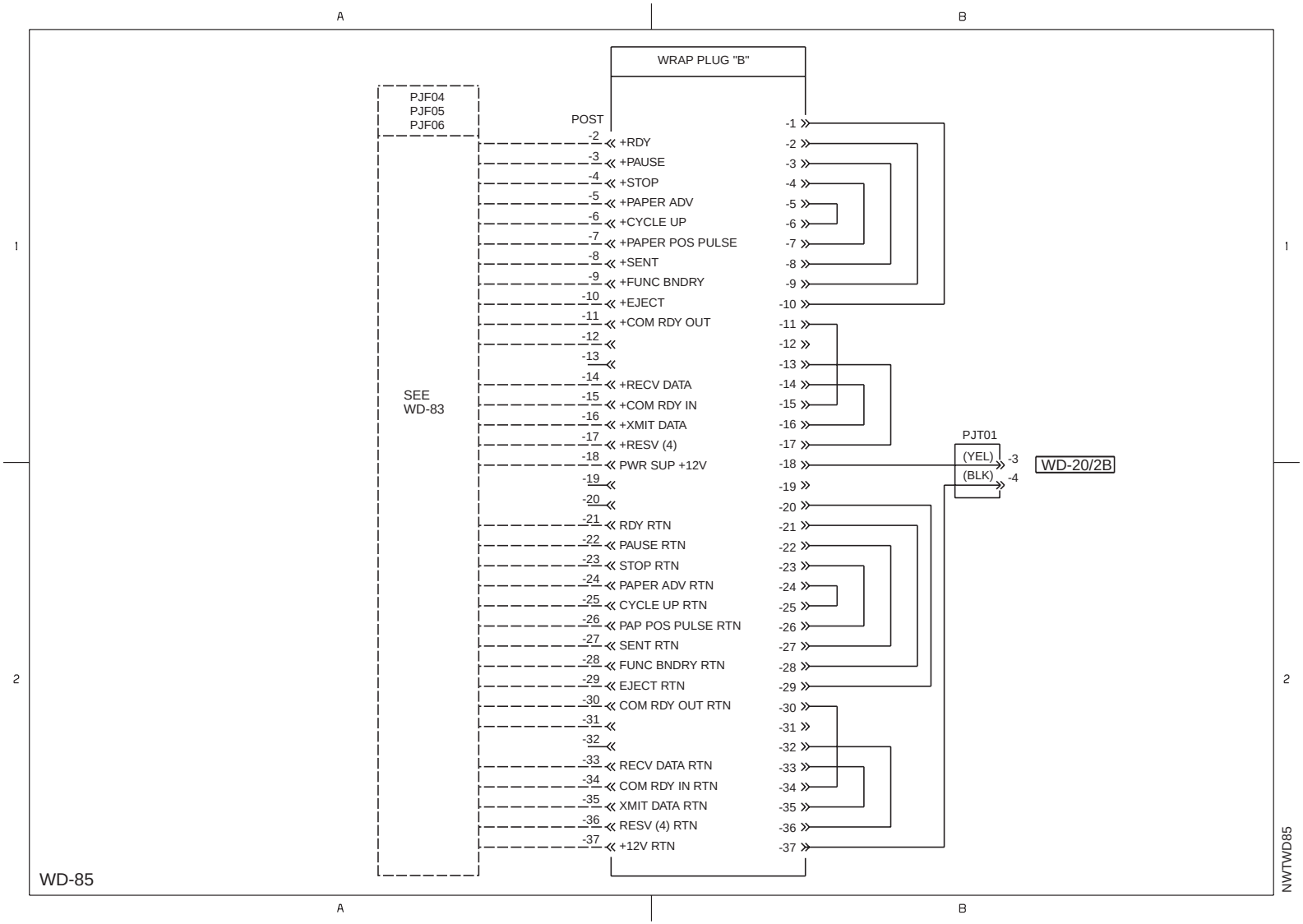
WD83.2 - Side 1/Side 2 Verify to MIC (InfoPrint 4000, Printer 2):



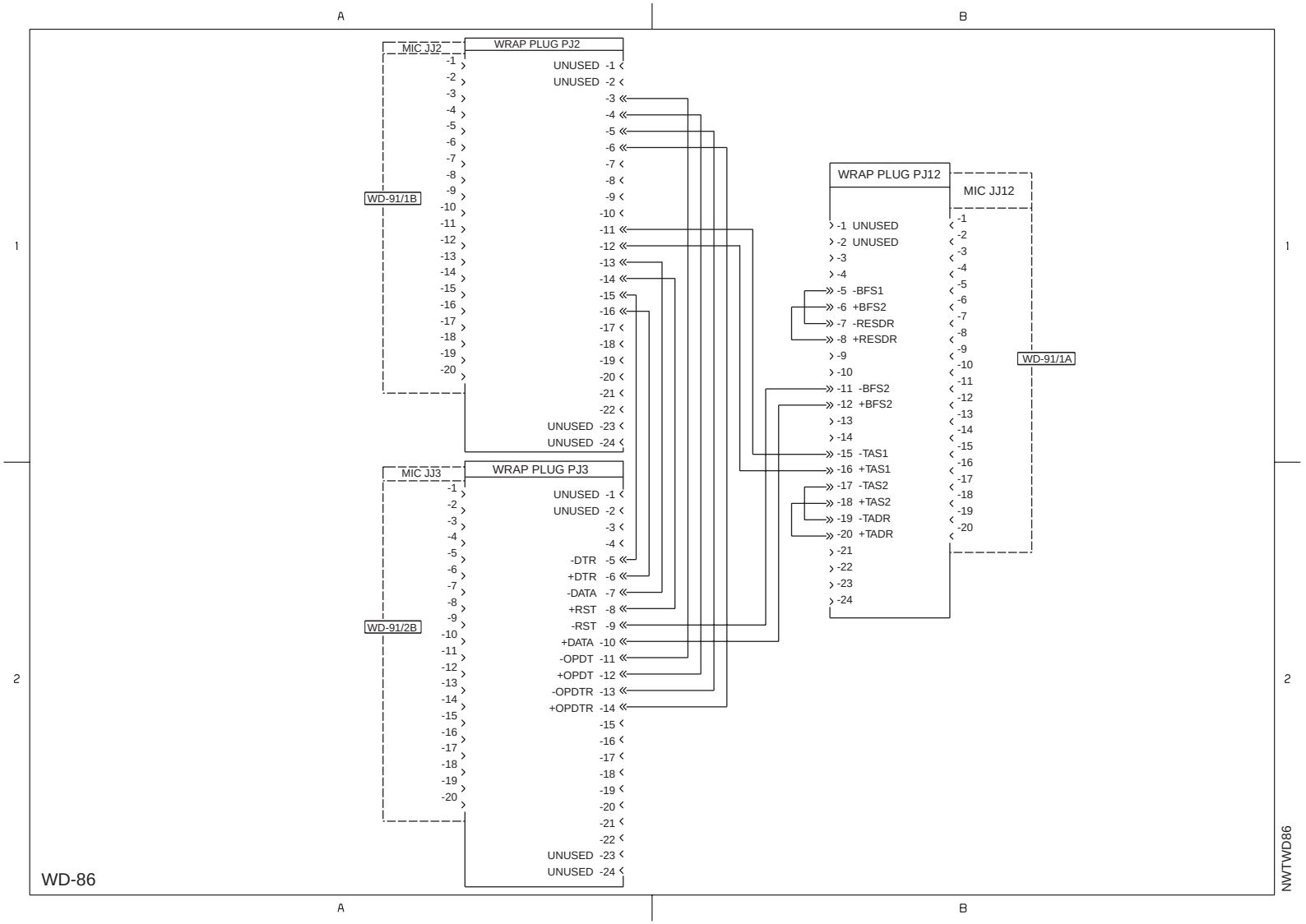
WD84 - Coupled Pre-Postprocessor Interface Wrap Plug 'A':



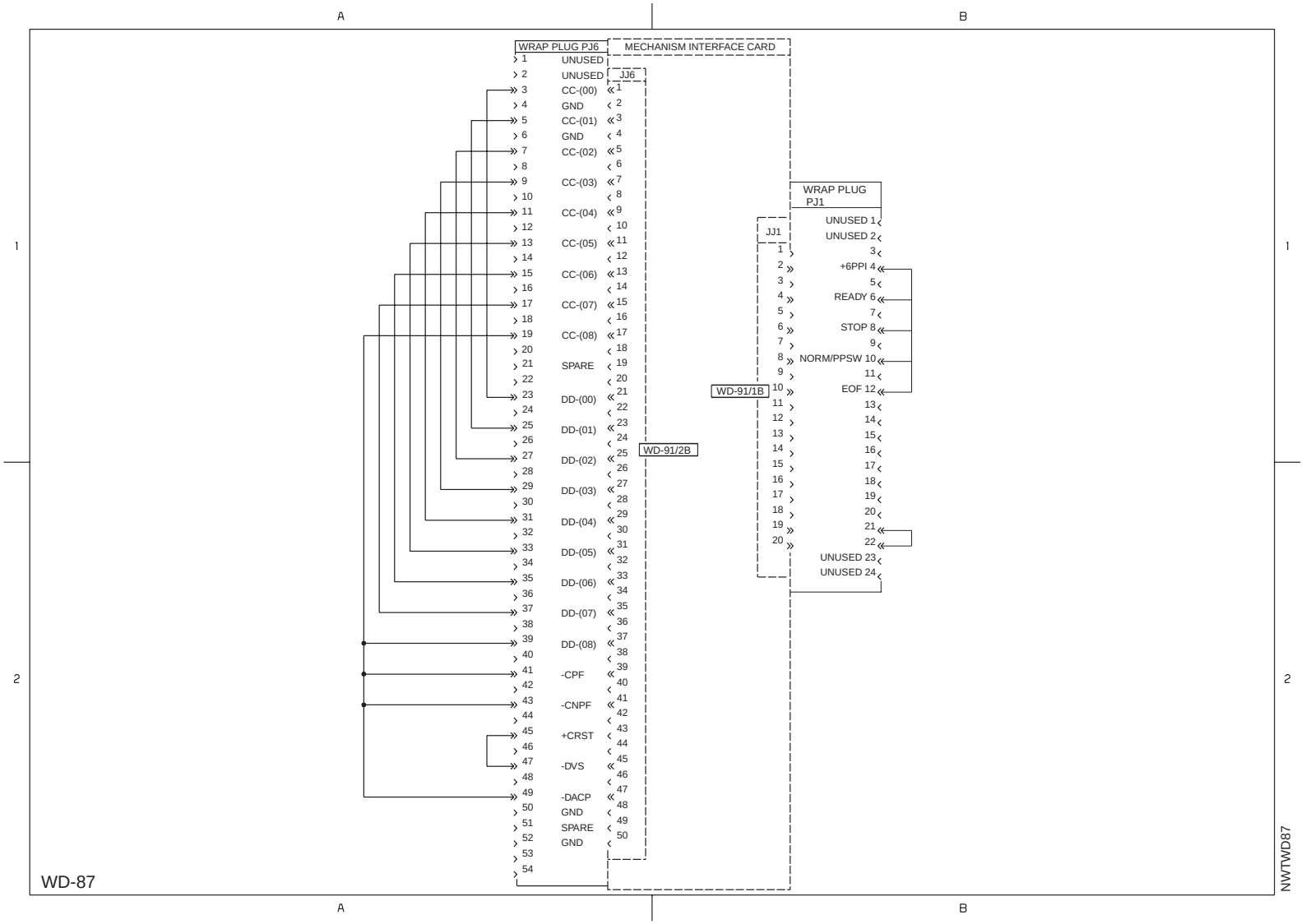
WD85 - Intelligent Postprocessor Interface Wrap Plug 'B':



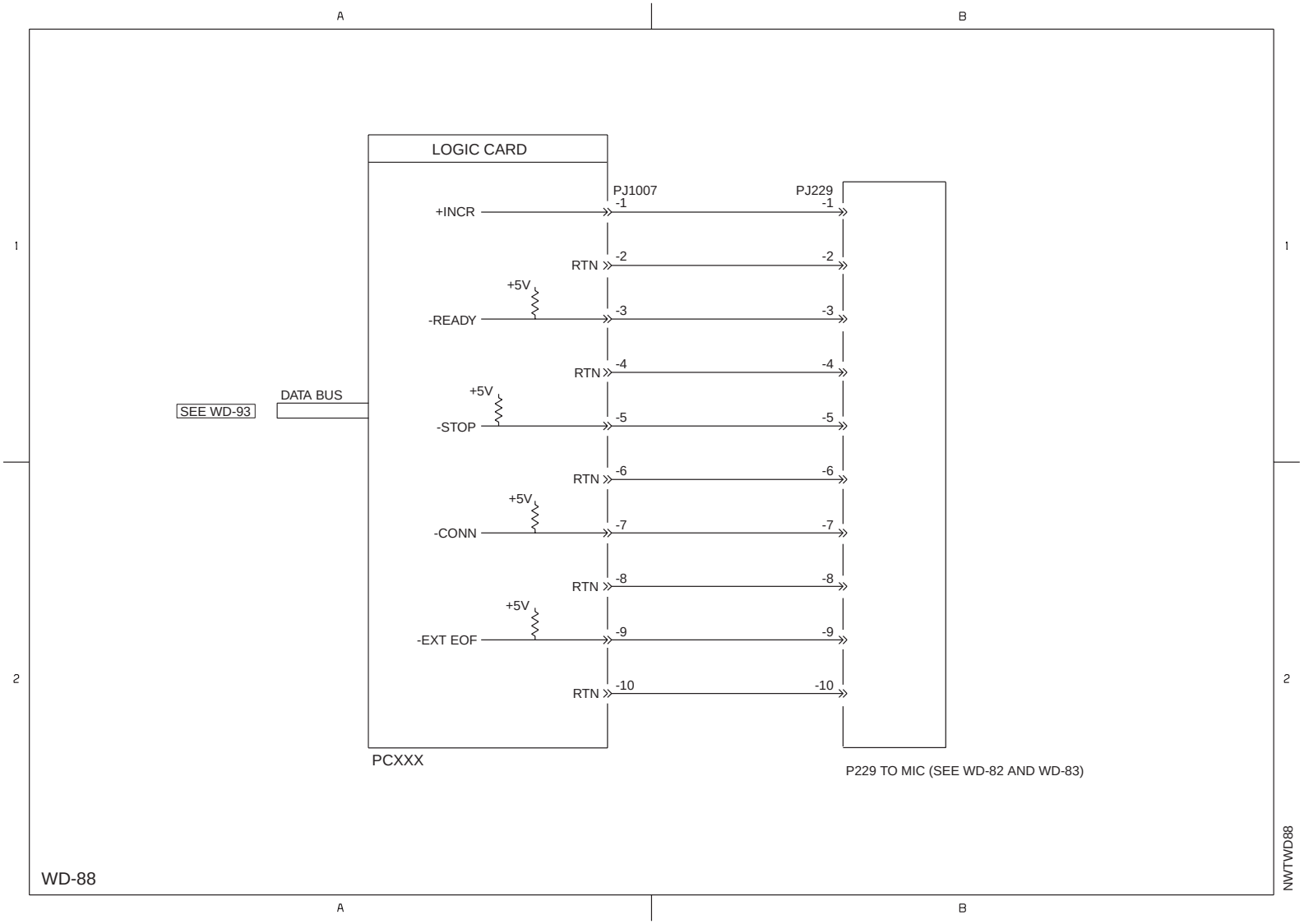
WD86 - MIC Wrap Cable (PJJ2, PJJ3 and PJJ12):



WD87 - MIC Wrap Plugs (PJJ1 and PJJ6):



WD88 - Pre and Postprocessing Printer Circuitry:



Circuit Diagrams

CD01 - Retractor Motor (M304) 1906
CD02 - Tractor Motor Encoder (M303) 1907
CD03 - Retractor Motor Overcurrent (M304) 1908
CD04 - Forms Width Hall Sensor 1909
CD05 - Forms Width Sensor Circuit Breaker 1910
CD06 - Upper Tractor Jam Sensor (Q301) 1911
CD07 - Drum Drive Motor Overcurrent Detection (M107) 1912
CD08 - Drum Drive Servo Control Time Out (M107) 1913
CD09 - Drum Drive Servo Control Overspeed (M107) 1914
CD10 - Drum Drive Servo Control Position 1915
CD11 - Tension Arm Encoder 1916
CD12 - Skew Sensor (D604) 1917
CD13 - Steering Motor (M601) 1918
CD14 - Fuser Front Wrap Sensors (S617, S618, S620) 1919
CD15 -Scuff Roll Motor (M604) 1920
CD16 - Three-Pump Oiling System 1921
CD17 - Six-Pump Oiling System 1922
CD18 - Backup Roll Motor and Thermal Sensor (M603) 1923
CD19 - Backup Roll Motor (M603) and Encoder (EN131) 1924
CD20 - Hot Roll Motor Servo Control (M607) 1925
CD21 - Oiler Belt Motor and Driver (M706) 1926
CD22 - Backup Idler Roll (M609) and Encoder (EN131) 1927
CD23 - Backup Idler Roll Motor and Thermal (M609) 1928
CD24 - Backup Roll Lift Motor (M610) and Position Sensor (S624) 1929
CD25 - Finger Belt Motors (M701, M702) 1930
CD26 - Stacker Jam Sensor (Q701) 1931
CD27 - Pendulum Motor (M704) 1932
CD28 - Pendulum Motor Overcurrent (M704) 1933
CD29 - Pendulum Motor (M704) and Position Sensor (S619) 1934

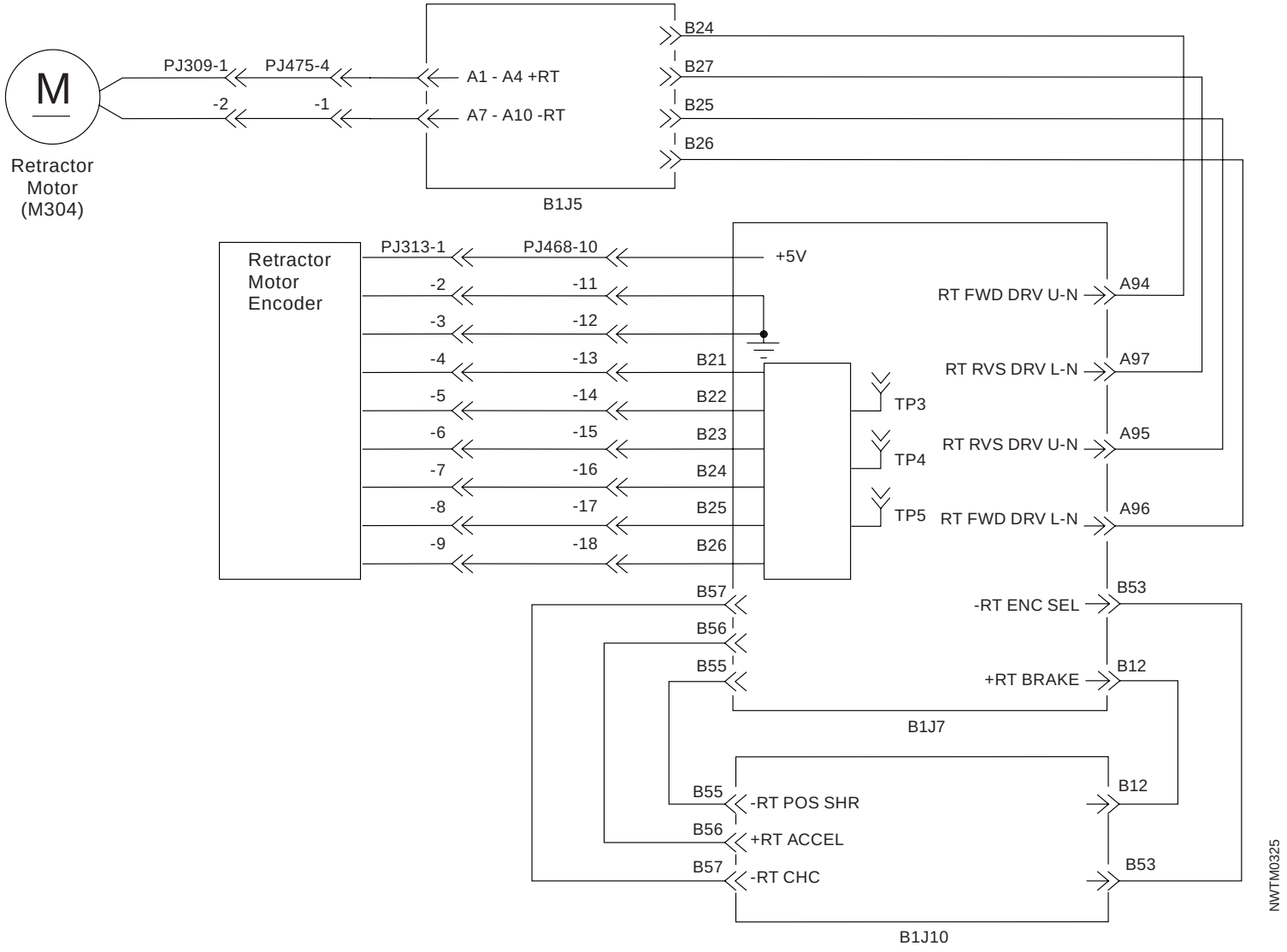
CD30 - Stacker Cooling Blower (B703) 1935
CD31 - Stacker Table Motor and Thermal Sense (M803) 1936
CD32 - Stacker Height Sensor (Q703) 1937
CD33 - Stacker Gate Safety Switches (S713, S714) 1938
CD34 - Stacker Table Switches (S701, S704) 1939
CD35 - Stacker Forms Length Hall Sensor 1940
CD36 - Stacker Length Motor (M707) 1941
CD37 - Stacker Forms Length Control Switch (SW511) 1942
CD38 - Capstan Pinch Roll Motor (M301) 1943
CD39 - Bridge Up Switch (S608) 1944
CD40 - Bridge Lift Motor (M606) 1945
CD41 - Capstan Roll Motor (M302) 1946
CD42 - Bridge Feed Motor (M605) 1947
CD43 - Capstan Pinch Roll Open Switch (S301) 1948
CD44 - Bridge Down Switch (S609) 1949
CD45 - Charge Corona 1950
CD46 - Tansfer Corona 1951
CD47 - Preclean Corona 1952
CD48 - Precharge Corona 1953
CD49 - Mirror Motor M201 (Fixed Resolution Printheads) 1954
CD50 - Mirror Motor M201 — (Switchable Resoluiton Printheads) 1955
CD51 - Video Data (Single Beam Printhead) 1956
CD52 - Four Beam Printhead 1957
CD53 - Five Beam Printhead 1958
CD54 - Beam Detect (Four and Five Beam Printheads) 1959
CD55 - Video Data (Four Beam Printhead) 1960
CD56 - Rresolution Switching Lens Motor Position Sensor (S202) 1961
CD57 - PC Drum Cover Interlock Switch (S122) — (20 mW) 1962
CD58 - PC Drum Cover Interlock Switch (S122) — (30 mW) 1963
CD59 - Mag Brush Bias 1964
CD60 - Mag Brush Motor (M101) and Conveyor Roll Rotation Sensor (S113) 1965

CD61 - Mag Brush Motor and Thermal Sense (M101) 1966
CD62 - Toner Control Sensor (L101) and Toner Control Motor (M103) 1967
CD63 - Primary Erase Lamp (PL102), Starter (ST102), and Sensor (Q101) 1968
CD64 - Secondary Erase Lamp (PL101), Starter (ST101), and Sensor (Q102) 1969
CD65 - Cleaner Brush Motor (M108) and Rotation Sensor (S114) 1970
CD66 - Cleaner Brush Motor and Thermal (M108) 1971
CD67 - Cleaner Housing Motor (M106) and Position Switch (S103) 1972
CD68 - Vacuum Blower Thermal (M105) 1973
CD69 - Shutter Control Motor (M602) 1974
CD70 - Shutter Control Motor (M602) and Vacuum Shutter Home Sensor (S604) 1975
CD71 - Cyclone Blower Motor (M104) 1976
CD72 - Cyclone Blower Motor (M104) and Rotation Sensor (S116) 1977
CD73 - Preheat Platen 1978
CD74 - Preheat Control. 1979
CD75 - Preheat Platen Thermal 1980
CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623) 1981
CD77 - Hot Roll Over-temperature Sensor (S613) 1982
CD78 - Hot Roll Temperature Control Sensor (L601) 1983
CD79 - Hot Roll Lamp Control 1984
CD80 - Hot Roll Soft Start Thermal Sensors (S601, S602) 1985
CD81 - Hot Roll Motor Over-current Detection (M607) 1986
CD82 - Hot Roll Lamp 1 Relay (SR605) 1987
CD83 - Hot Roll Lamp 1 1988
CD84 - Hot Roll Lamp 2 Relay (SR606) 1989
CD85 - Hot Roll Lamp 2 1990
CD86 - Hot Roll Lamp 3 Relay (SR607) 1991
CD87 - Hot roll Lamp 3 1992
CD88 - Hot Roll Lamp 4 Relay (SR608) (3900 0Wx & DWx Models, Infoprint 4000 ISx & IDx Models) 1993
CD89 - Hot Roll Lamp 4 1994
CD90 - Operator Alert 1995
CD91 - Printer Remote Power 1996

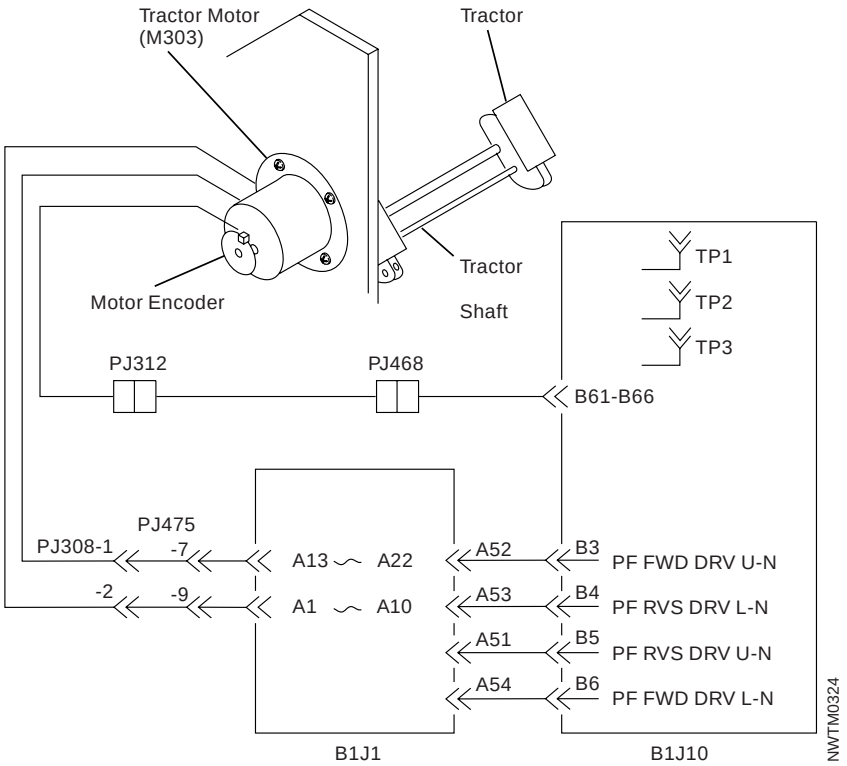
CD92 - Printer 1 Remote Power 1997
CD93 - (+5 V) Voltage Distribution 1998
CD94 - (+12 V) Voltage Distribution 1999
CD95 - (−12 V) Voltage Distribution 2000
CD96 - (+24 VD) Voltage Distribution (Three Oil Pump) 2001
CD97 - (+24 VB) Voltage Distribution. 2002
CD98 - (+24 VE) Voltage Distribution. 2003
CD99 - (+24 VH) Voltage Distribution. 2004
CD100 - (+42 V) Voltage Distribution. 2005
CD101 (+5 VM/+12 VM and +120/+140/+260 V) Voltage Distribution 2006
CD102 -Transformer and Soft Start Resistor Thermal 2007
CD103 - Speed Select Alarm. 2008
CD104 - B1 Logic Gate Thermal 2009
CD105 - (24 VD) Power Supply 2010
CD106 - PJ136 Jumper. 2011
CD107 – Splice Lever Switch (S101). 2012
CD108 - Transfer Station Open Sensor (S302). 2013
CD109 - Vacuum Switch (S606) 2014
CD110 - Toner Collector Bottle Switch (S118) 2015
CD111 - Toner Empty Sensor (S106). 2016
CD112 - Developer Drain Lever Switch (S112). 2017
CD113 - End of Forms (EOF) Sensor (Q103) 2018
CD114 - Developer Run Switch (S107). 2019
CD115 - Printer Control Panel (SW721) 2020
CD116 - Filter Pressure Switch (S102). 2021
CD117 - Fuser Oil Empty Sensor (S702). 2022
CD118 - Oiler Belt End Switch (S610) 2023
CD119 - Oiler Gate Open Switch (S605). 2024
CD120 - Stacker Gate Open Switch (S712) 2025
CD121 - Fine Filter Switch (S108) 2026
CD122 - Toner Supply Switch (S121). 2027

CD123 - Beam Detect (BD121) — (Single Beam) 2028
CD124 - Beam Detect (BD131, BD132, BD141) — (Two, Four, or Five Beam) 2029
CD125 - Video Data for All Two Beam Printheads 2030
CD126 - Two Beam Printheads 2031
CD127 - (+24 VD) Voltage Distribution (Six Oil Pump) 2032
CD128 - Hot Roll Motor Blower (B602) 2033
CD129 - Upper Tractor Jam Sensor (Q301) 2034
CD130 - Hot Roll Lamp 4 Relay (3900 DR1/2 & Infoprint 4000 IRx Models) 2035
CD131 - Stacker Control Panel (SW511) 2036

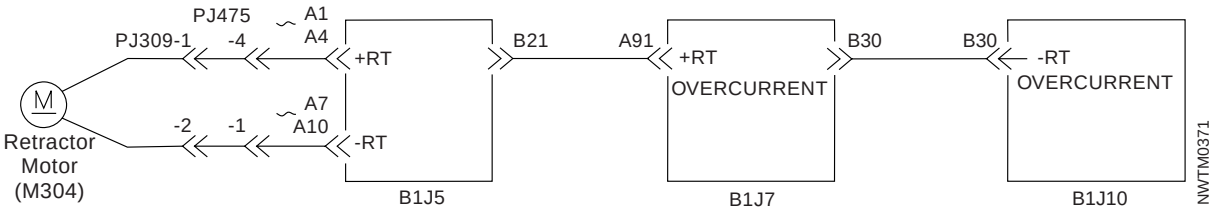
CD01 - Retractor Motor (M304)



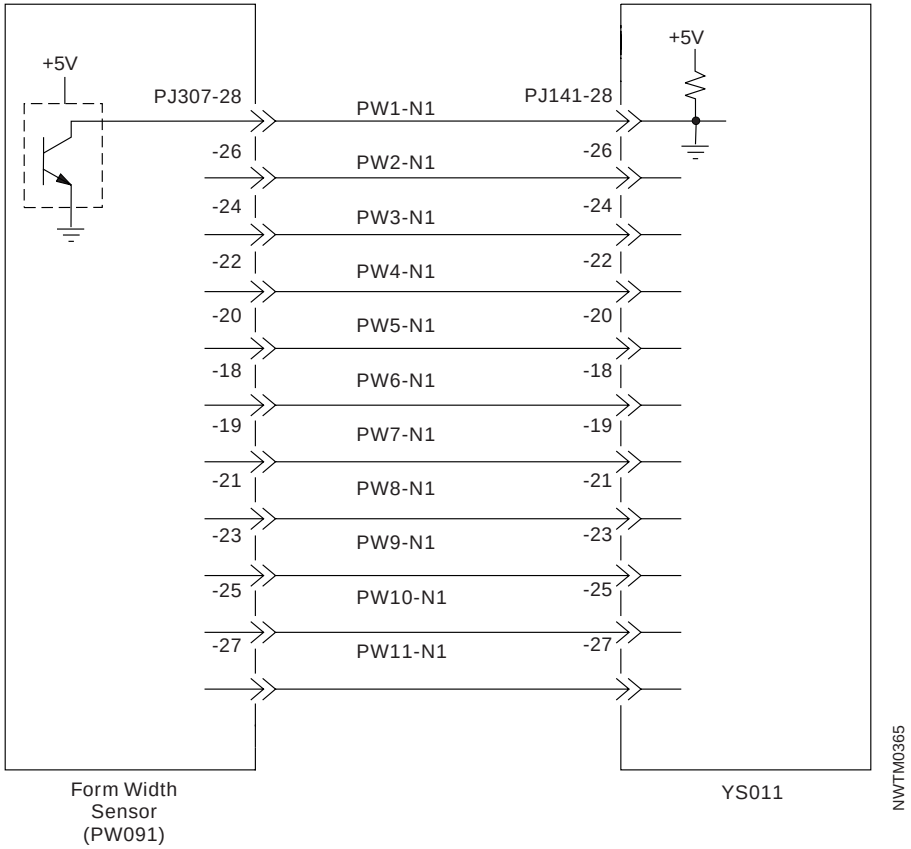
CD02 - Tractor Motor Encoder (M303)



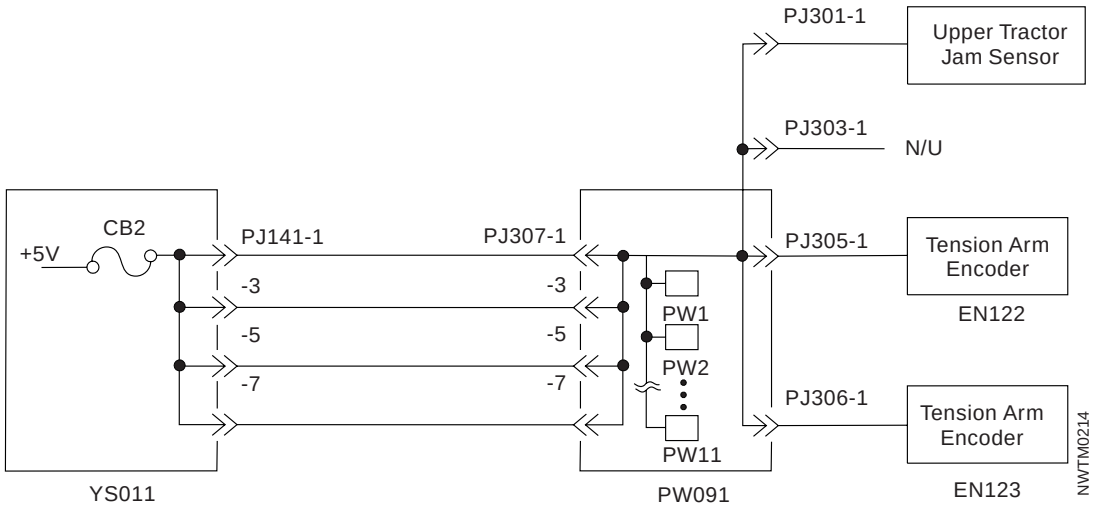
CD03 - Retractor Motor Overcurrent (M304)



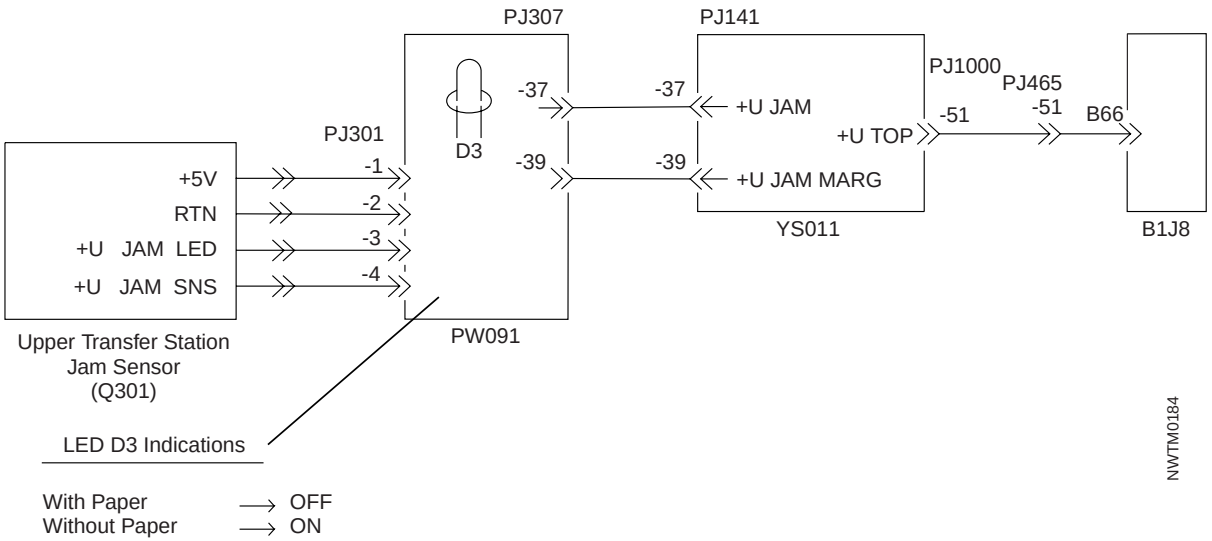
CD04 - Forms Width Hall Sensor



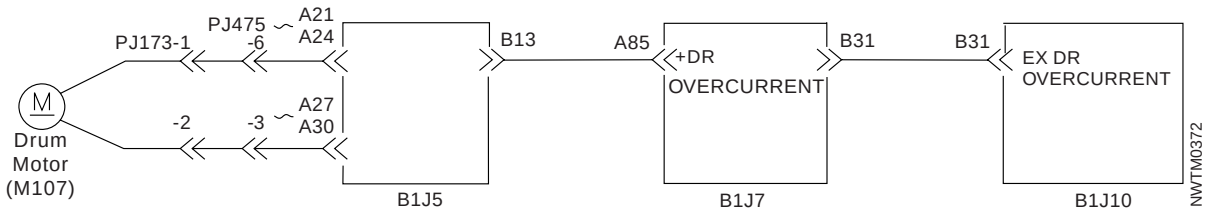
CD05 - Forms Width Sensor Circuit Breaker



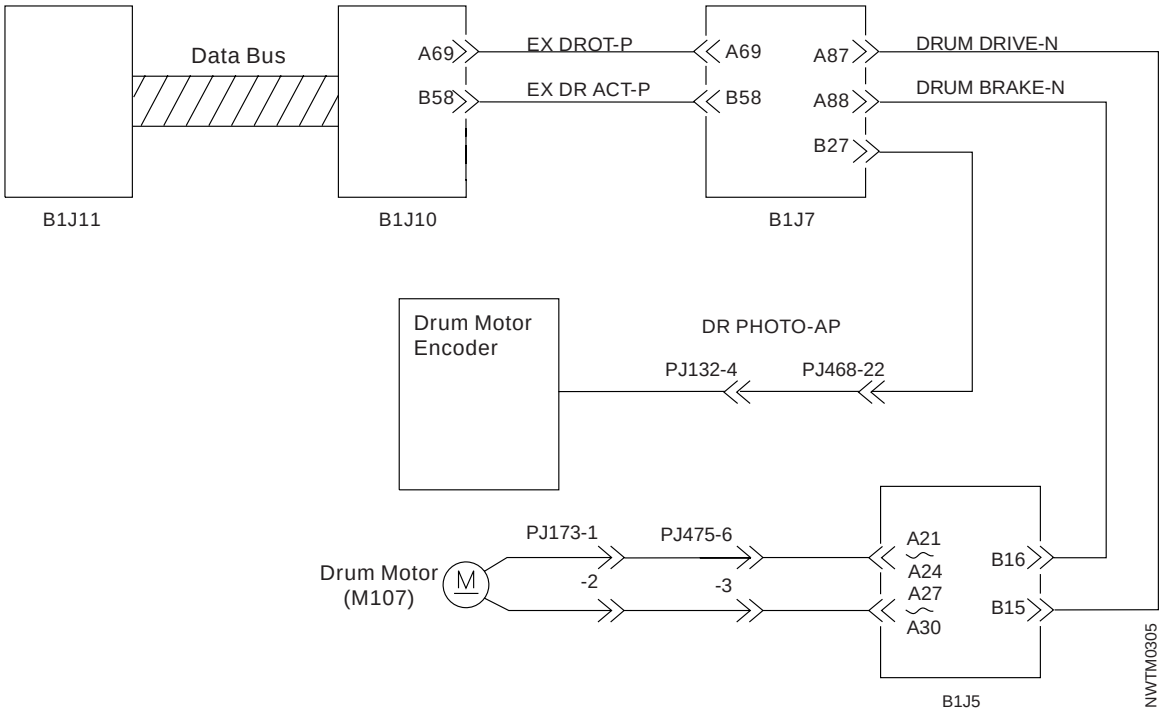
CD06 - Upper Tractor Jam Sensor (Q301)



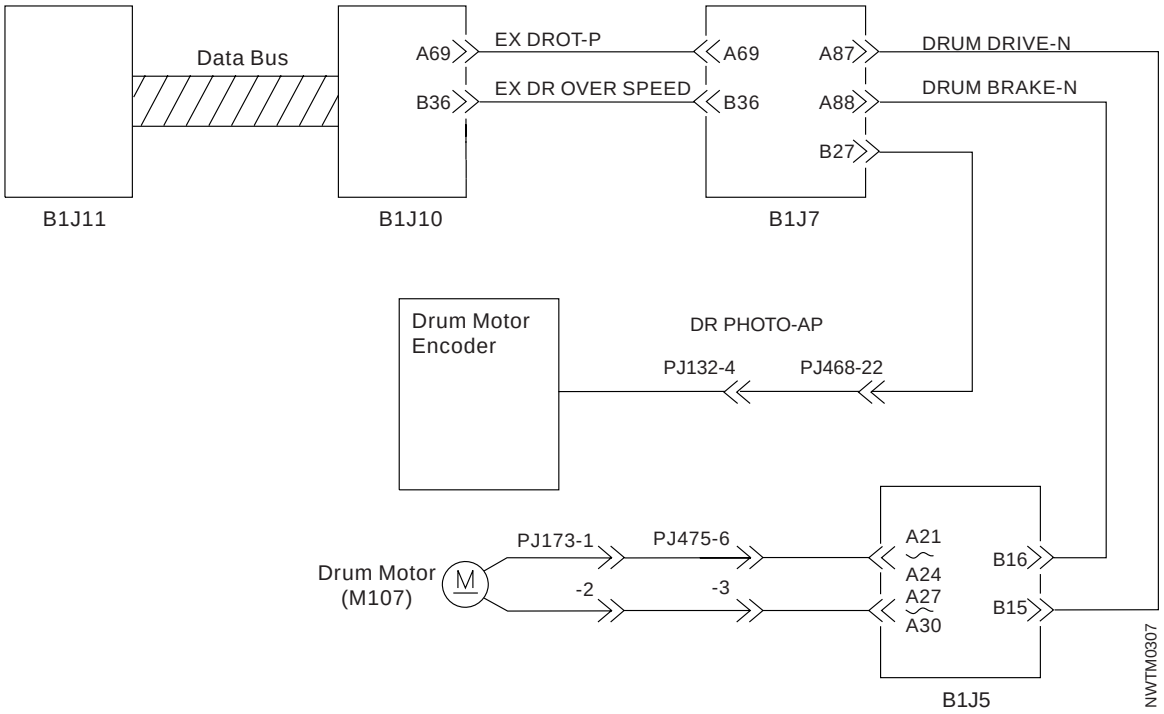
CD07 - Drum Drive Motor Overcurrent Detection (M107)



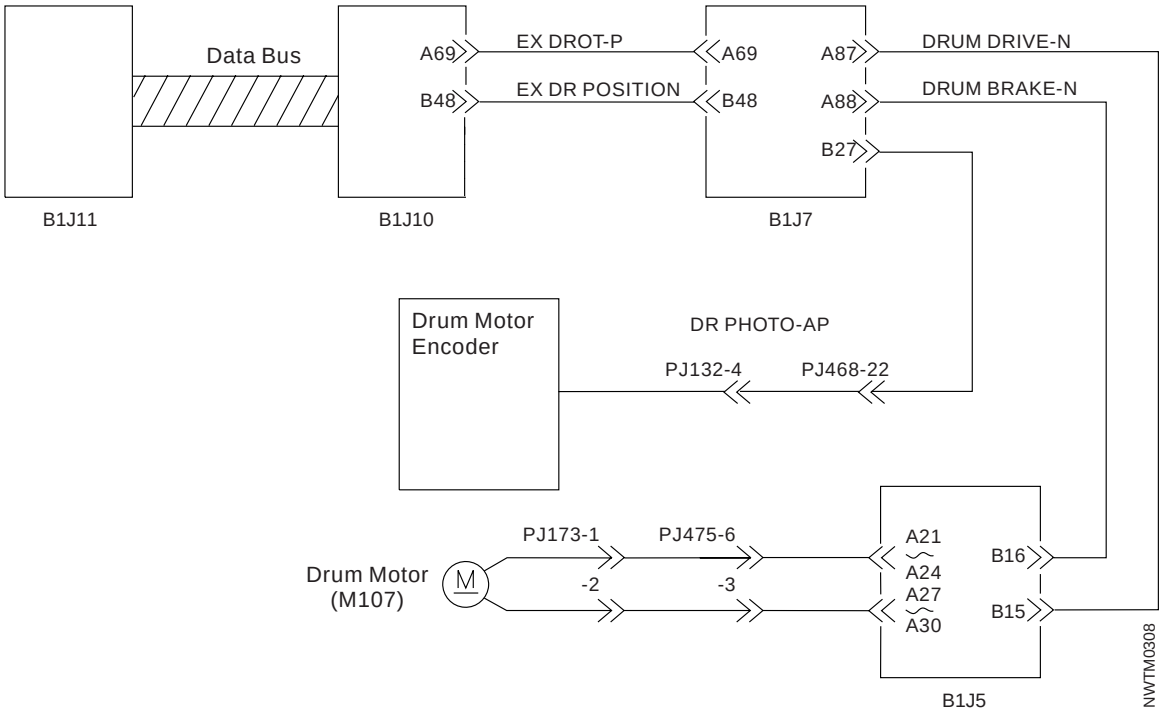
CD08 - Drum Drive Servo Control Time Out (M107)



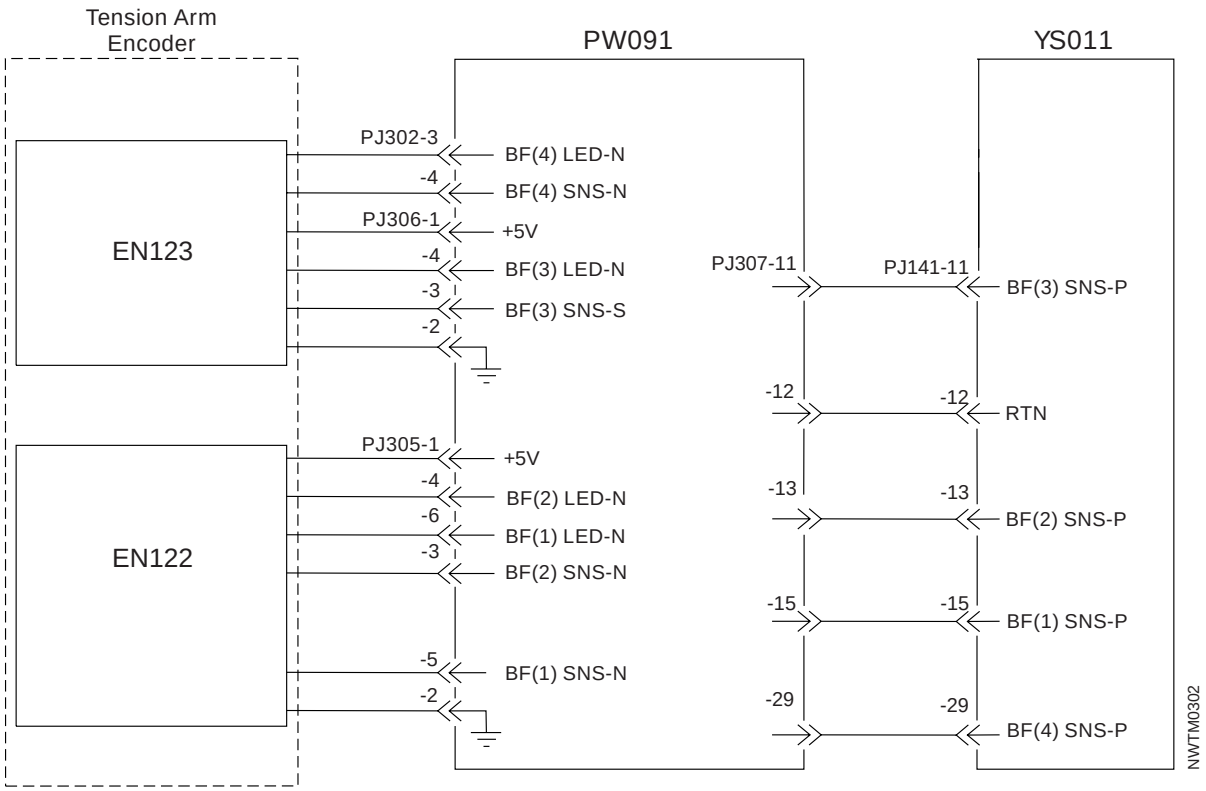
CD09 - Drum Drive Servo Control Overspeed (M107)



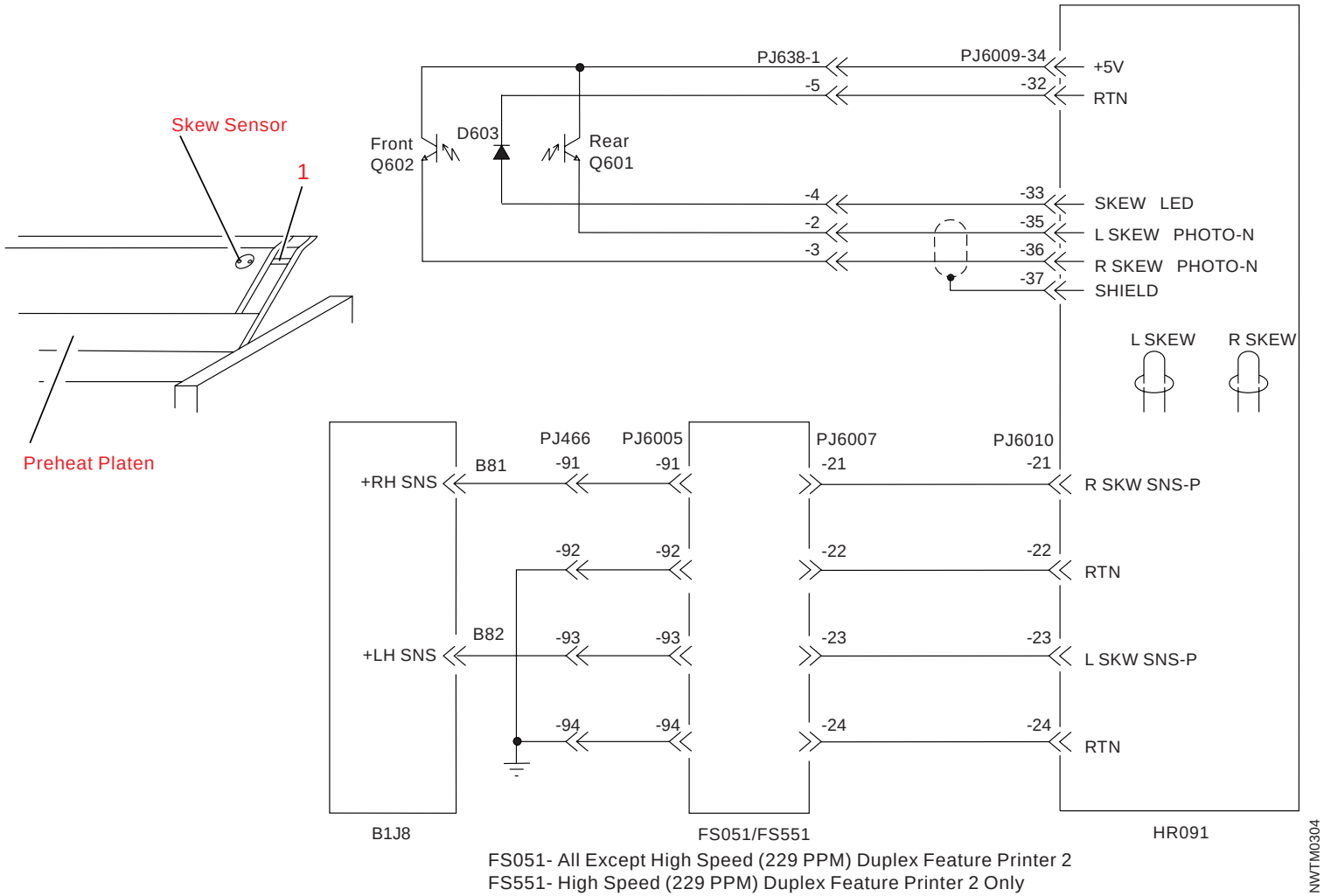
CD10 - Drum Drive Servo Control Position



CD11 - Tension Arm Encoder

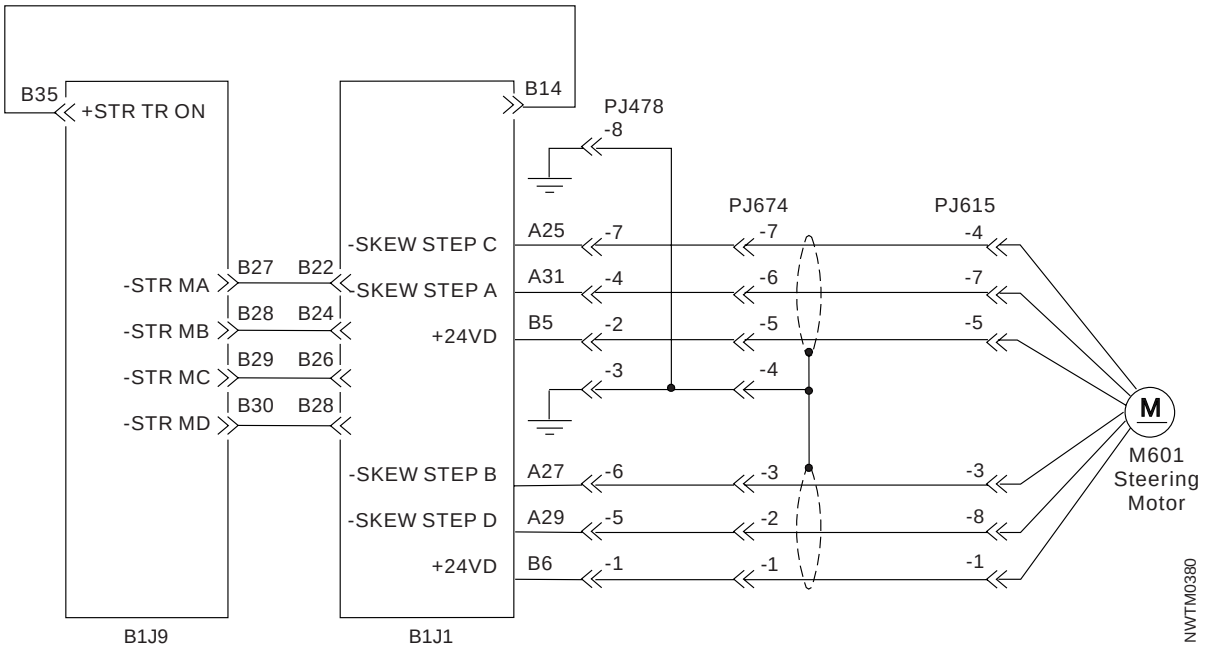


CD12 - Skew Sensor (D604)

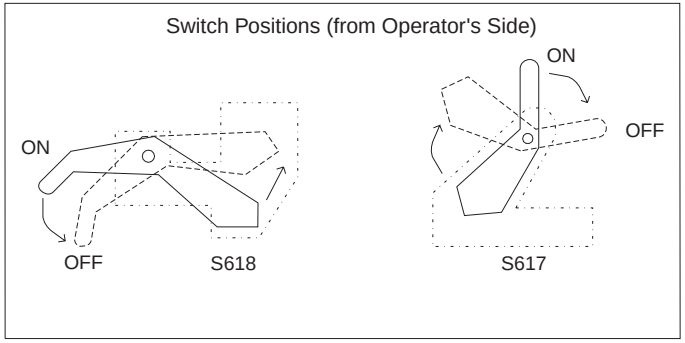


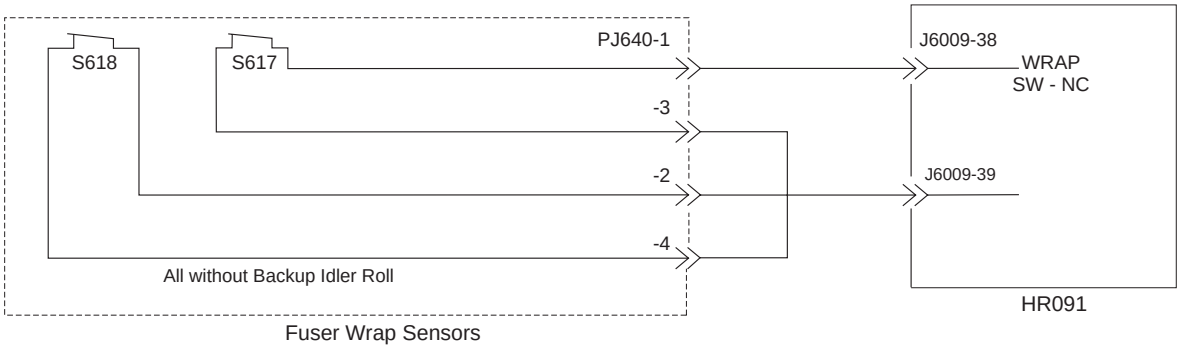
FS051- All Except High Speed (229 PPM) Duplex Feature Printer 2
FS551- High Speed (229 PPM) Duplex Feature Printer 2 Only

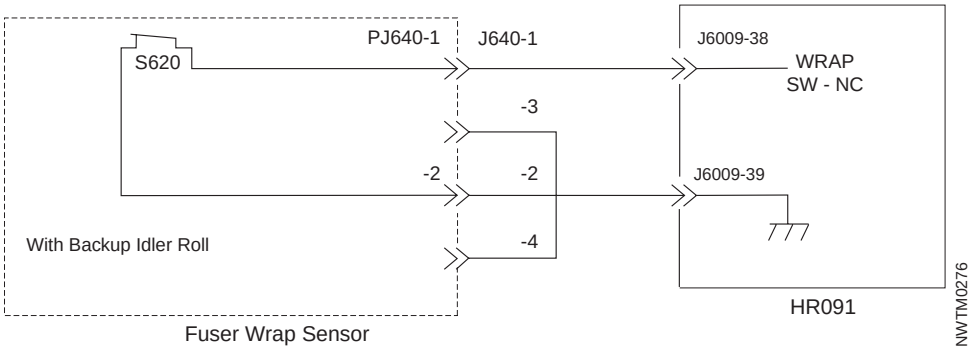
CD13 - Steering Motor (M601)



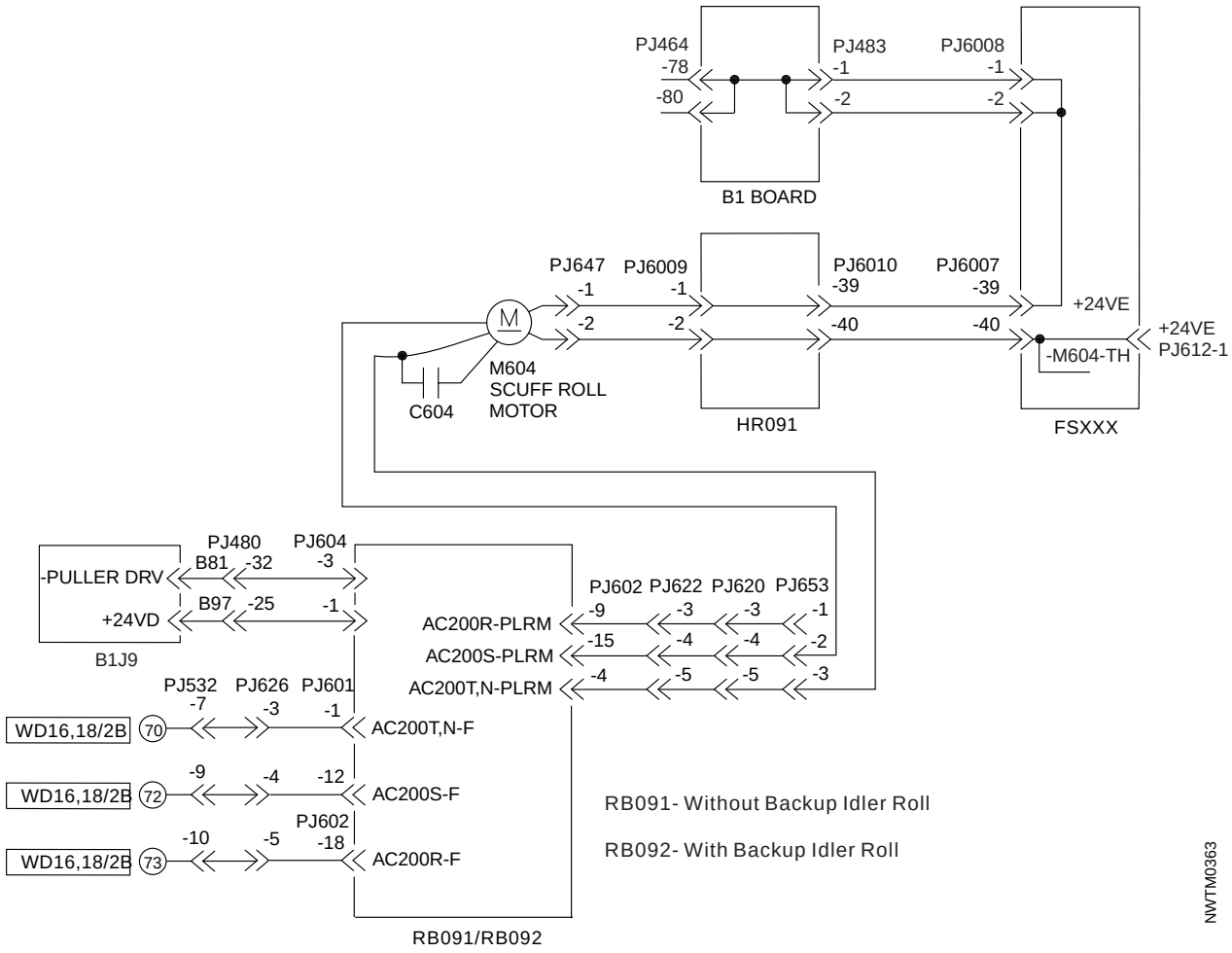
CD14 - Fuser Front Wrap Sensors (S617, S618, S620)



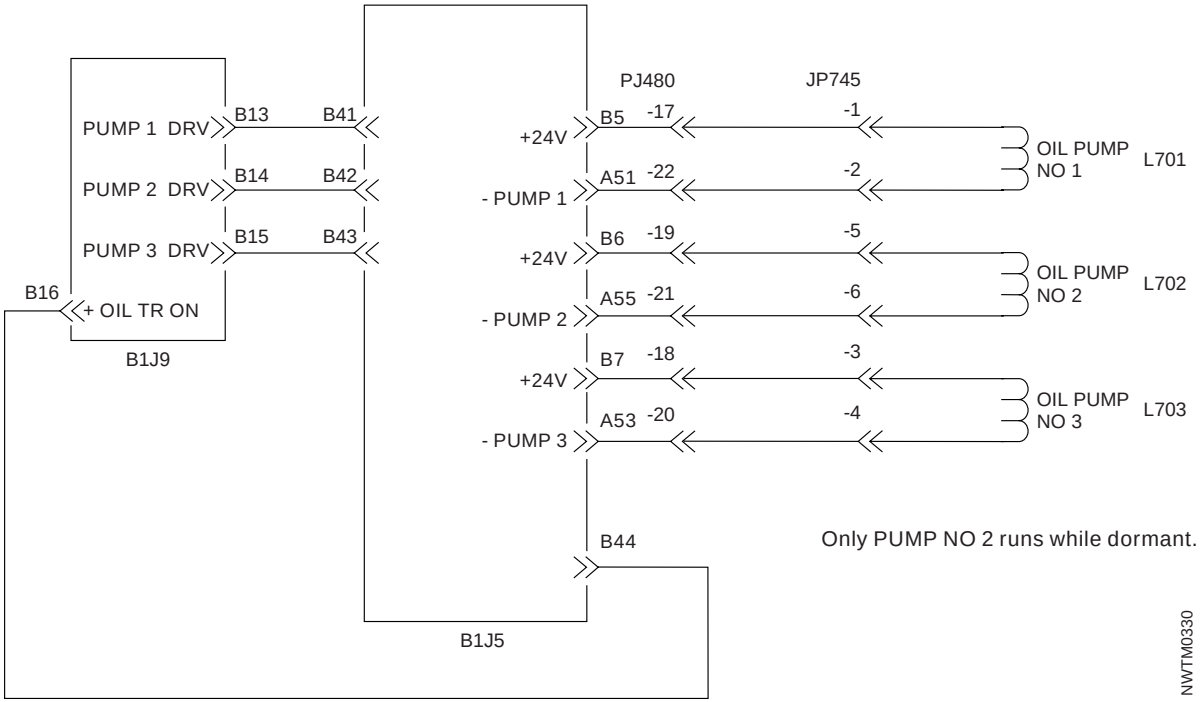




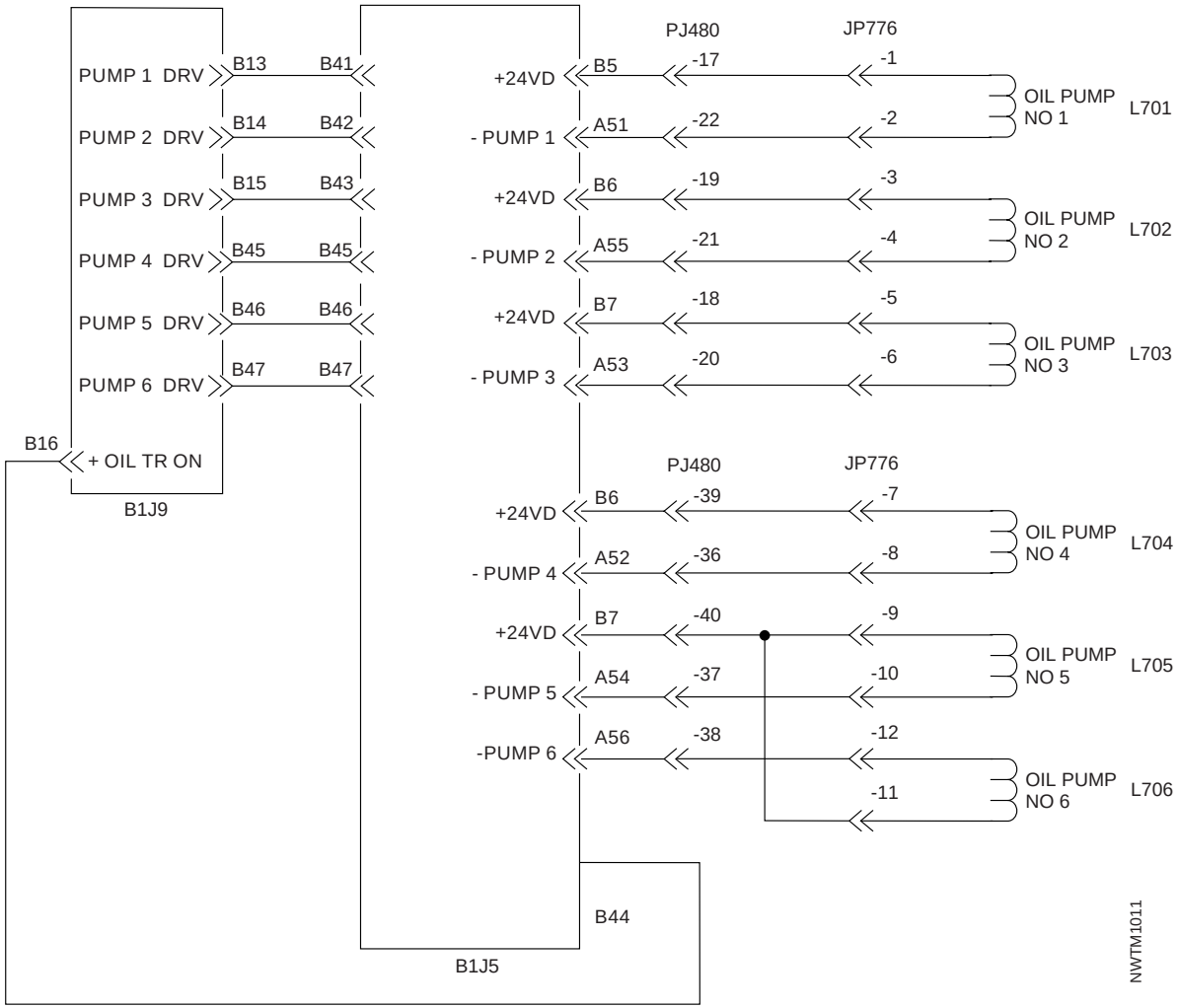
CD15 -Scuff Roll Motor (M604)



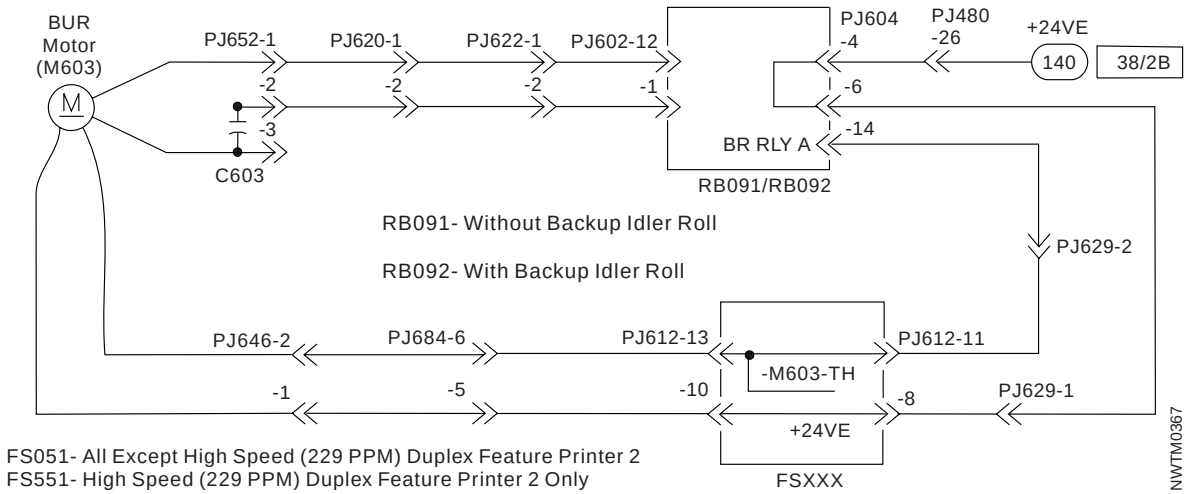
CD16 - Three-Pump Oiling System



CD17 - Six-Pump Oiling System

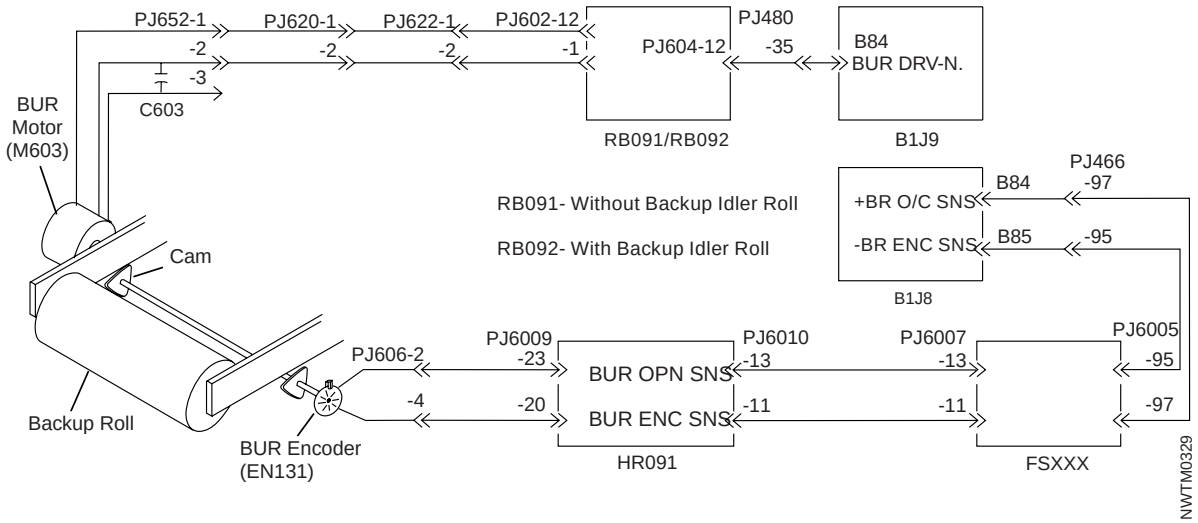


CD18 - Backup Roll Motor and Thermal Sensor (M603)

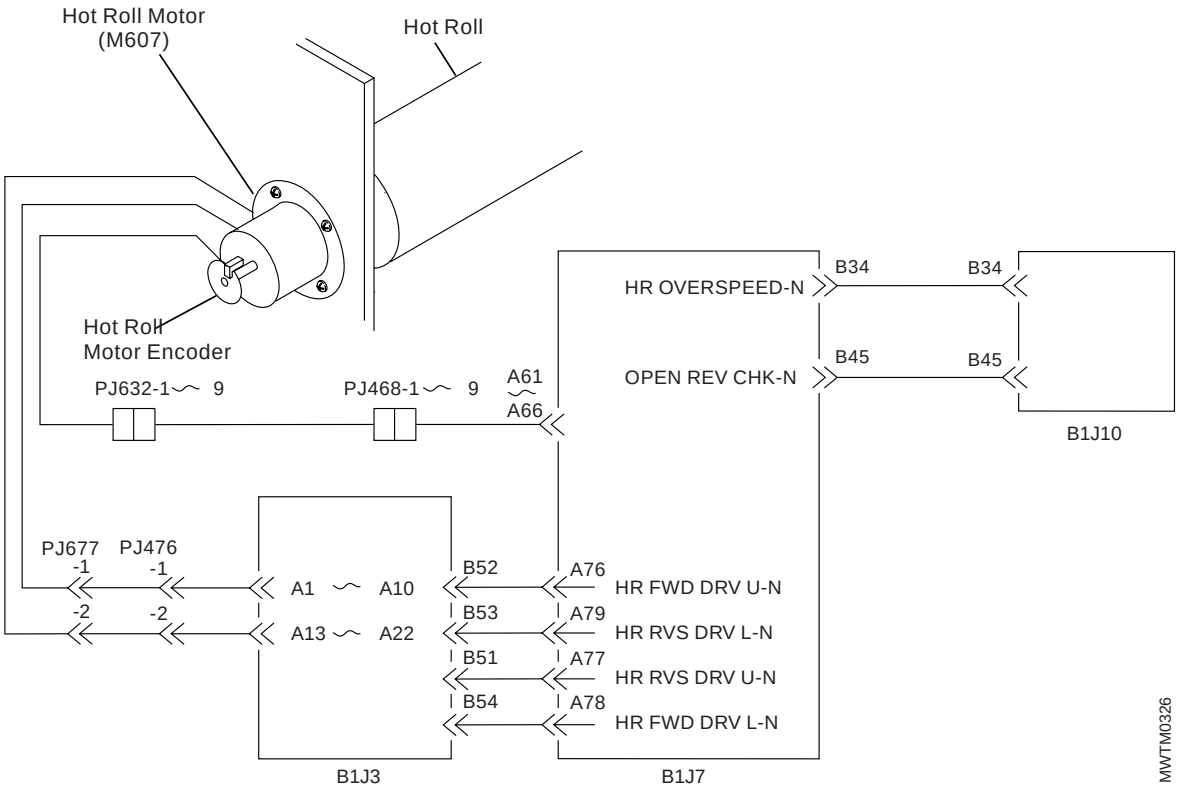


FS051- All Except High Speed (229 PPM) Duplex Feature Printer 2
FS551- High Speed (229 PPM) Duplex Feature Printer 2 Only

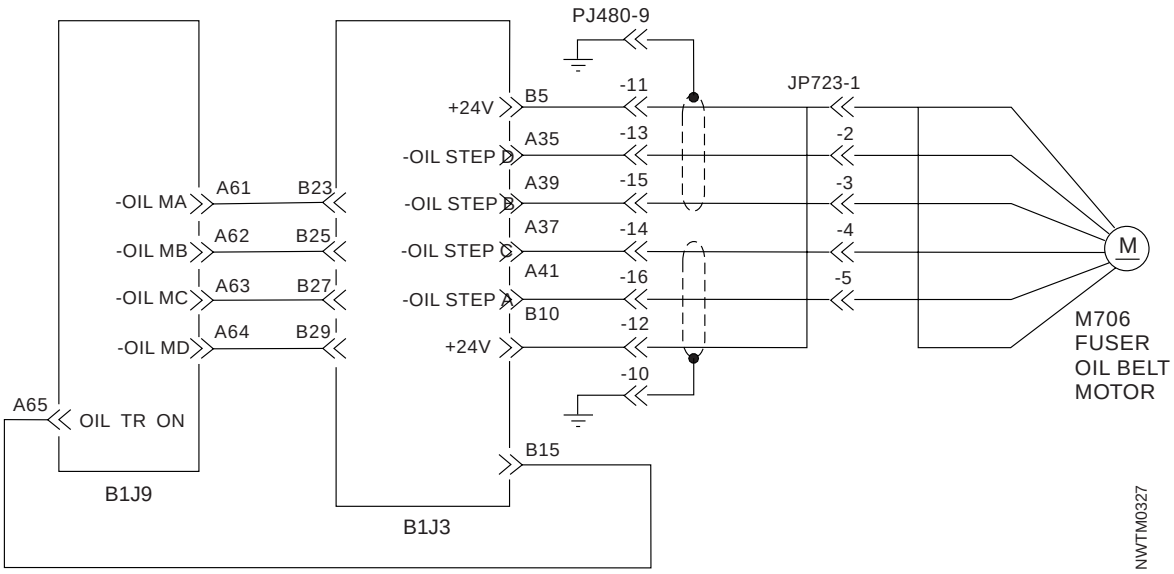
CD19 - Backup Roll Motor (M603) and Encoder (EN131)



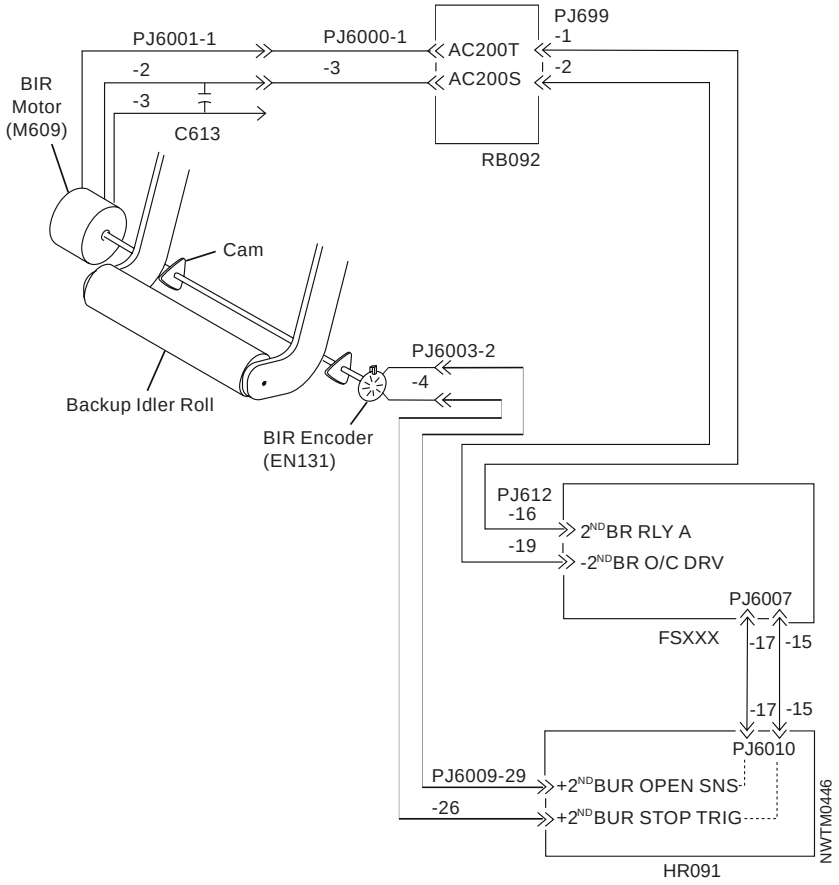
CD20 - Hot Roll Motor Servo Control (M607)



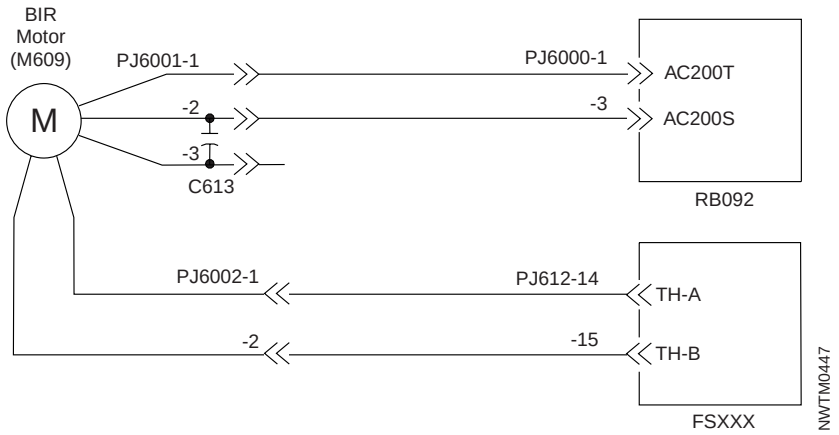
CD21 - Oiler Belt Motor and Driver (M706)



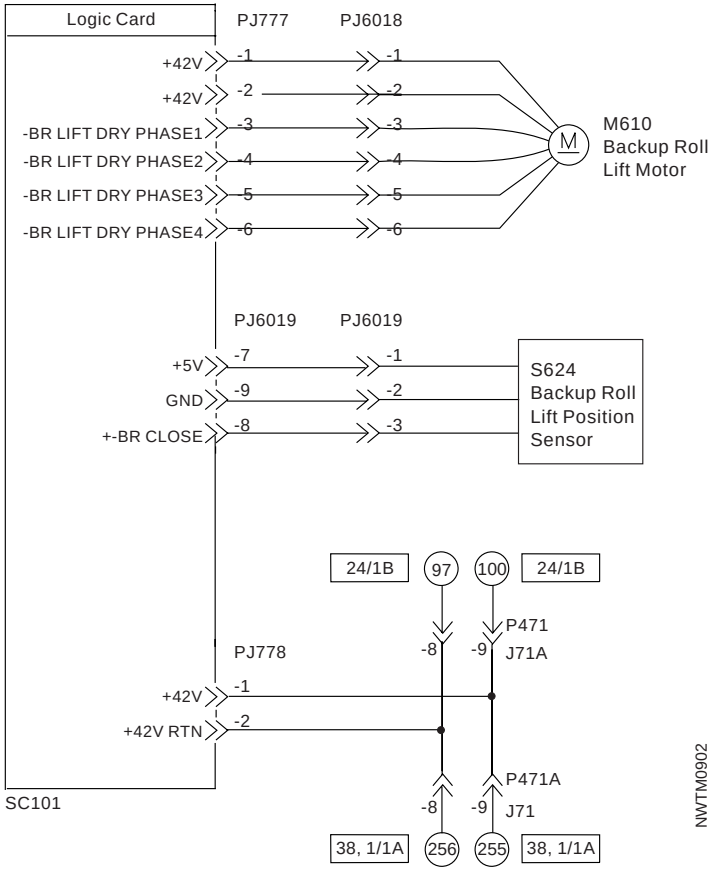
CD22 - Backup Idler Roll (M609) and Encoder (EN131)



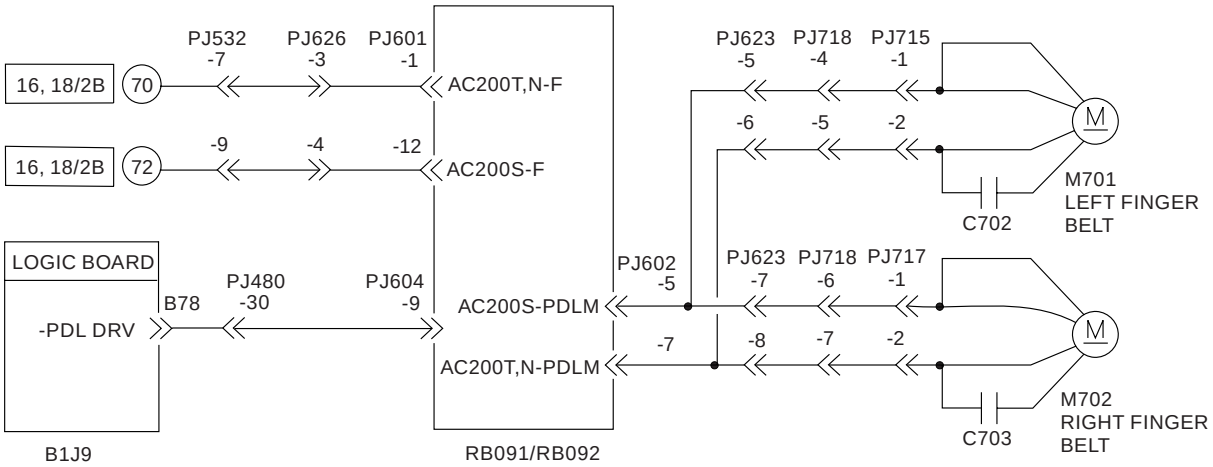
CD23 - Backup Idler Roll Motor and Thermal (M609)



CD24 - Backup Roll Lift Motor (M610) and Position Sensor (S624)



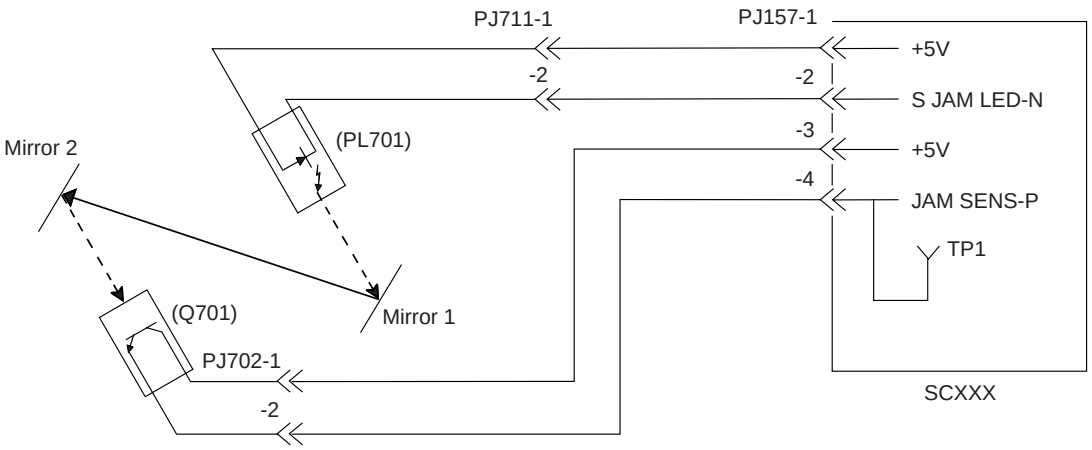
CD25 - Finger Belt Motors (M701, M702)



RB091- All Except High Speed (310 PPM) Simplex Feature and Duplex Printer 2
RB092- High Speed (310 PPM) Simplex Feature and Duplex Printer 2 Only

NWTM0388

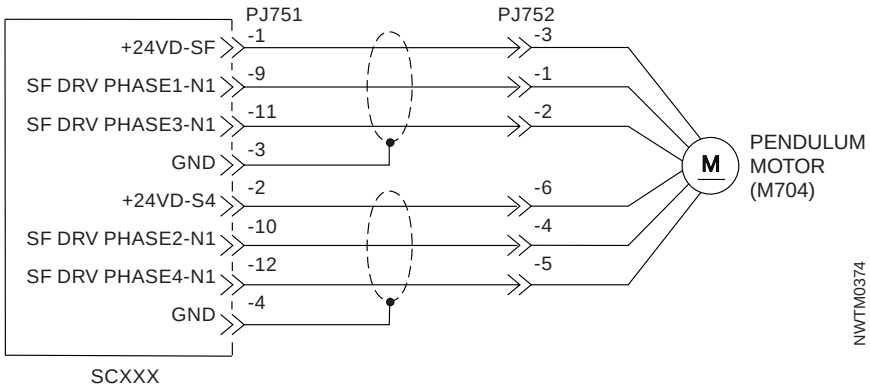
CD26 - Stacker Jam Sensor (Q701)



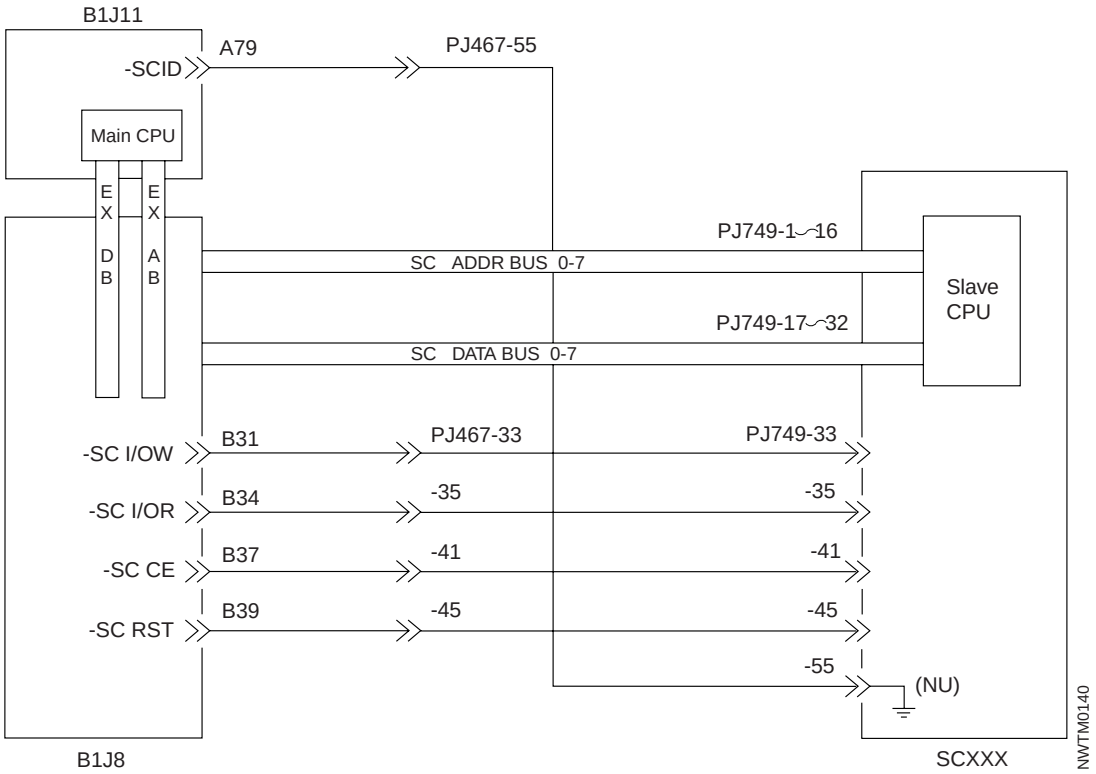
TP1 Output Voltage Levels	
With Paper:	≤ 1.0V
Without Paper:	≥ 4.7V

NWTM0097

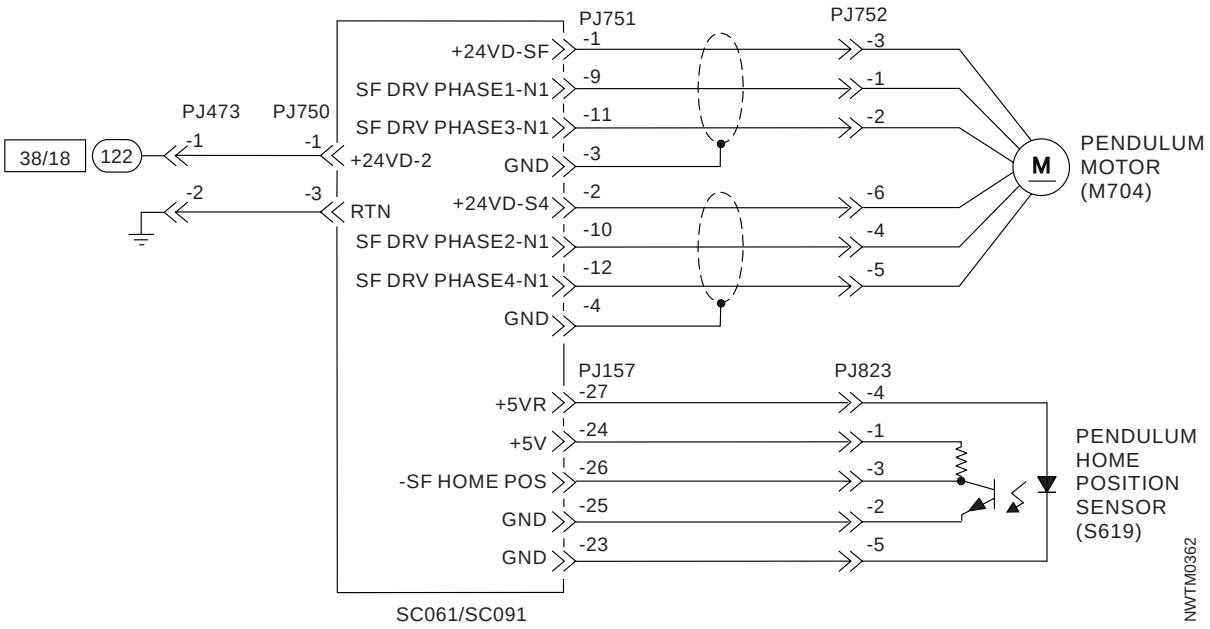
CD27 - Pendulum Motor (M704)



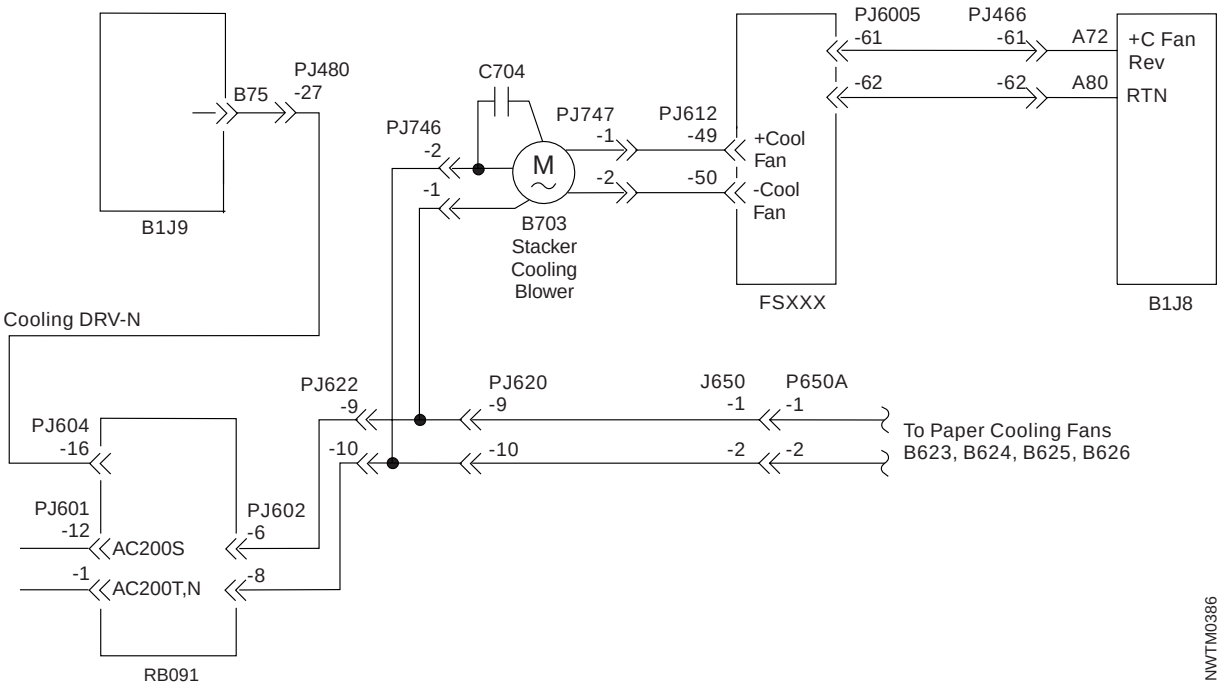
CD28 - Pendulum Motor Overcurrent (M704)



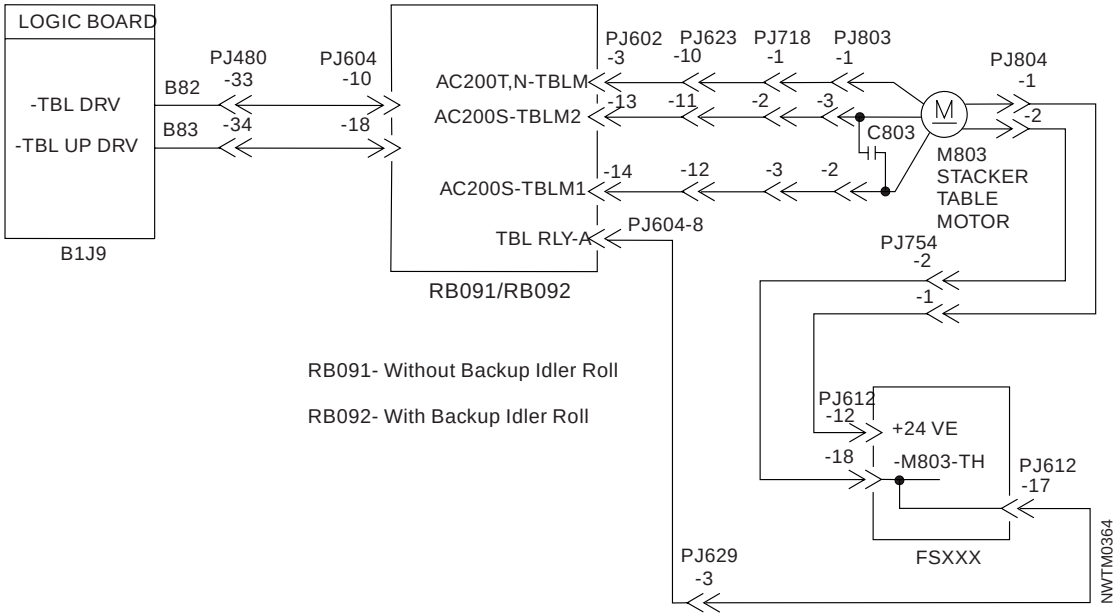
CD29 - Pendulum Motor (M704) and Position Sensor (S619)



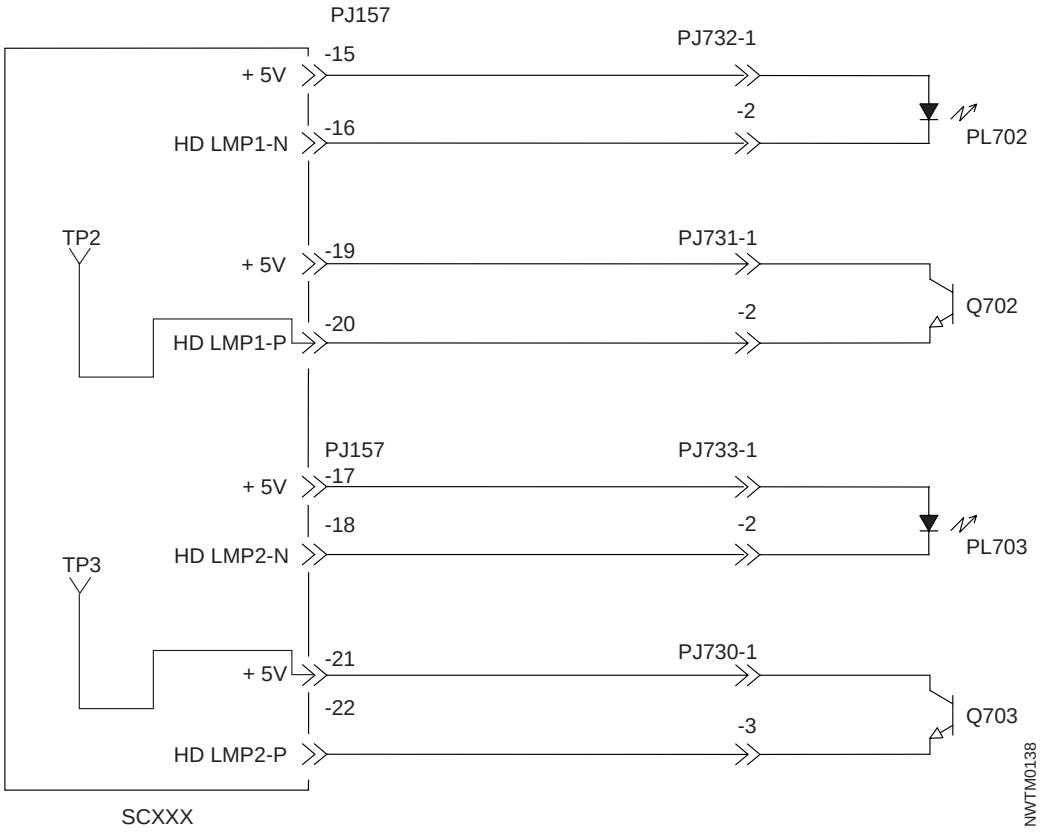
CD30 - Stacker Cooling Blower (B703)



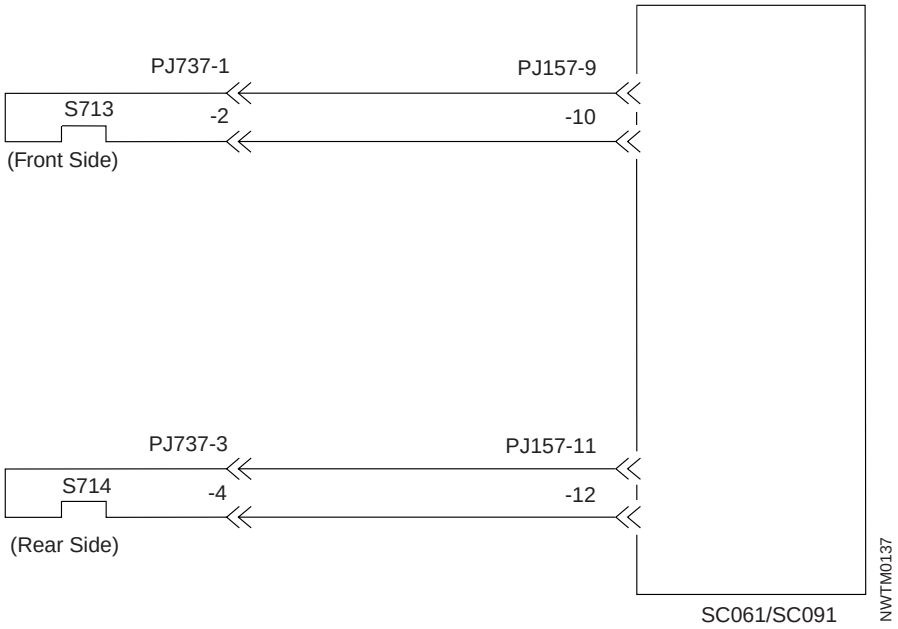
CD31 - Stacker Table Motor and Thermal Sense (M803)



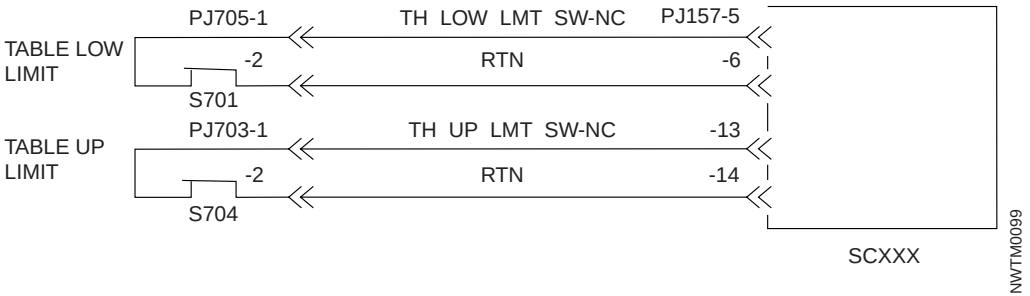
CD32 - Stacker Height Sensor (Q703)



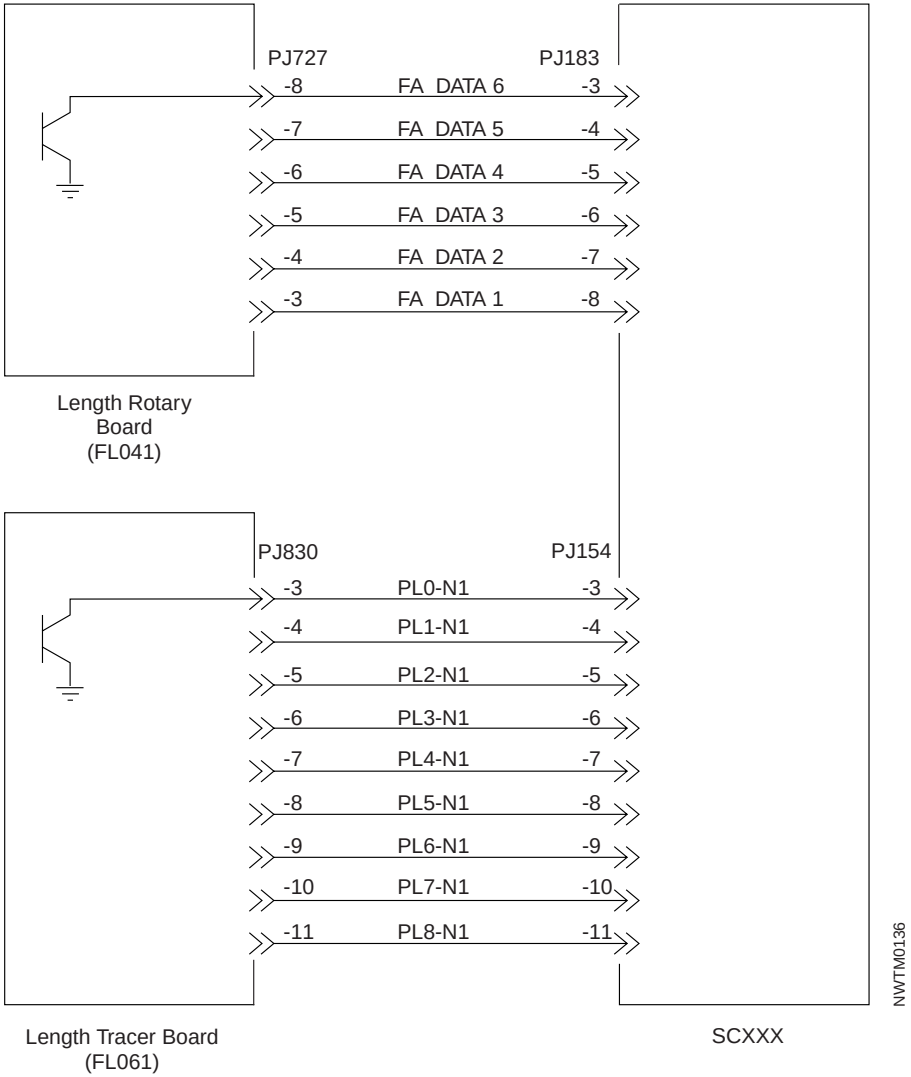
CD33 - Stacker Gate Safety Switches (S713, S714)



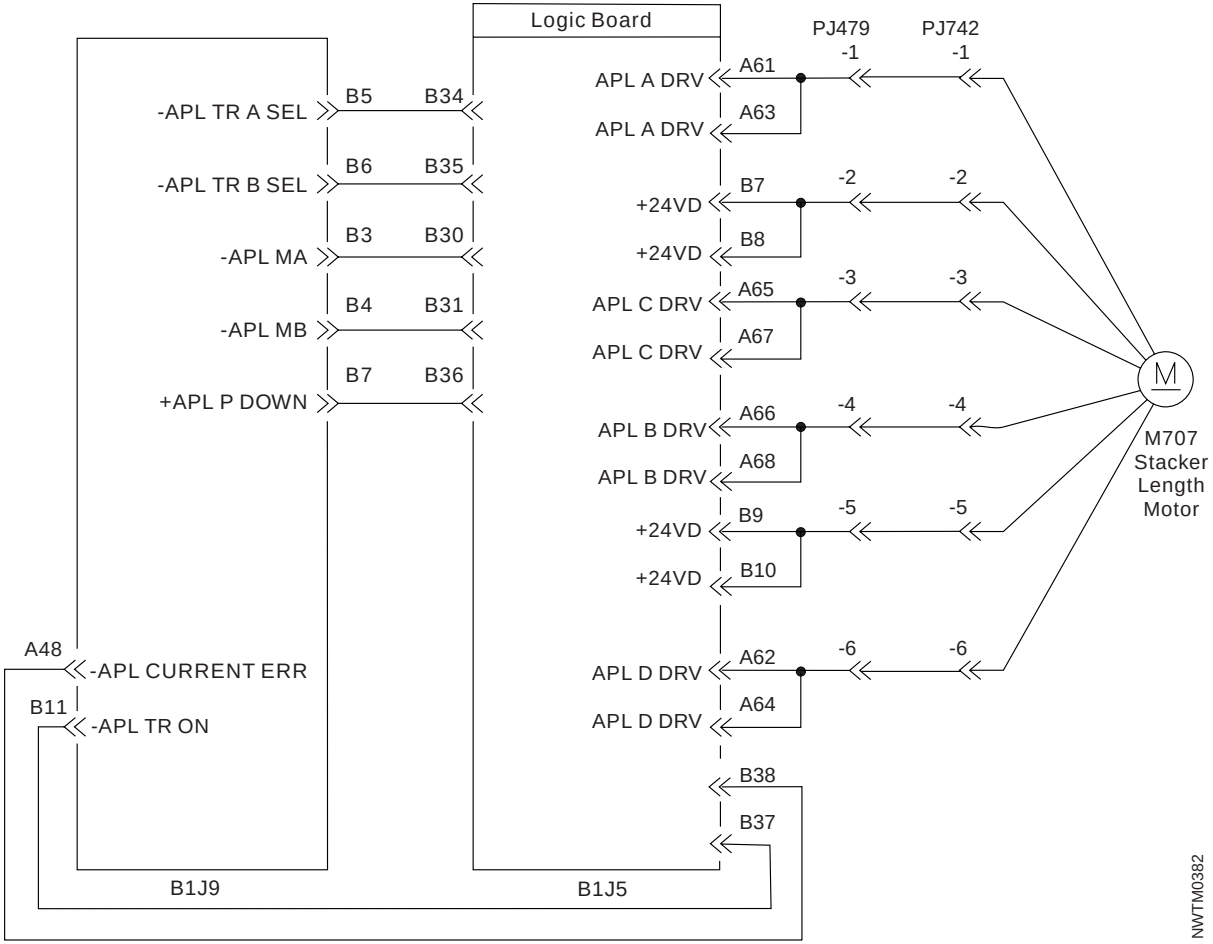
CD34 - Stacker Table Switches (S701, S704)



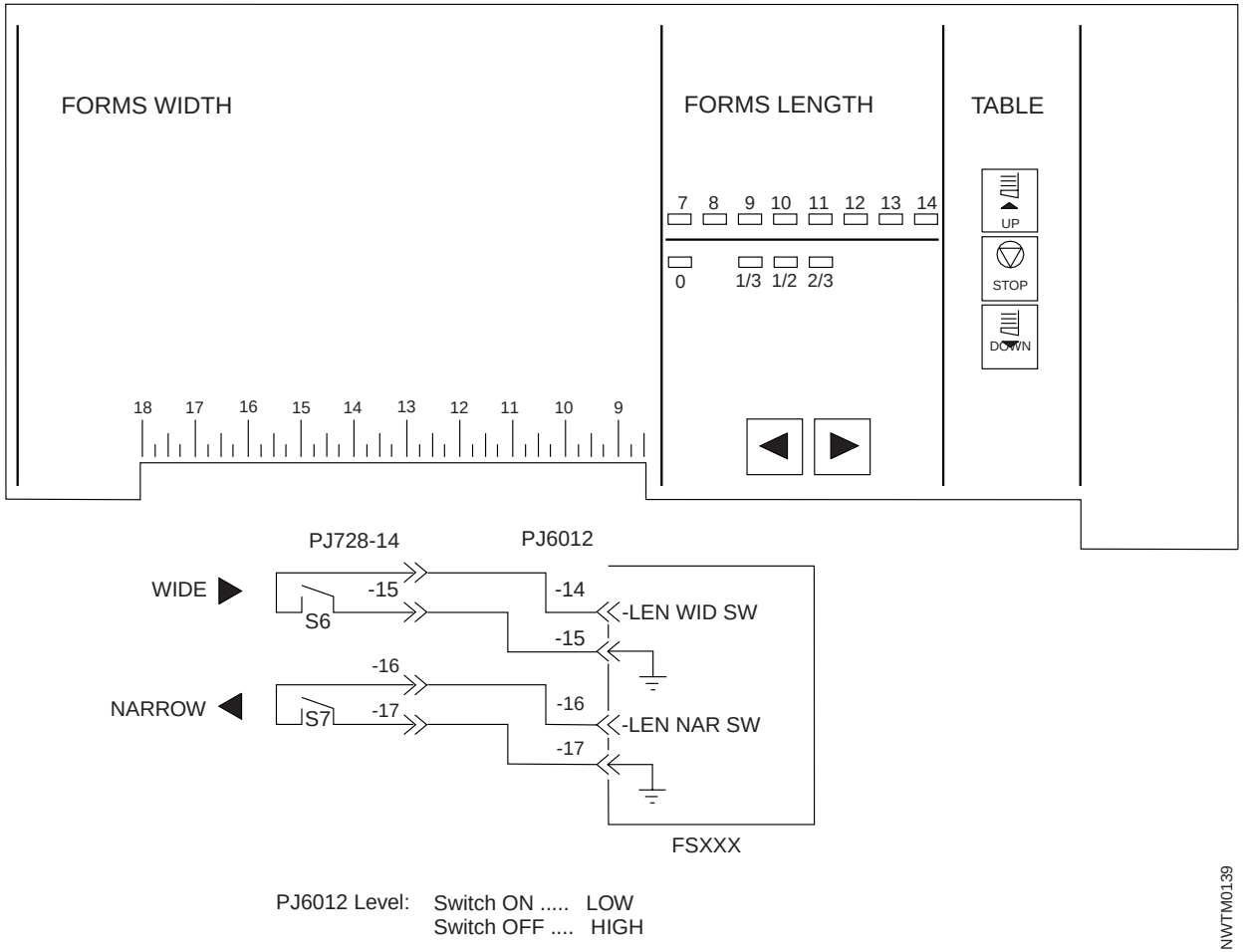
CD35 - Stacker Forms Length Hall Sensor



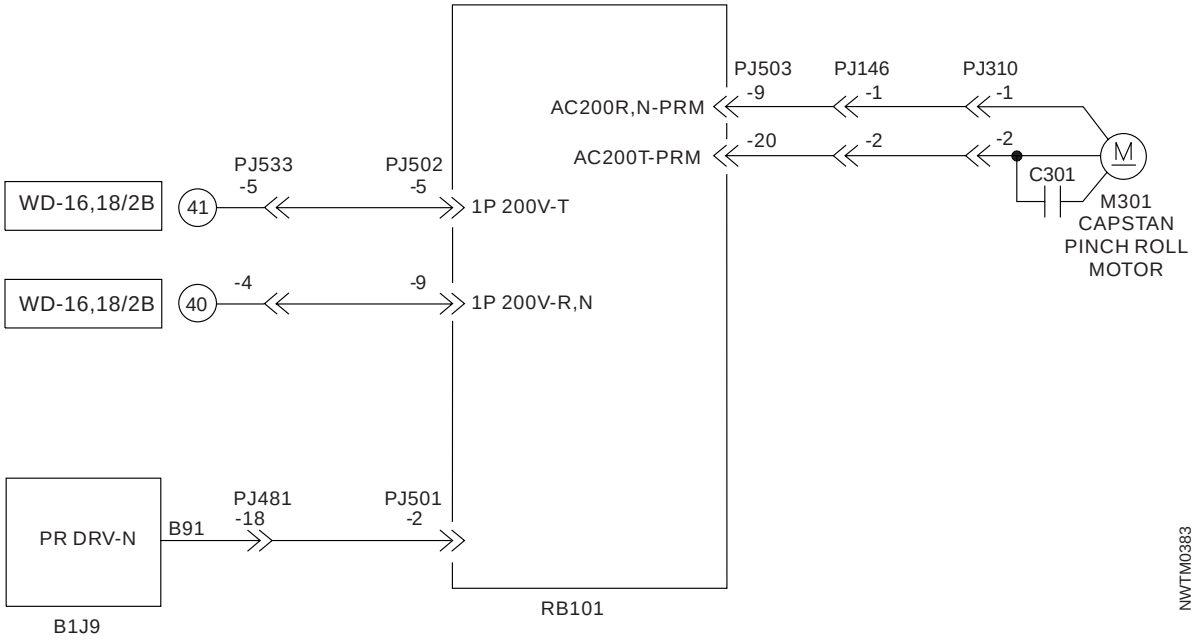
CD36 - Stacker Length Motor (M707)



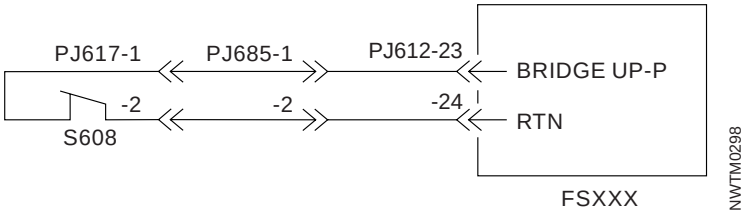
CD37 - Stacker Forms Length Control Switch (SW511)



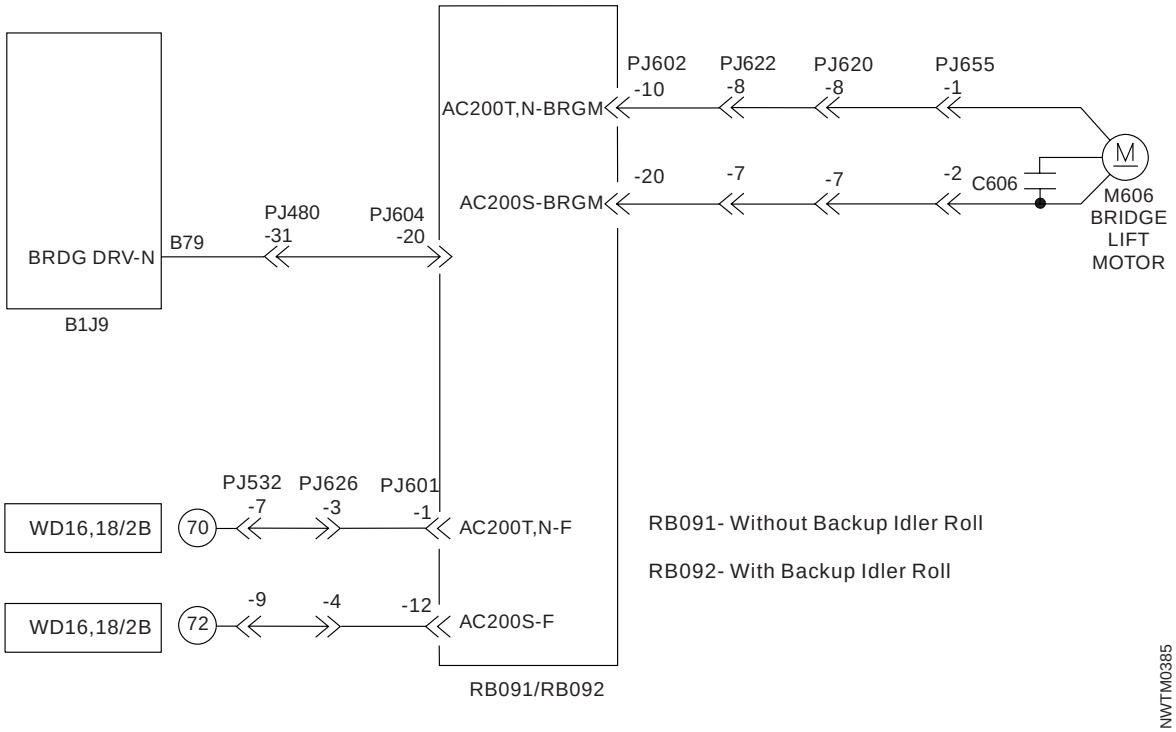
CD38 - Capstan Pinch Roll Motor (M301)



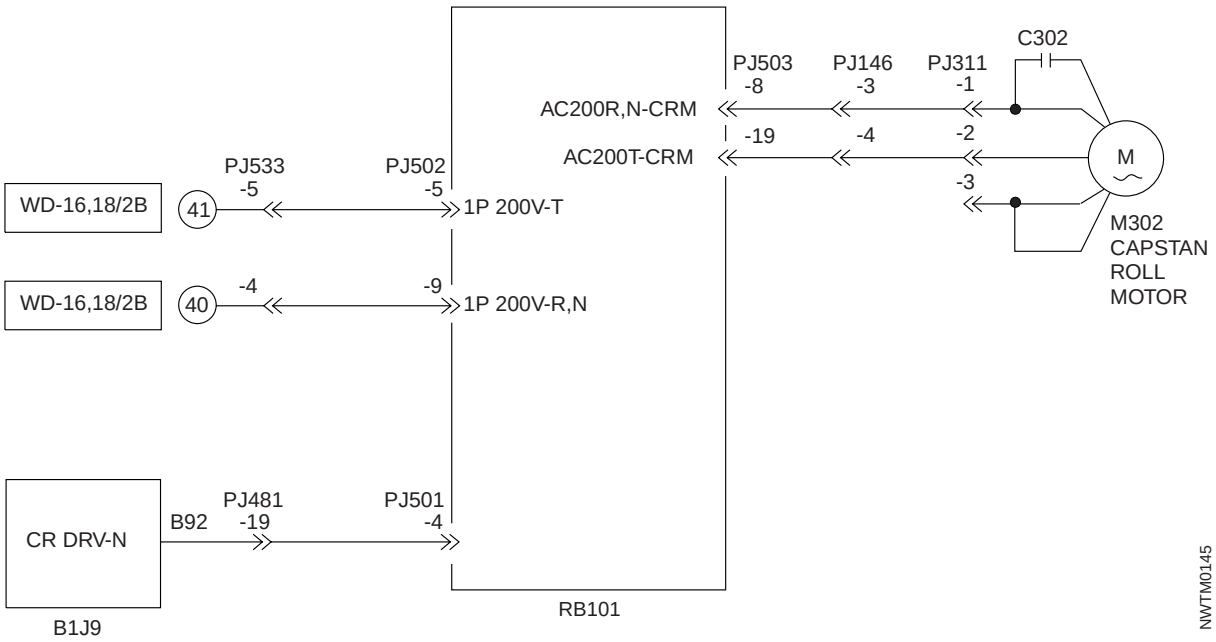
CD39 - Bridge Up Switch (S608)



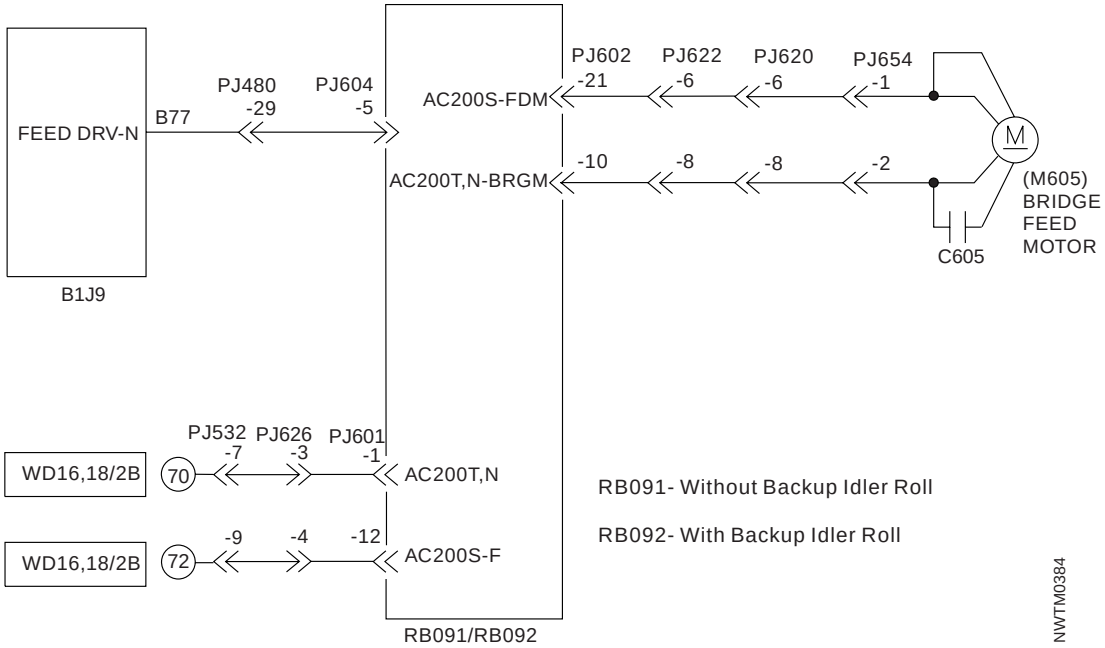
CD40 - Bridge Lift Motor (M606)



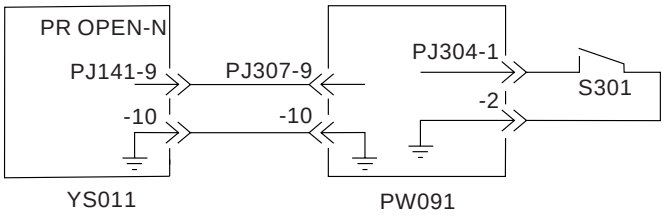
CD41 - Capstan Roll Motor (M302)



CD42 - Bridge Feed Motor (M605)



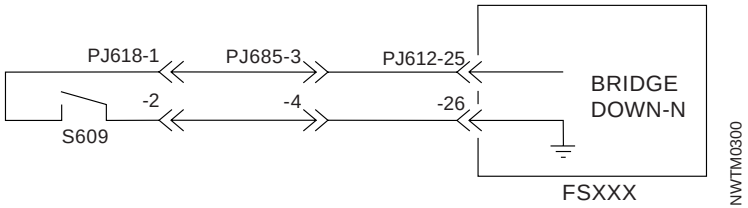
CD43 - Capstan Pinch Roll Open Switch (S301)



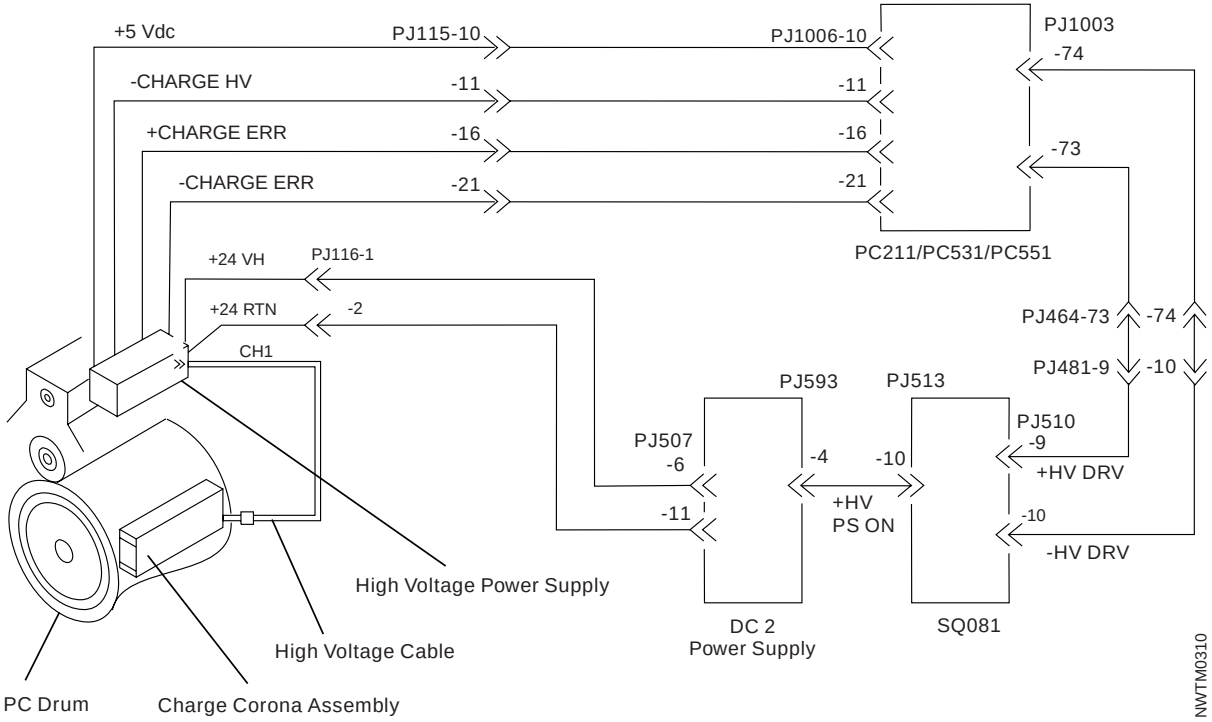
Pinch Roll Open Switch detects the up position.

NWTM0299

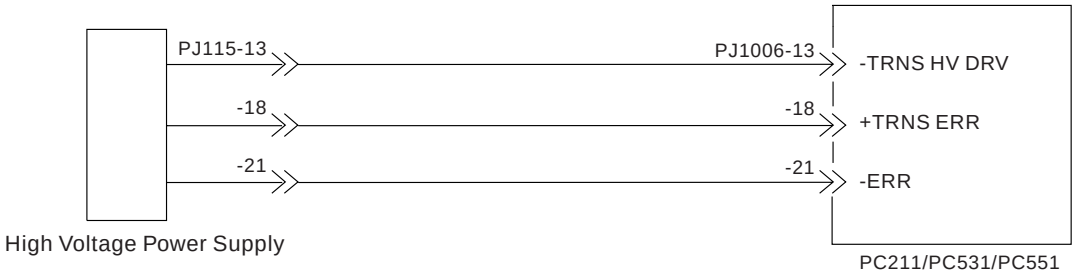
CD44 - Bridge Down Switch (S609)

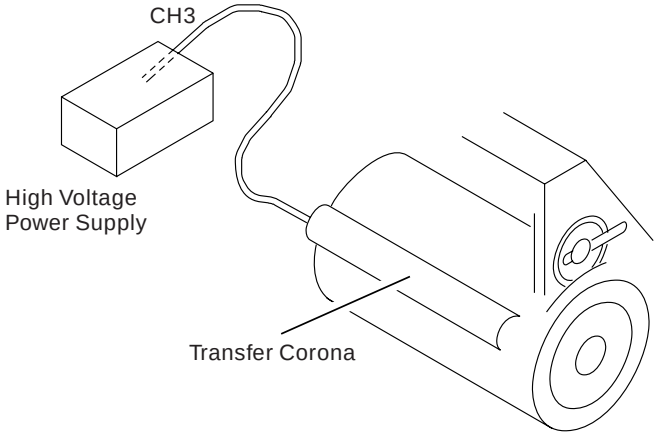


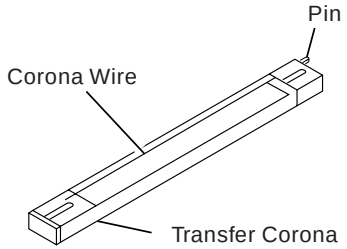
CD45 - Charge Corona



CD46 - Tansfer Corona

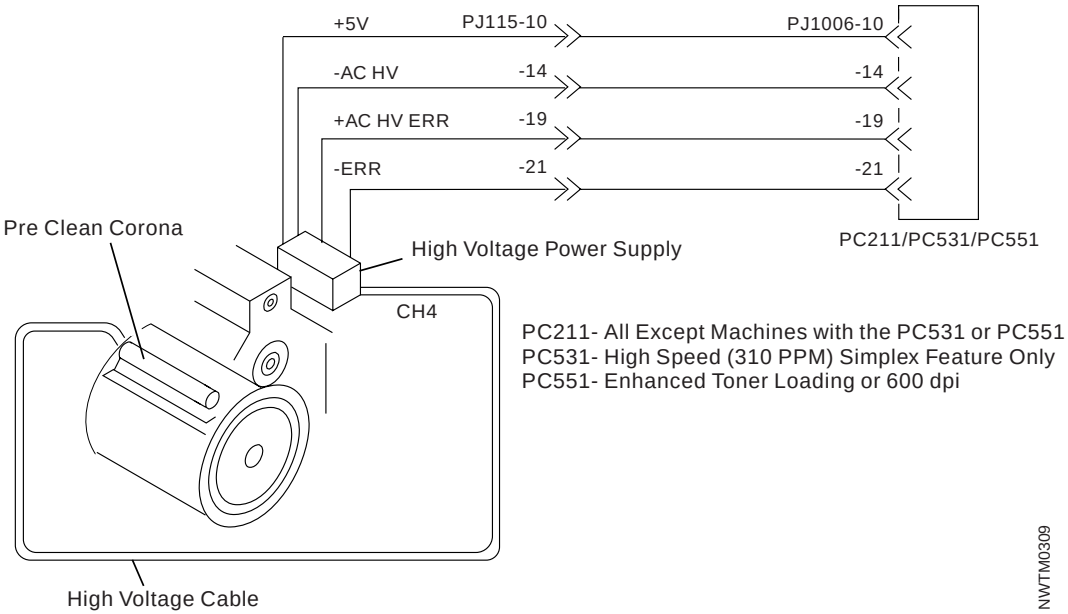






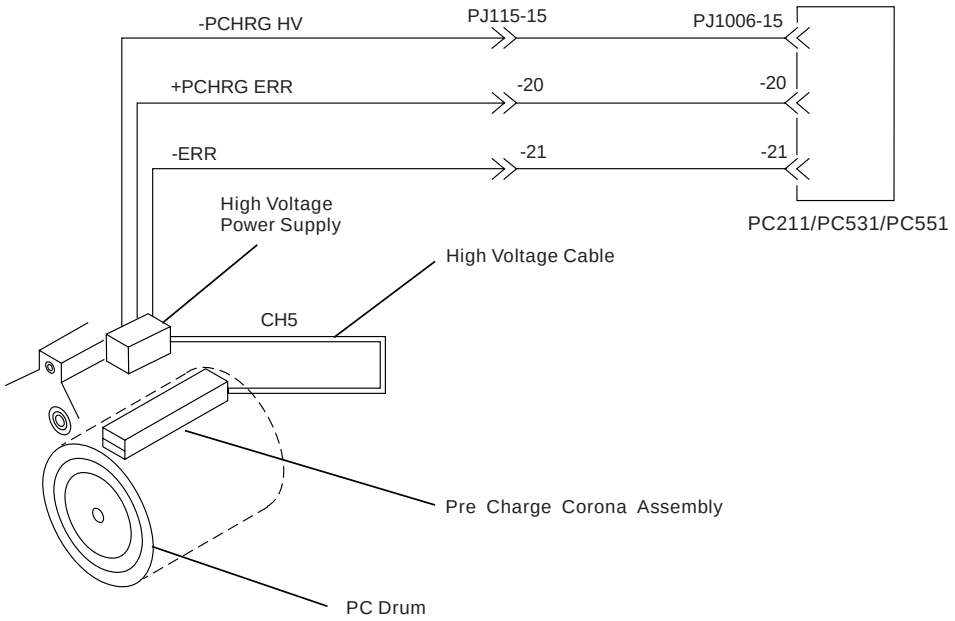
NWTM0311

CD47 - Preclean Corona

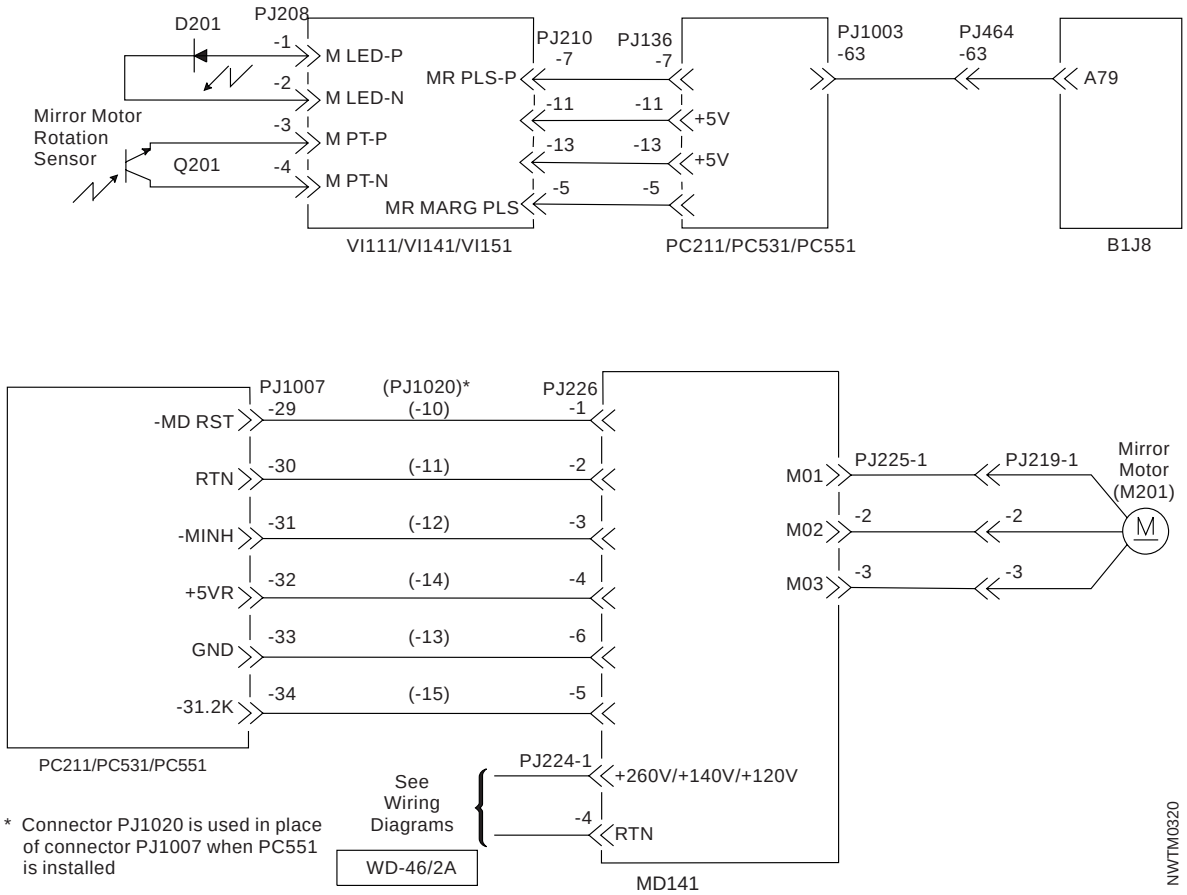


PC211- All Except Machines with the PC531 or PC551
PC531- High Speed (310 PPM) Simplex Feature Only
PC551- Enhanced Toner Loading or 600 dpi

CD48 - Precharge Corona

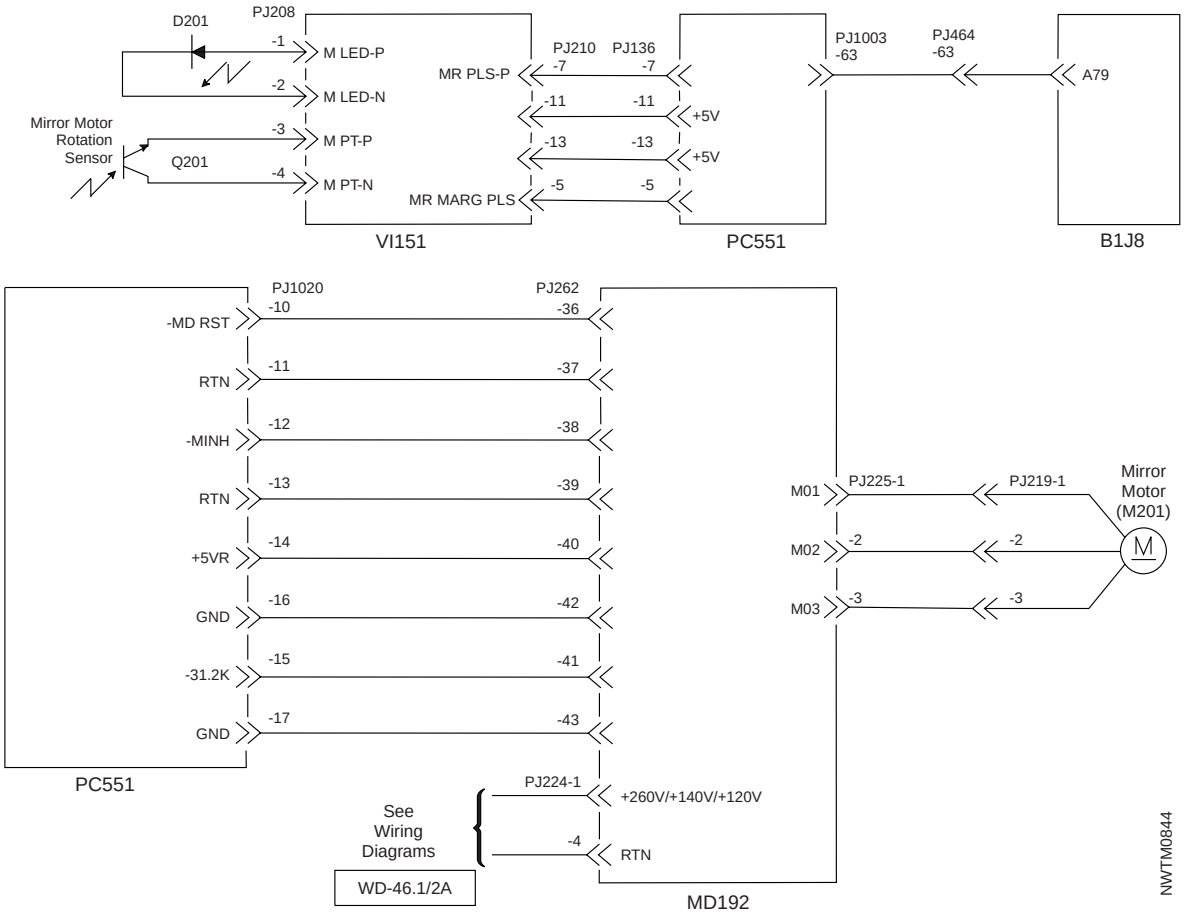


CD49 - Mirror Motor M201 (Fixed Resolution Printheads)

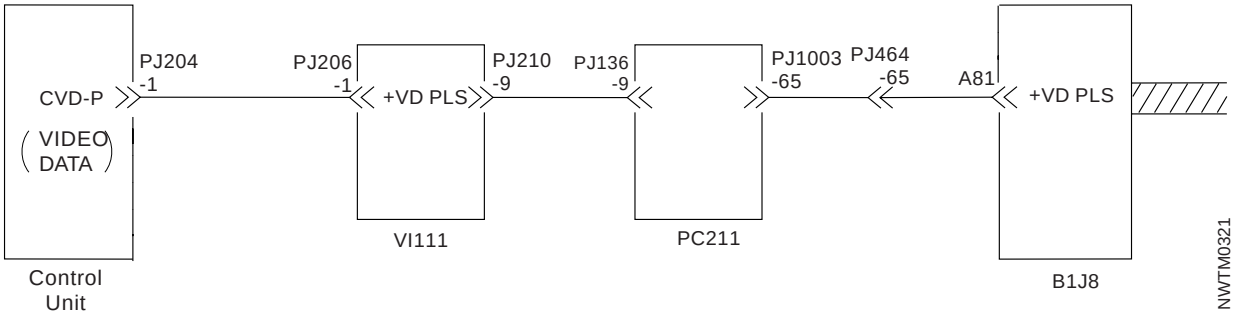


* Connector PJ1020 is used in place of connector PJ1007 when PC551 is installed

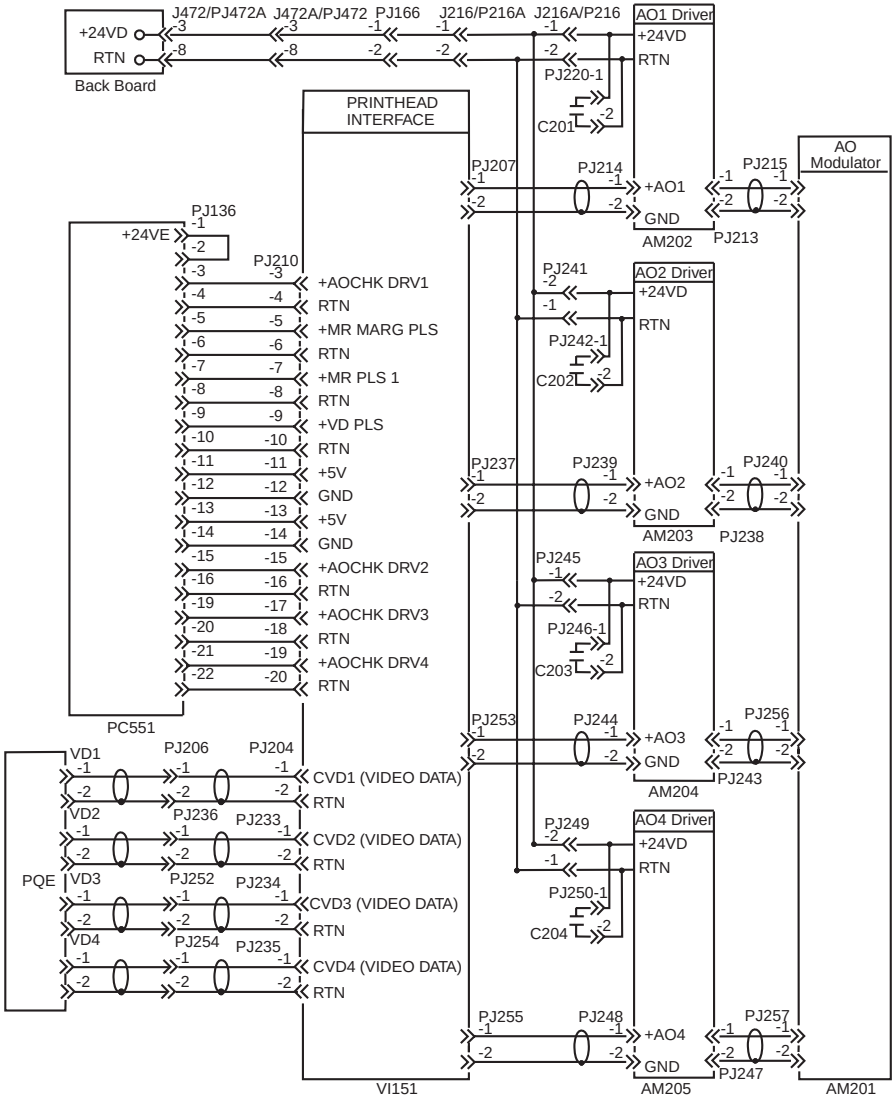
CD50 - Mirror Motor M201 — (Switchable Resoluiton Printheads)



CD51 - Video Data (Single Beam Printhead)

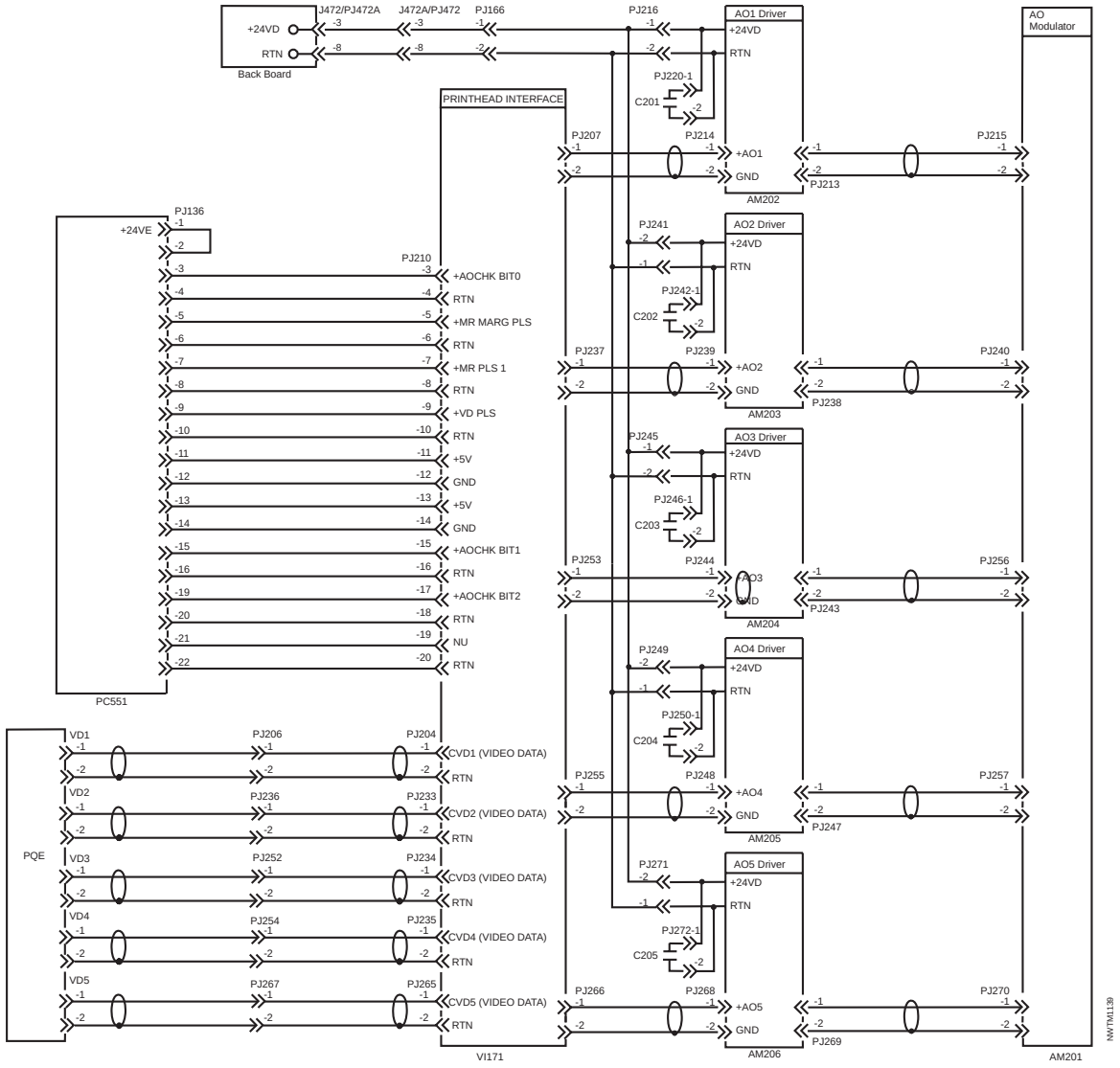


CD52 - Four Beam Printhead

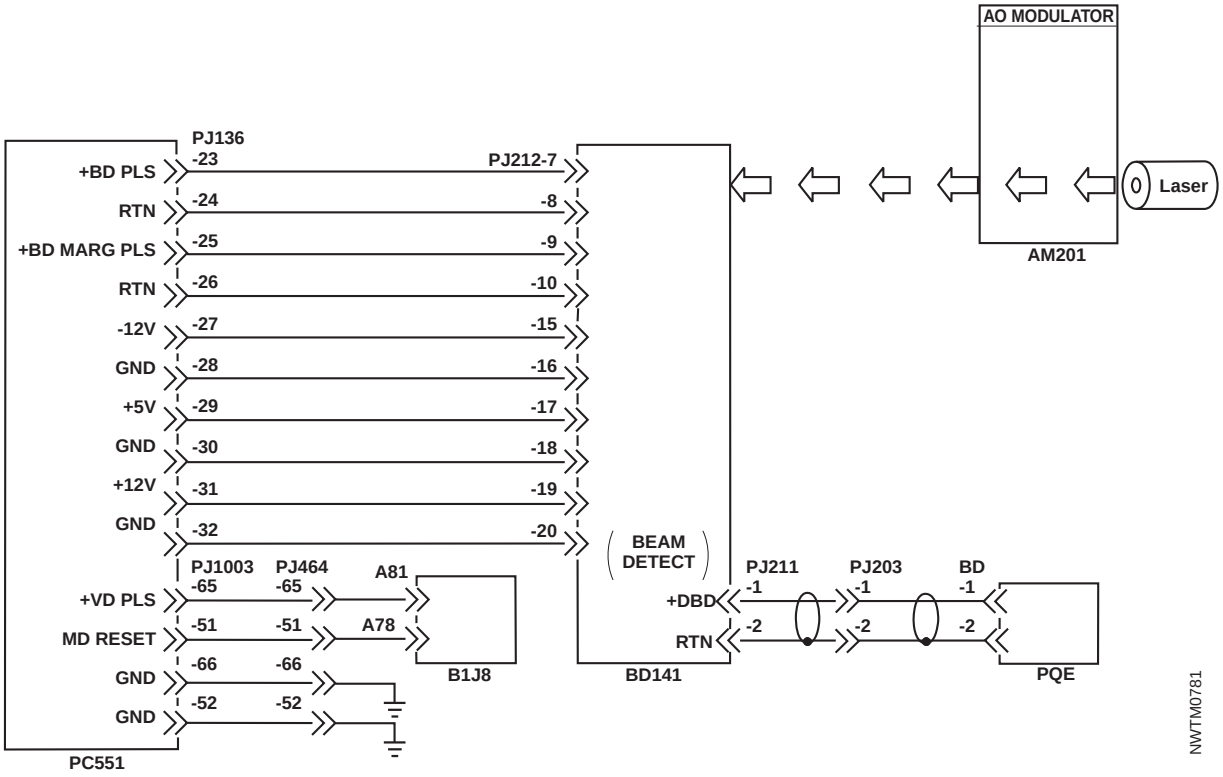


NWTM0780

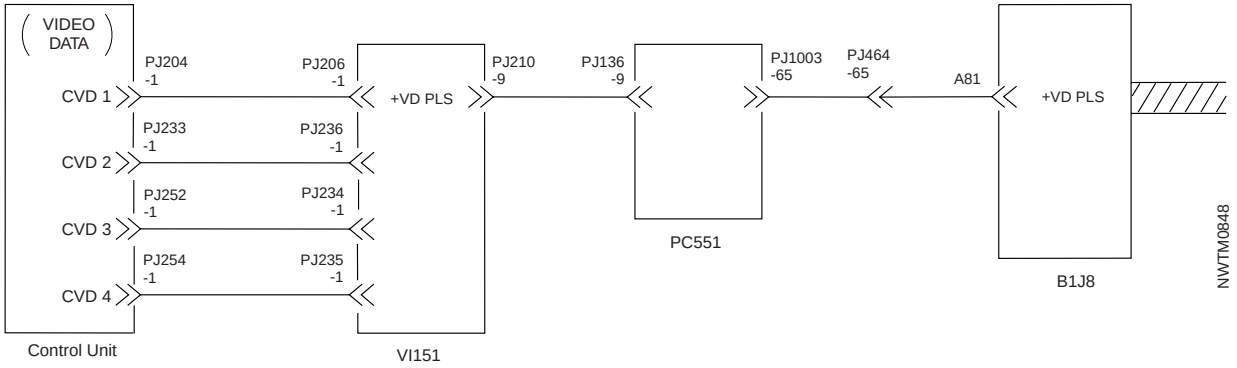
CD53 - Five Beam Printhead



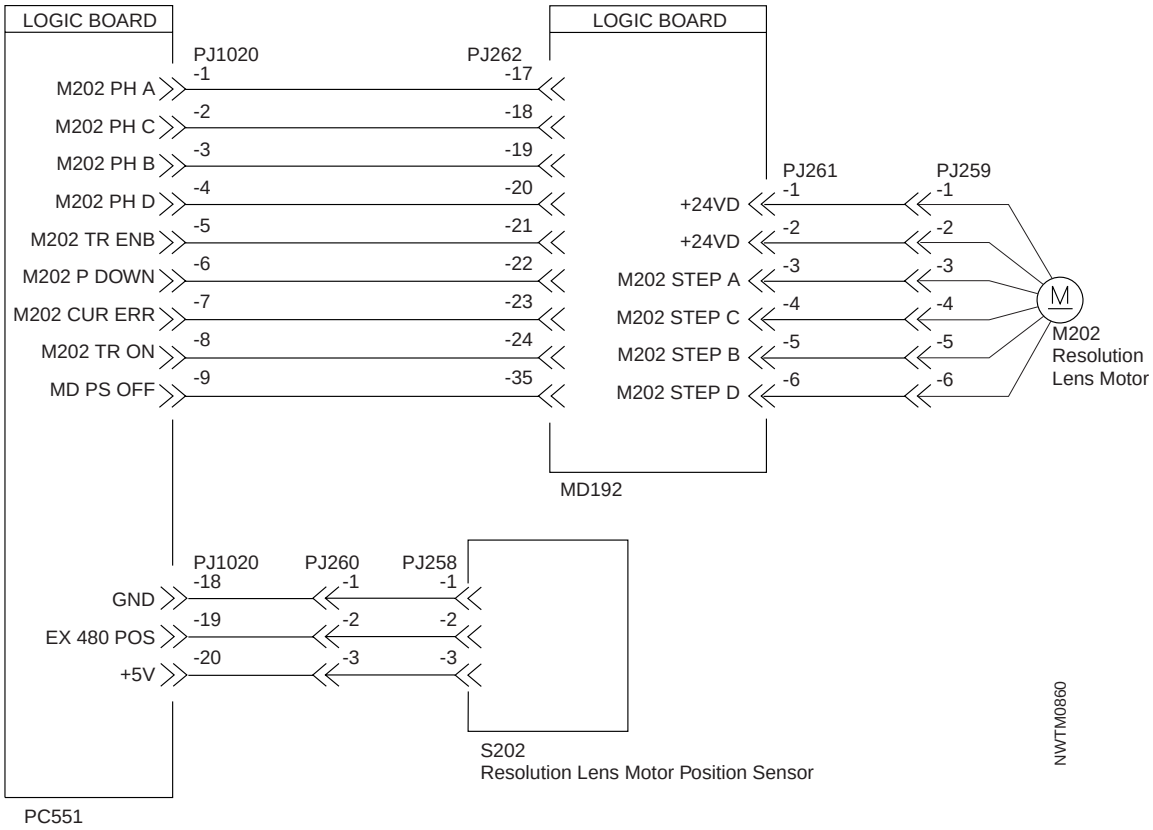
CD54 - Beam Detect (Four and Five Beam Printheads)



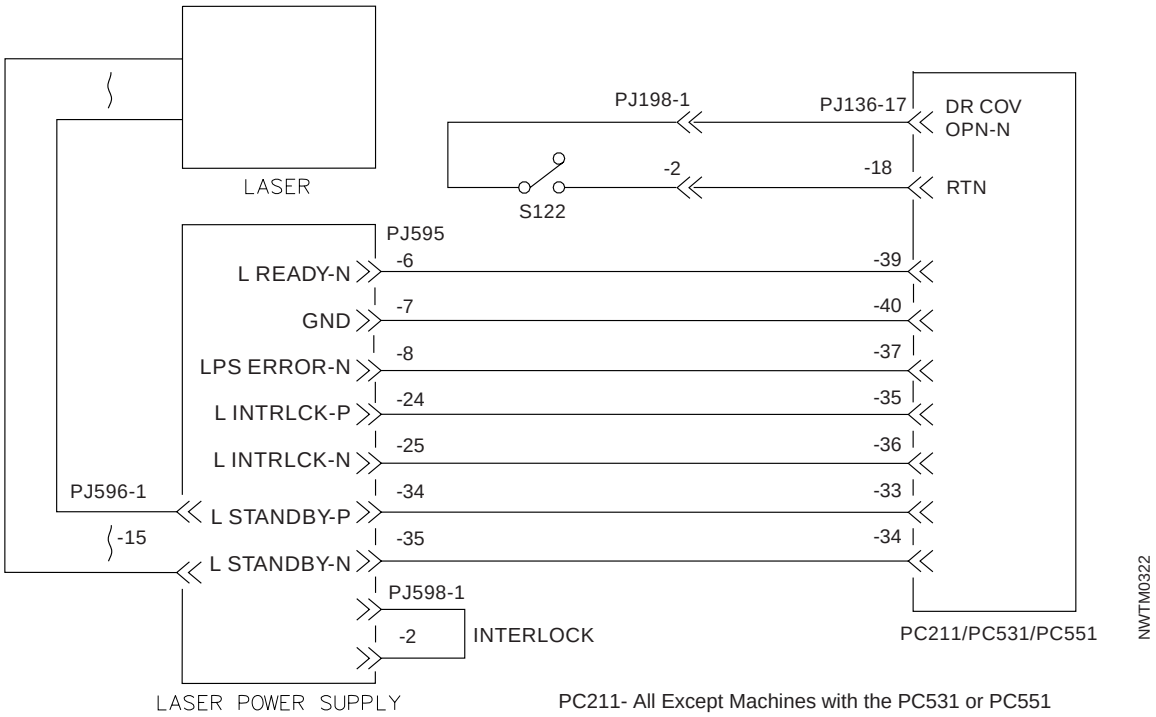
CD55 - Video Data (Four Beam Printhead)



CD56 - Rresolution Switching Lens Motor Position Sensor (S202)

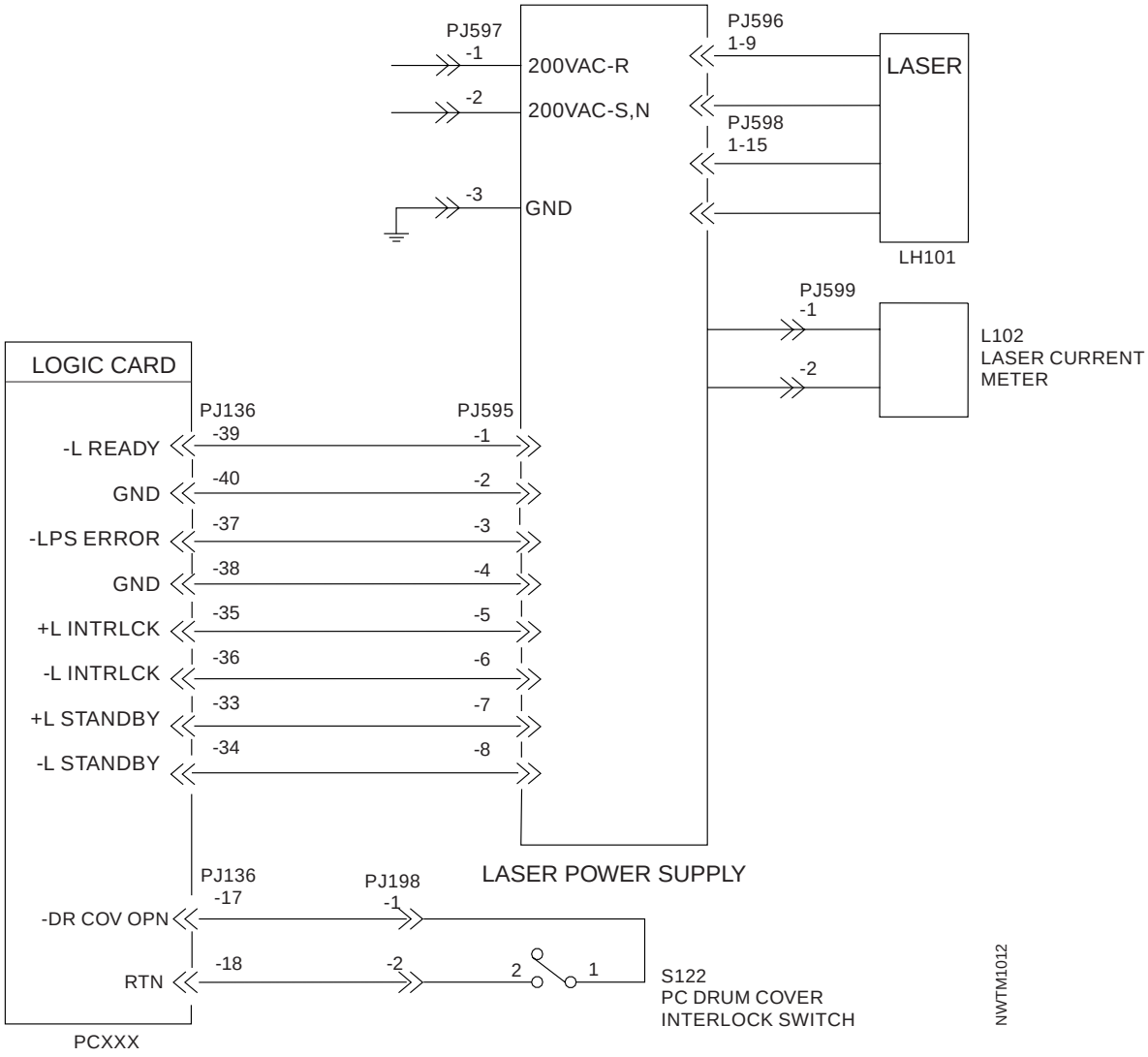


CD57 - PC Drum Cover Interlock Switch (S122) — (20 mW)

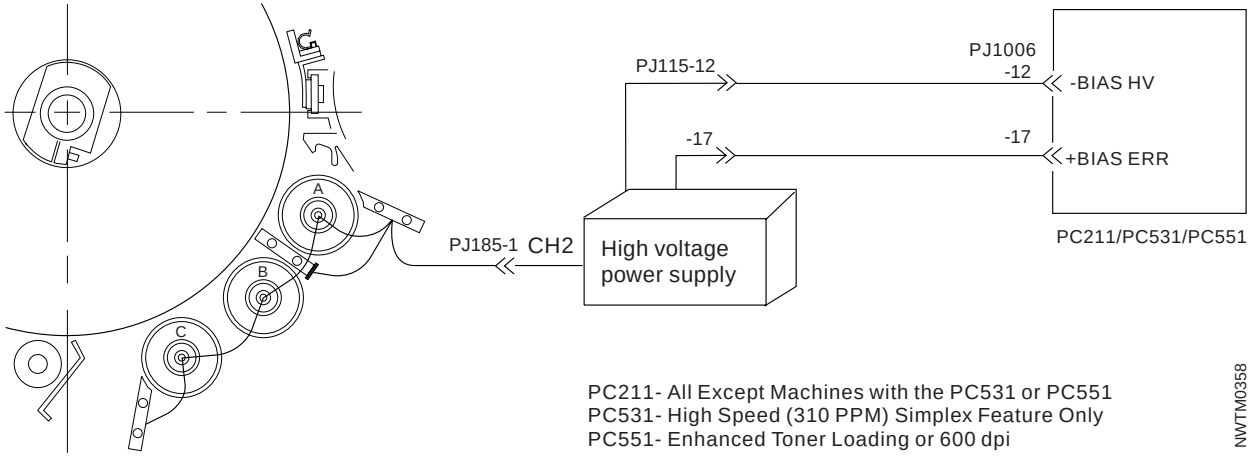


PC211- All Except Machines with the PC531 or PC551
PC531- High Speed (310 PPM) Simplex Feature Only
PC551- Enhanced Toner Loading or 600 dpi

CD58 - PC Drum Cover Interlock Switch (S122) — (30 mW)



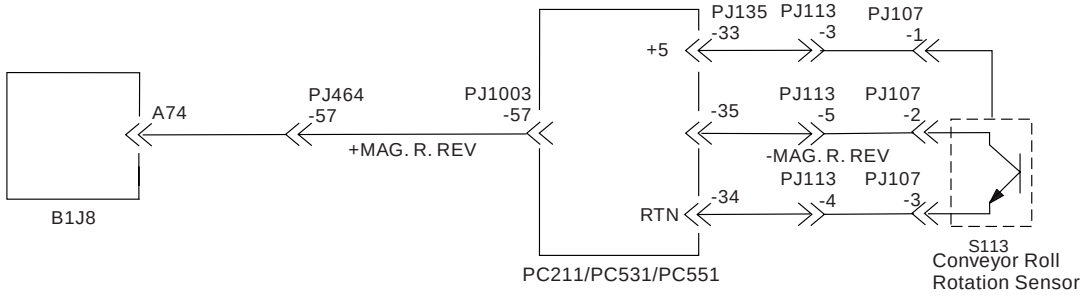
CD59 - Mag Brush Bias

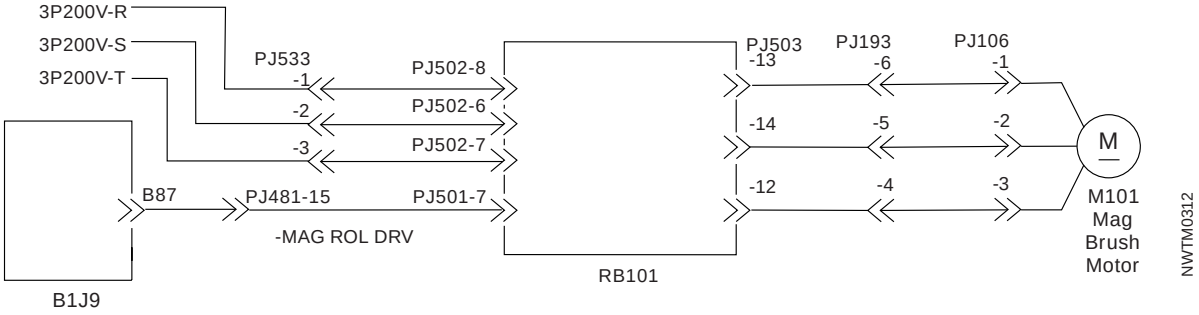


PC211- All Except Machines with the PC531 or PC551
PC531- High Speed (310 PPM) Simplex Feature Only
PC551- Enhanced Toner Loading or 600 dpi

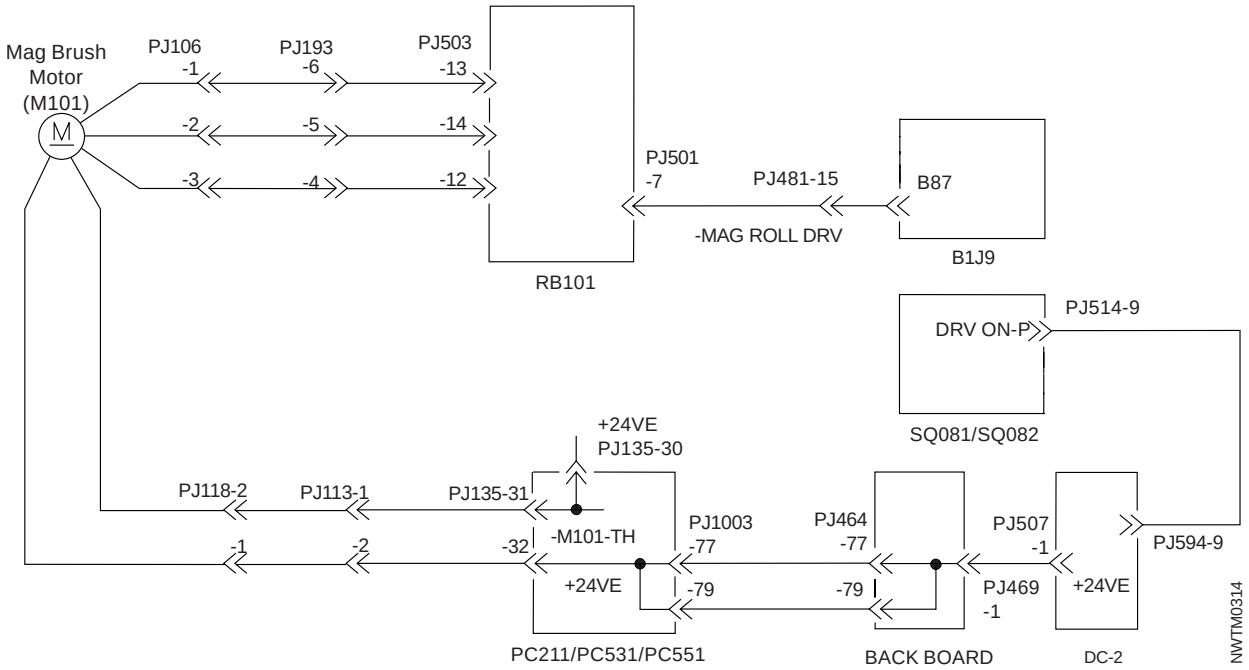
NWTM0358

CD60 - Mag Brush Motor (M101) and Conveyor Roll Rotation Sensor (S113)

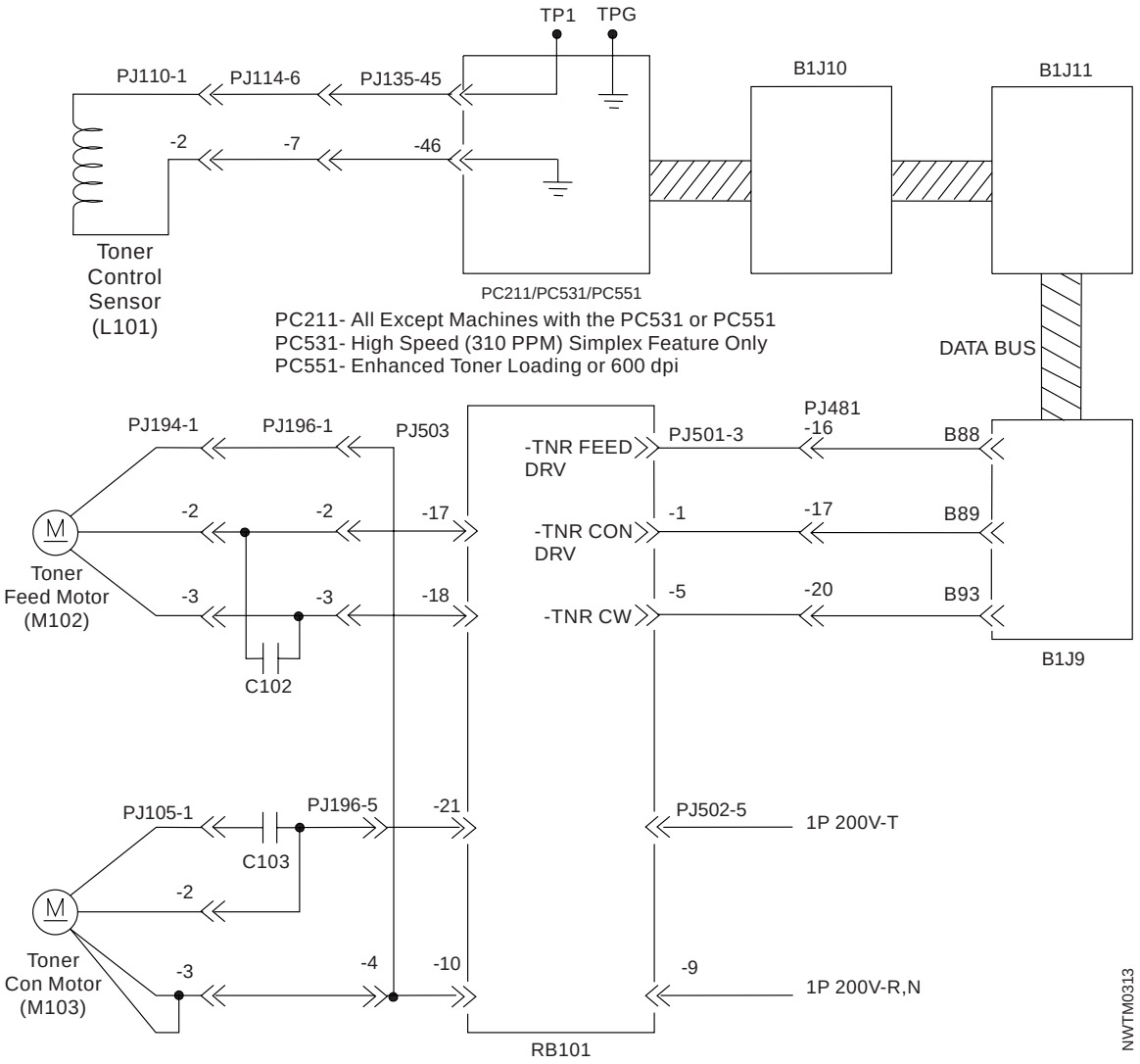




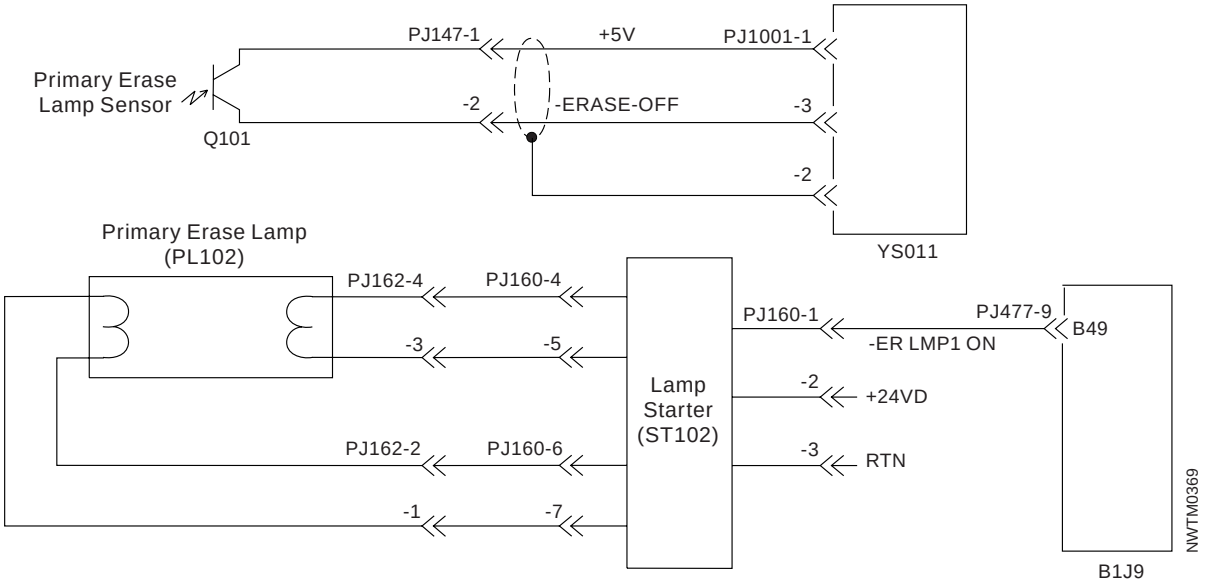
CD61 - Mag Brush Motor and Thermal Sense (M101)



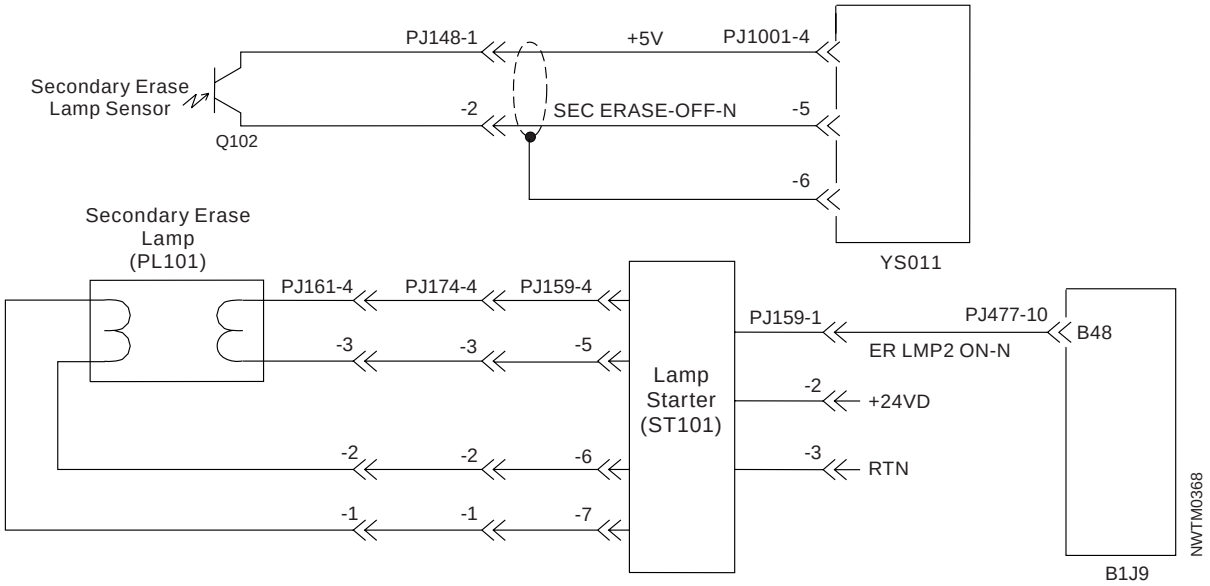
CD62 - Toner Control Sensor (L101) and Toner Control Motor (M103)



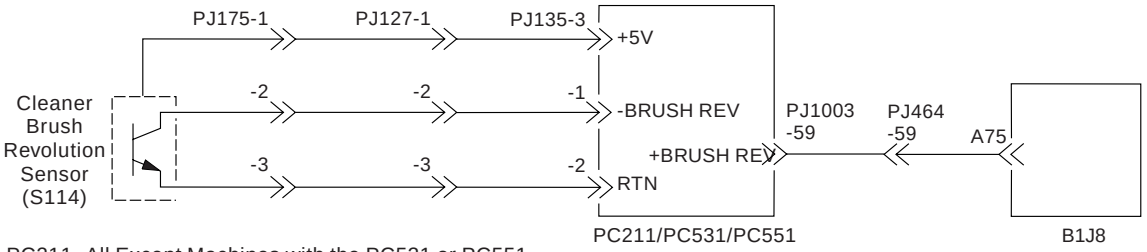
CD63 - Primary Erase Lamp (PL102), Starter (ST102), and Sensor (Q101)



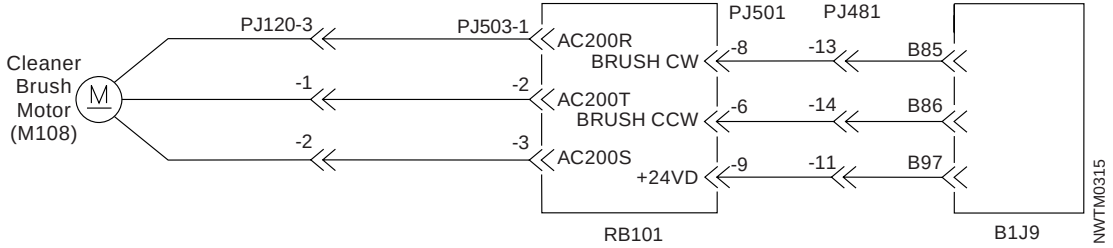
CD64 - Secondary Erase Lamp (PL101), Starter (ST101), and Sensor (Q102)



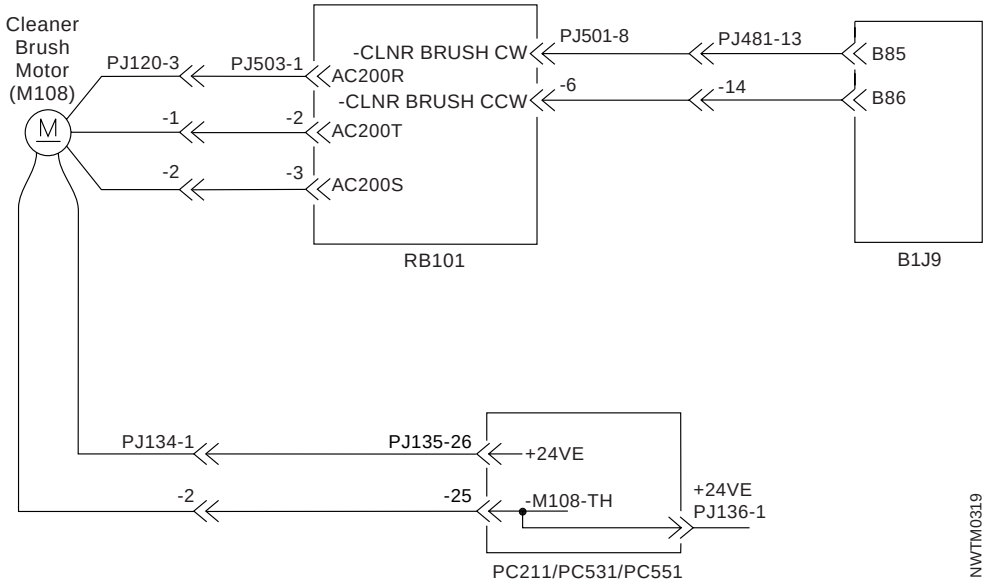
CD65 - Cleaner Brush Motor (M108) and Rotation Sensor (S114)



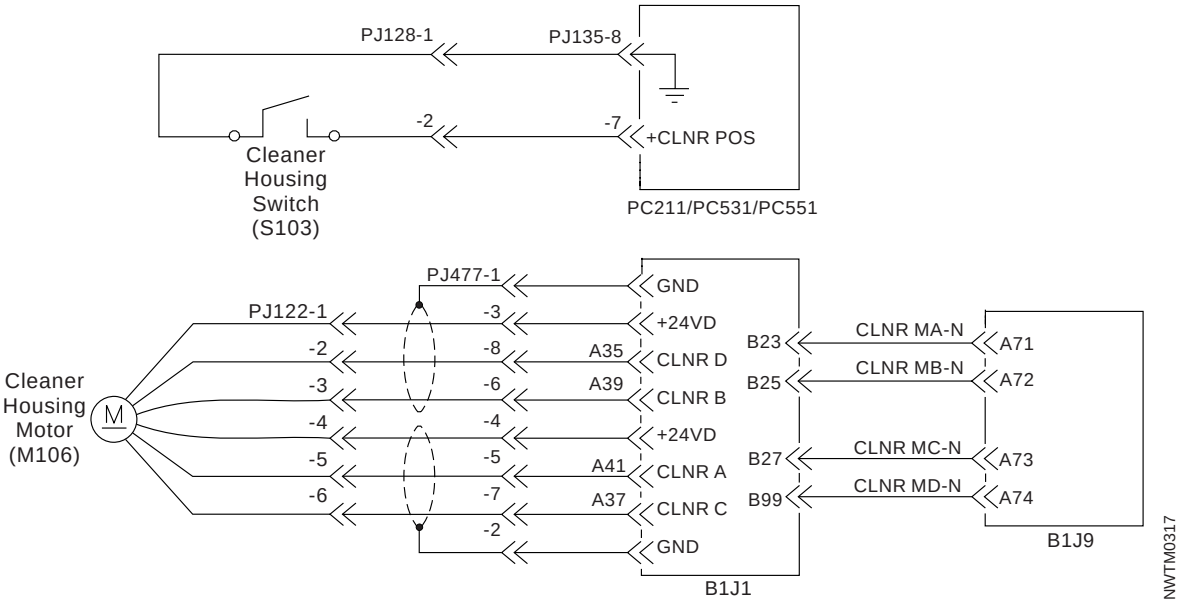
PC211- All Except Machines with the PC531 or PC551
PC531- High Speed (310 PPM) Simplex Feature Only
PC551- Enhanced Toner Loading or 600 dpi



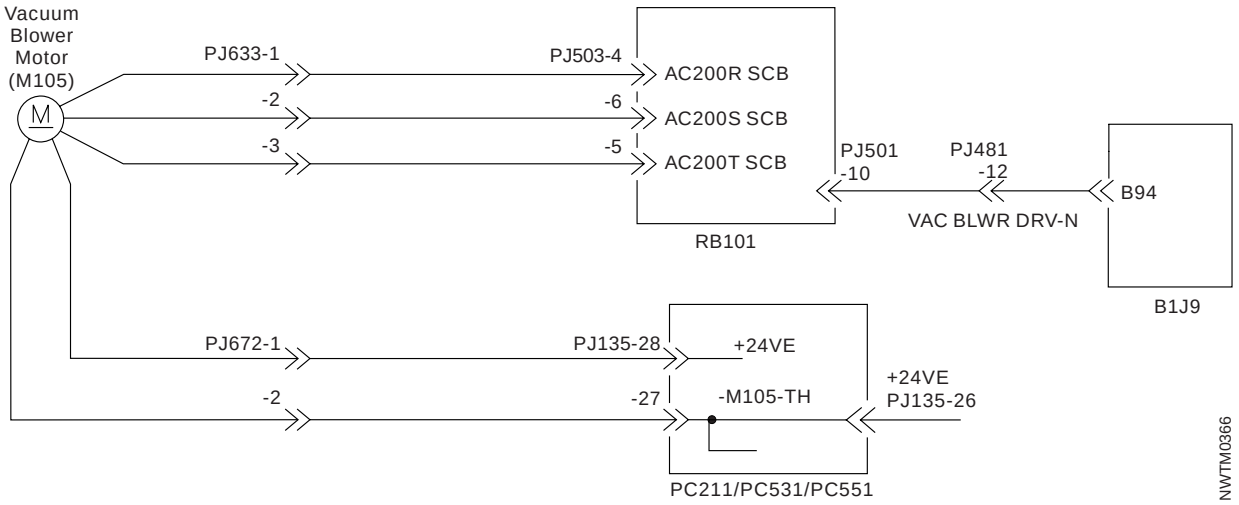
CD66 - Cleaner Brush Motor and Thermal (M108)



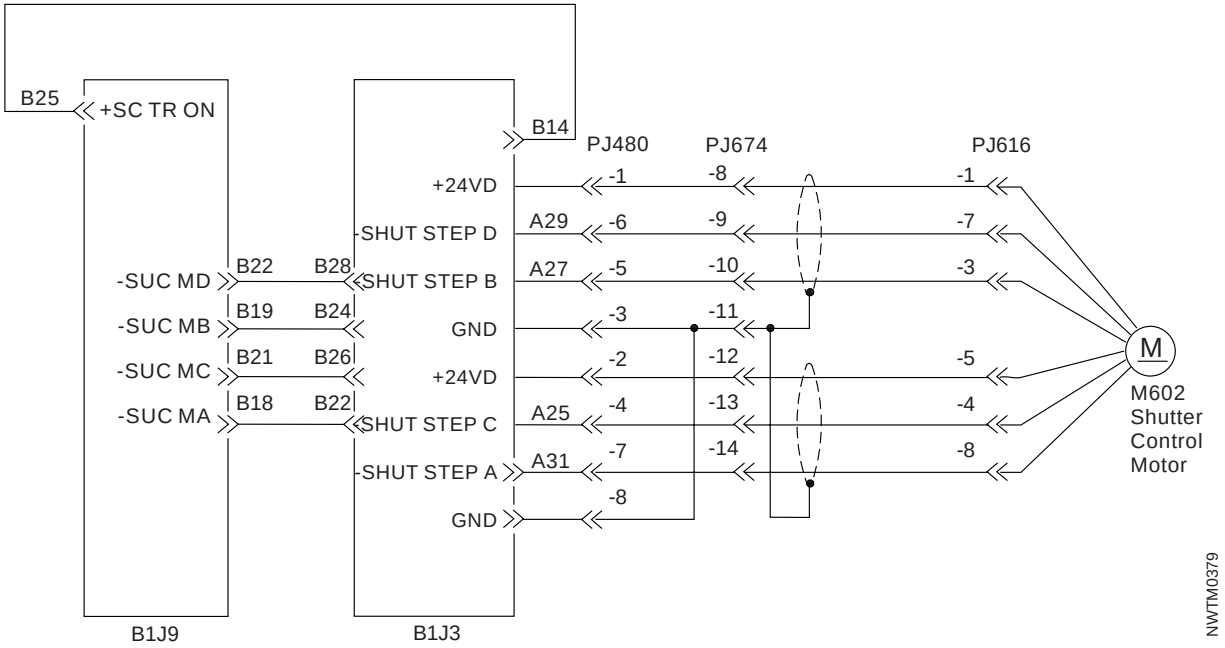
CD67 - Cleaner Housing Motor (M106) and Position Switch (S103)



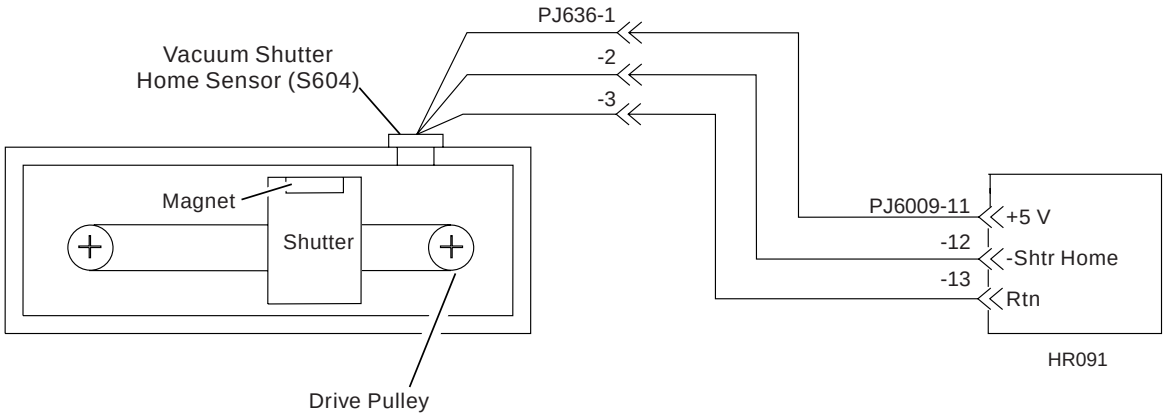
CD68 - Vacuum Blower Thermal (M105)

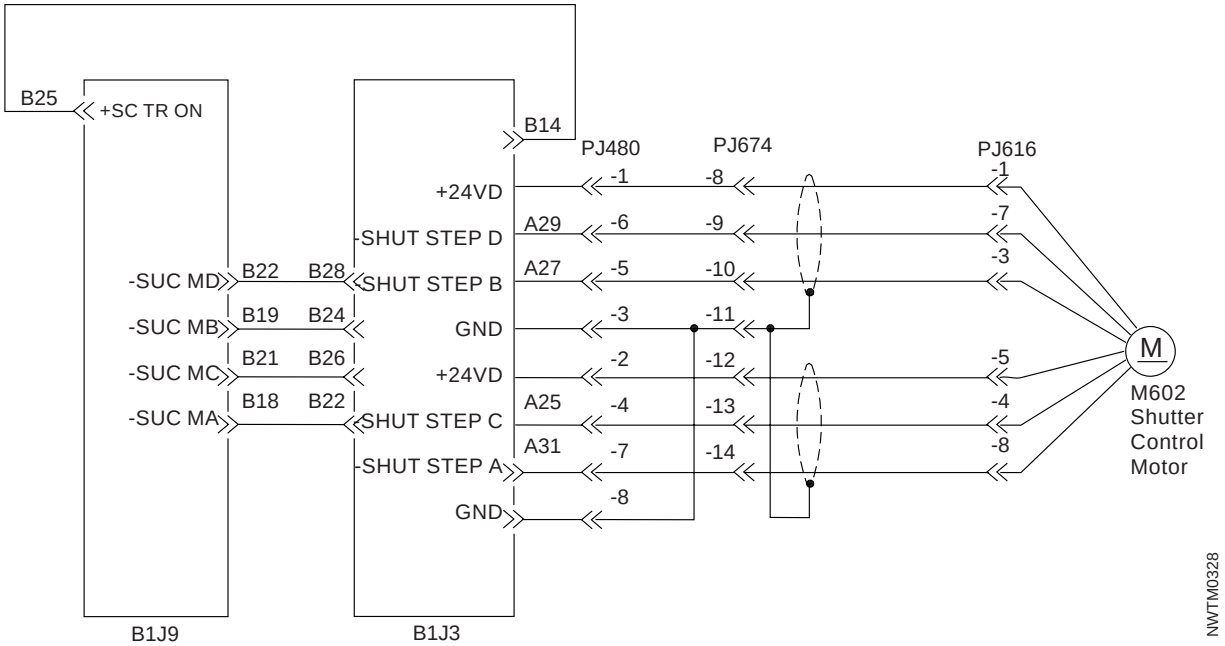


CD69 - Shutter Control Motor (M602)

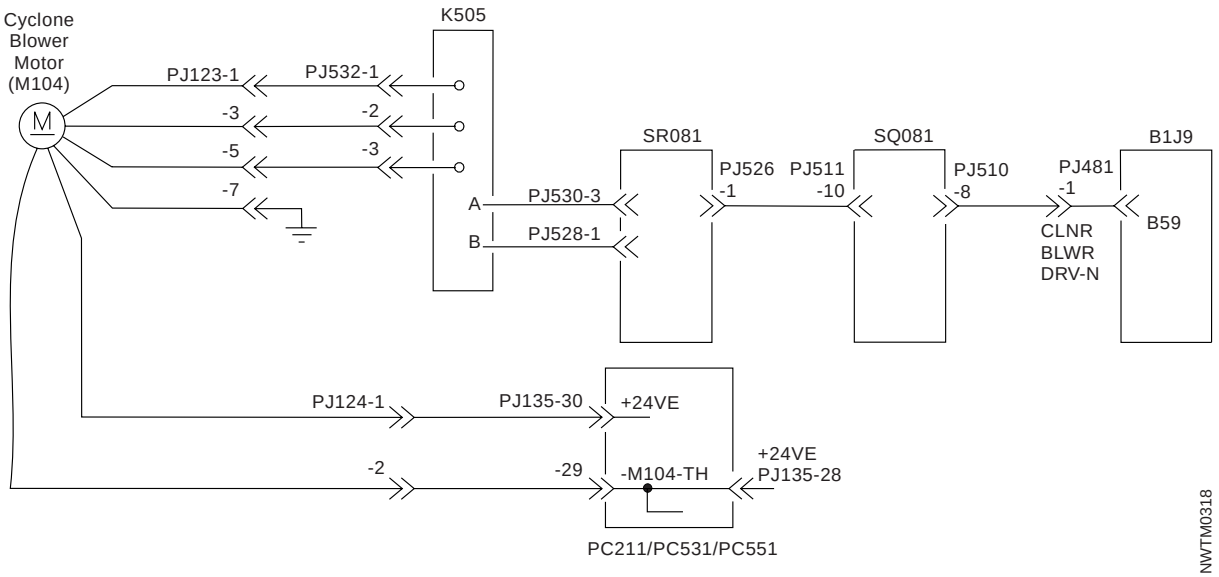


CD70 - Shutter Control Motor (M602) and Vacuum Shutter Home Sensor (S604)

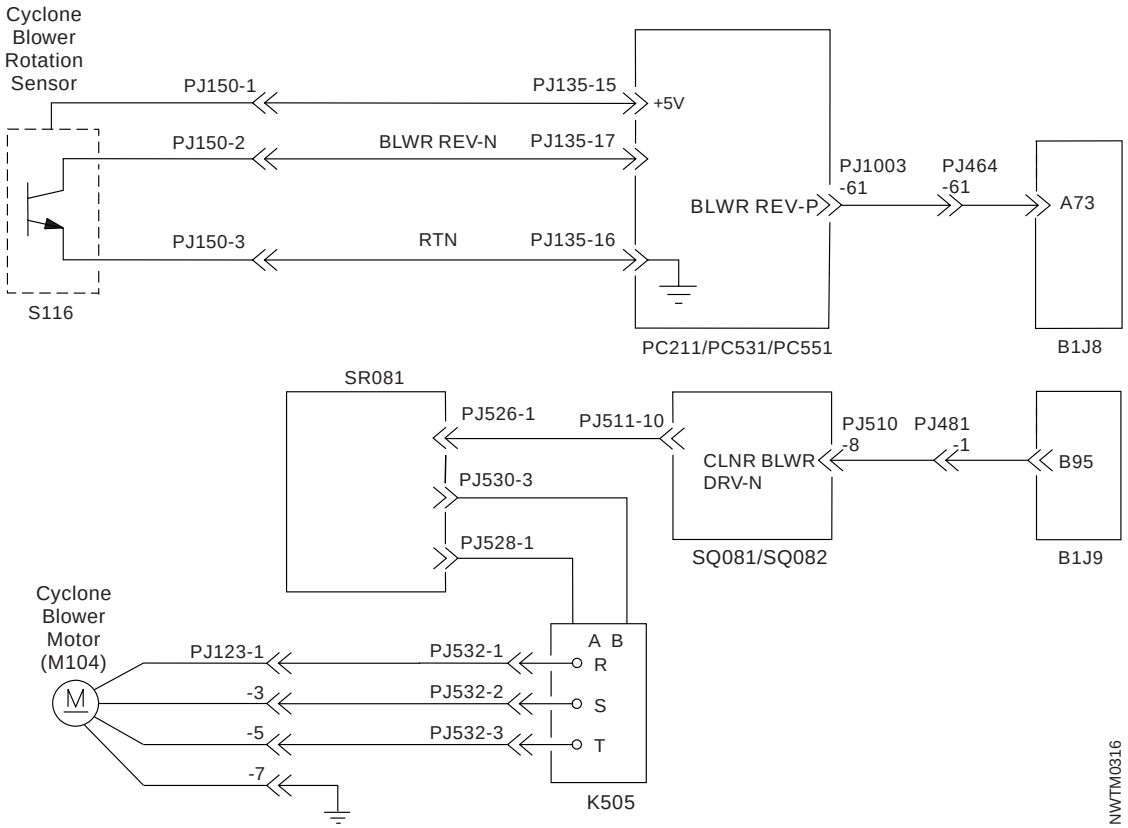




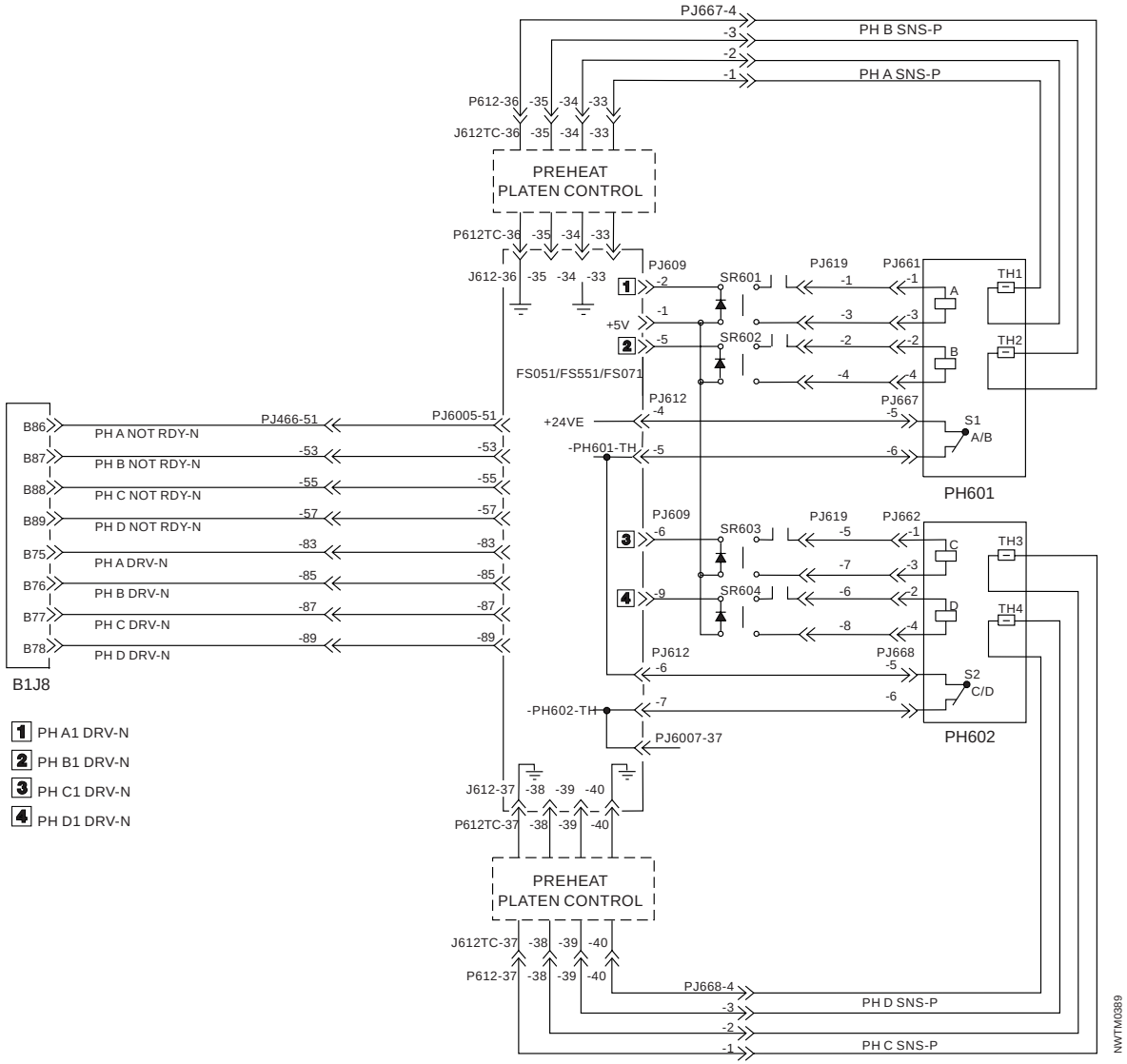
CD71 - Cyclone Blower Motor (M104)



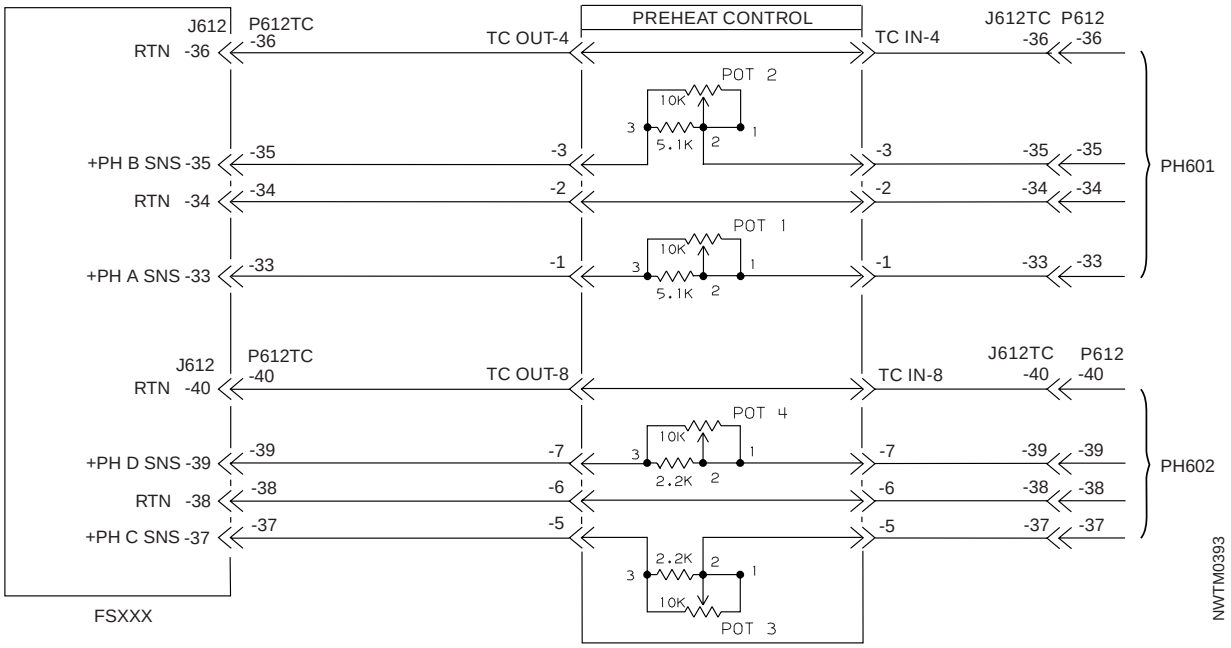
CD72 - Cyclone Blower Motor (M104) and Rotation Sensor (S116)



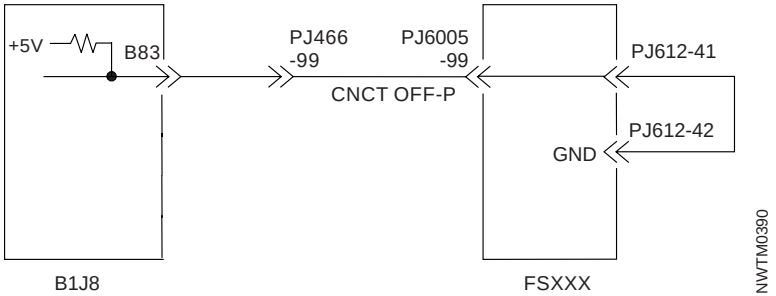
CD73 - Preheat Platen



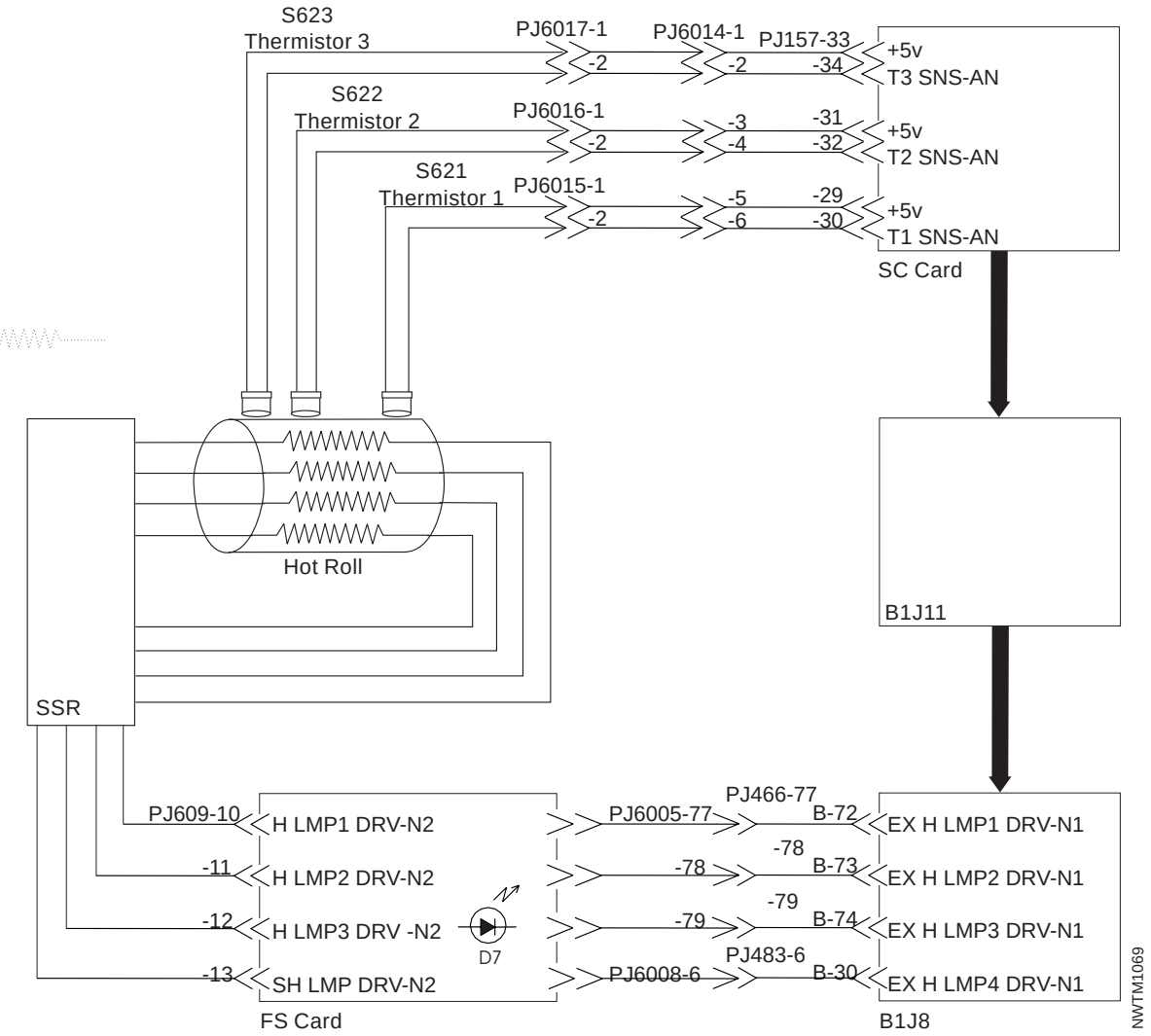
CD74 - Preheat Control



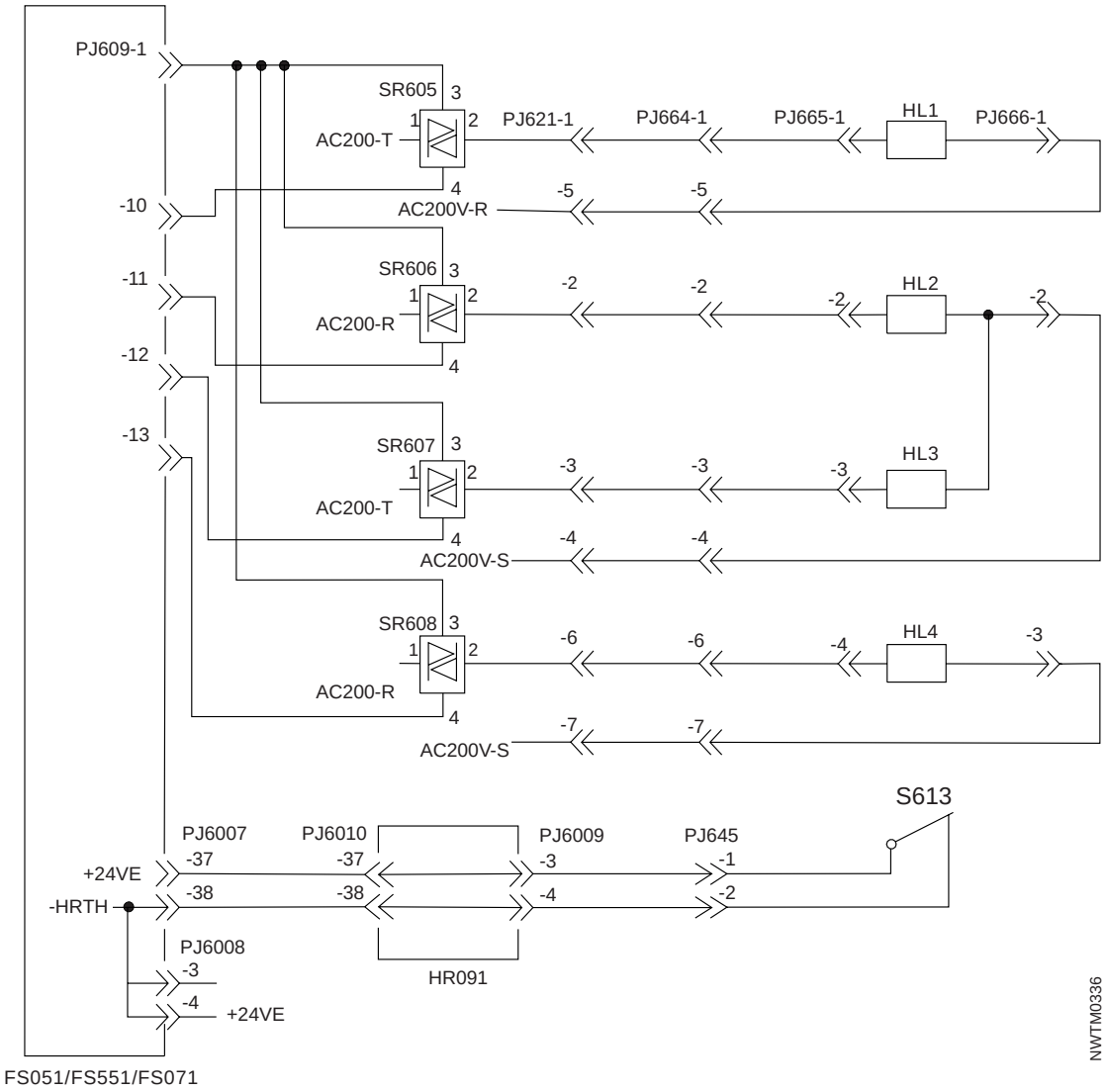
CD75 - Preheat Platen Thermal



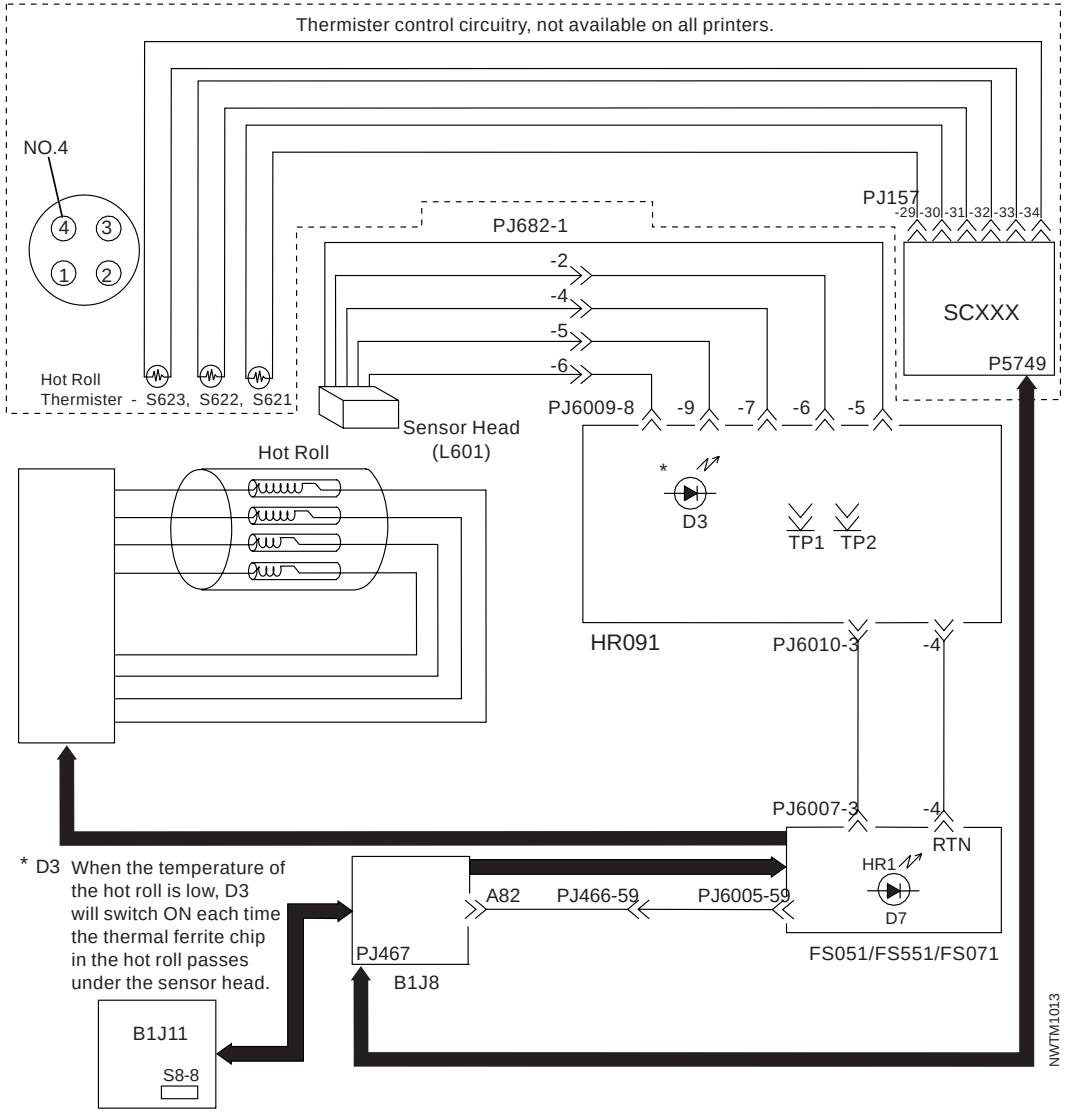
CD76 - Hot Roll Temperature Control Thermistors (S621, S622, S623)



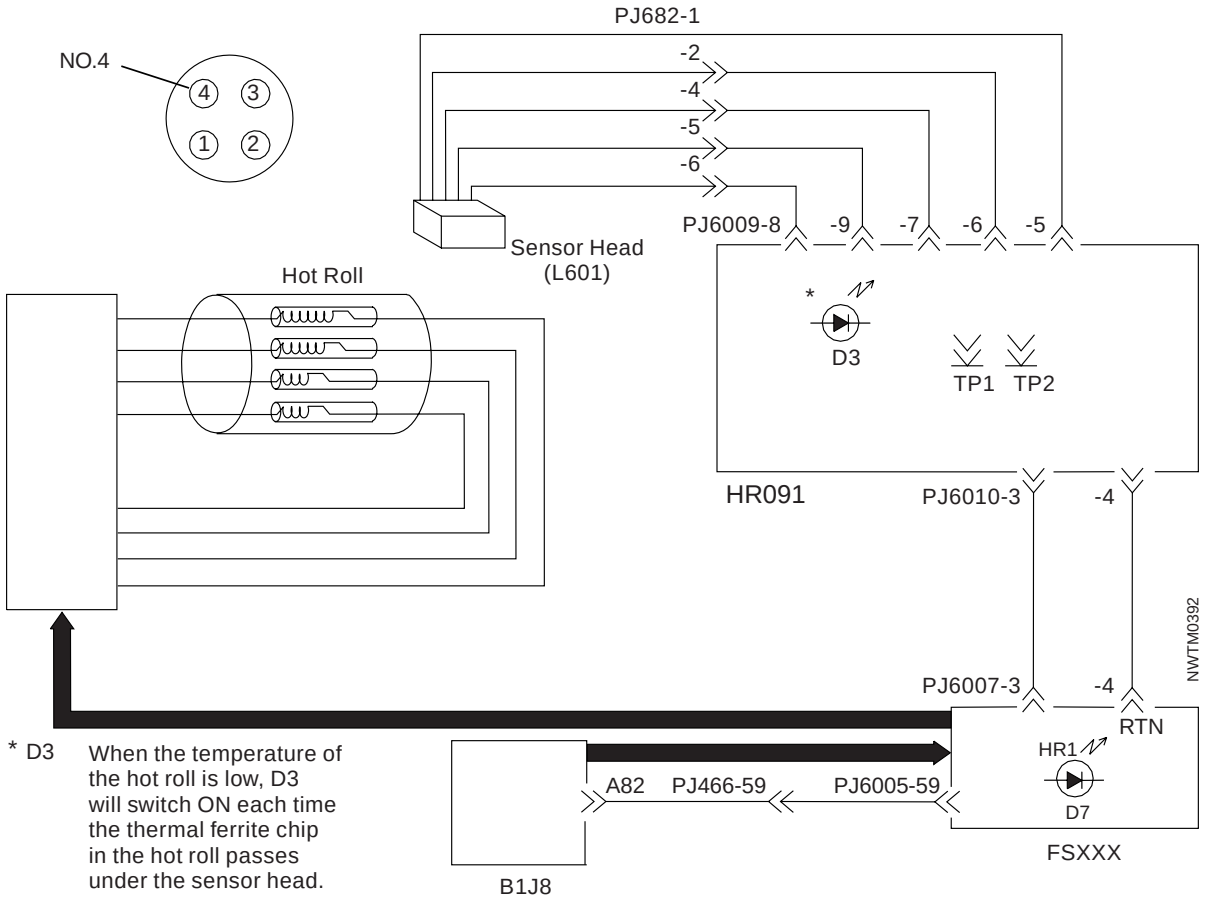
CD77 - Hot Roll Over-temperature Sensor (S613)



CD78 - Hot Roll Temperature Control Sensor (L601)

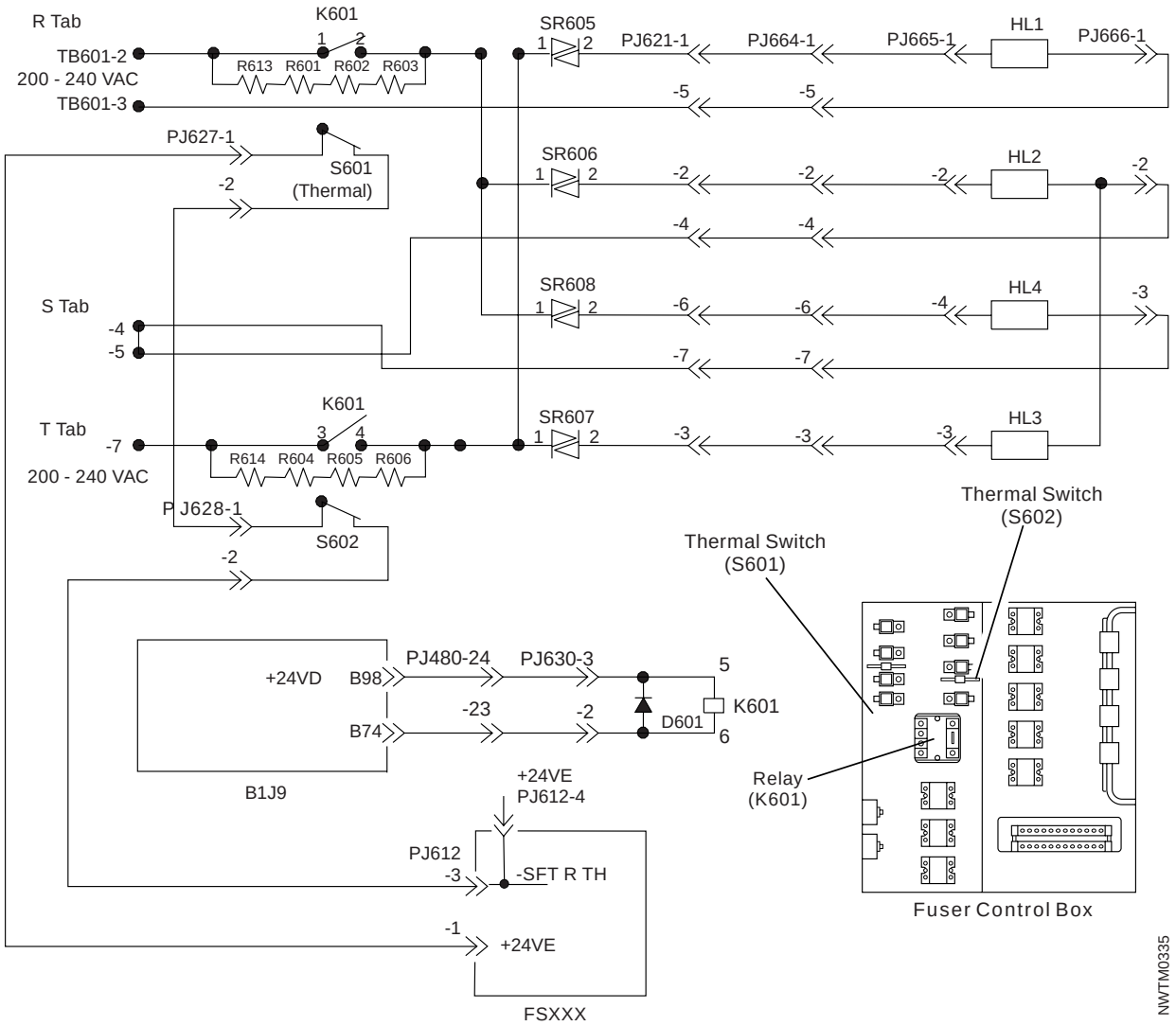


CD79 - Hot Roll Lamp Control

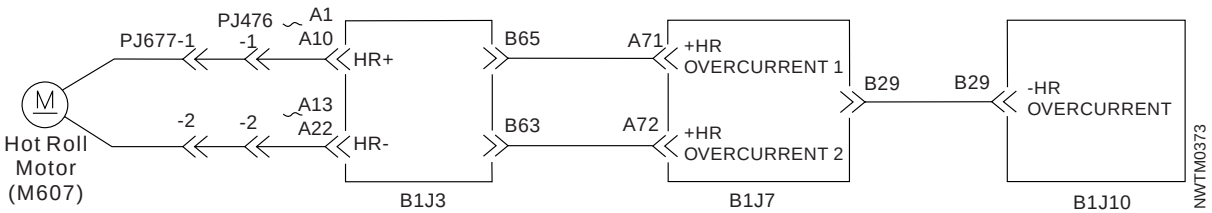


* D3 When the temperature of the hot roll is low, D3 will switch ON each time the thermal ferrite chip in the hot roll passes under the sensor head.

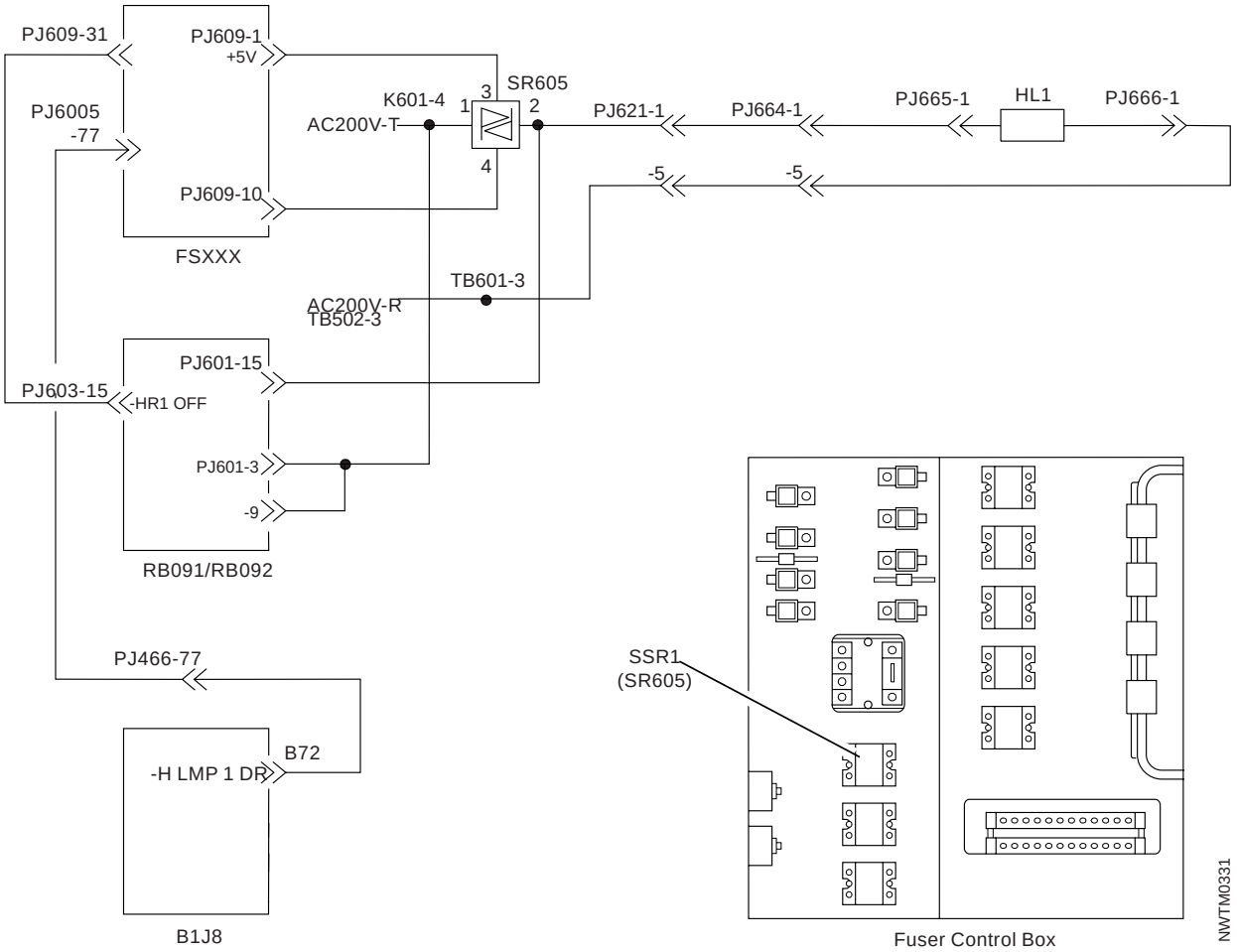
CD80 - Hot Roll Soft Start Thermal Sensors (S601, S602)



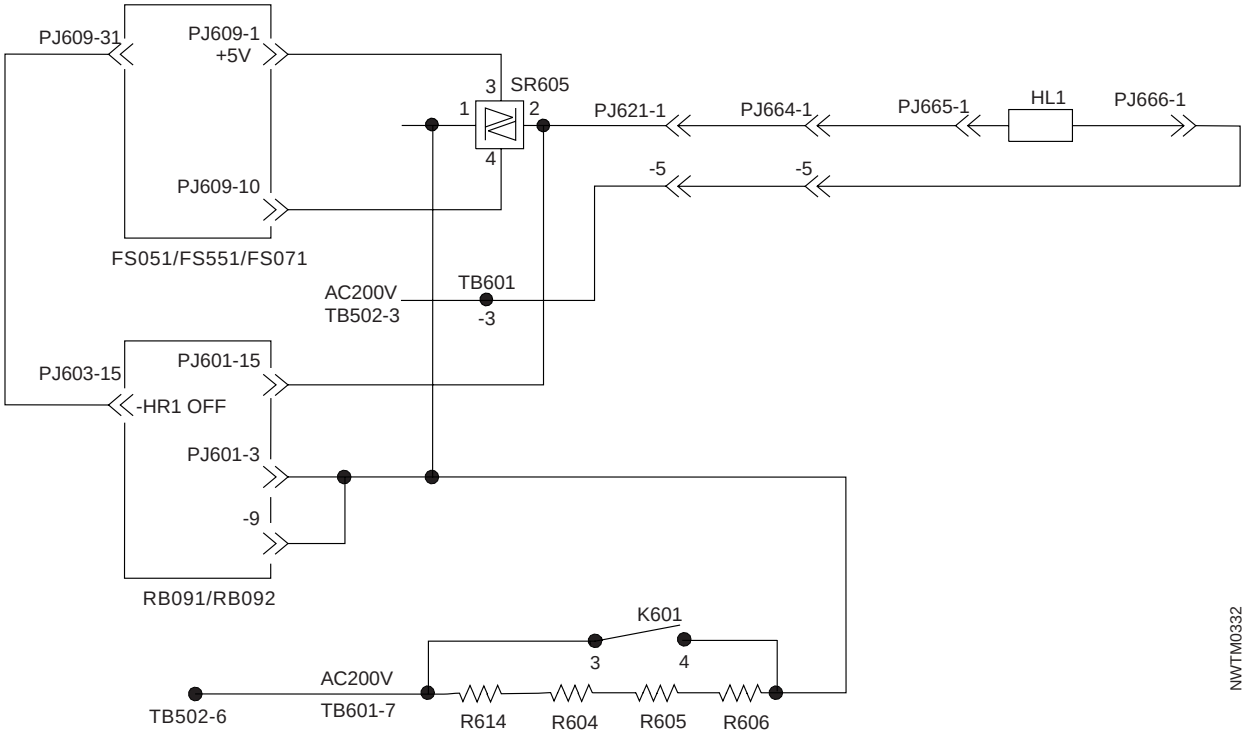
CD81 - Hot Roll Motor Over-current Detection (M607)



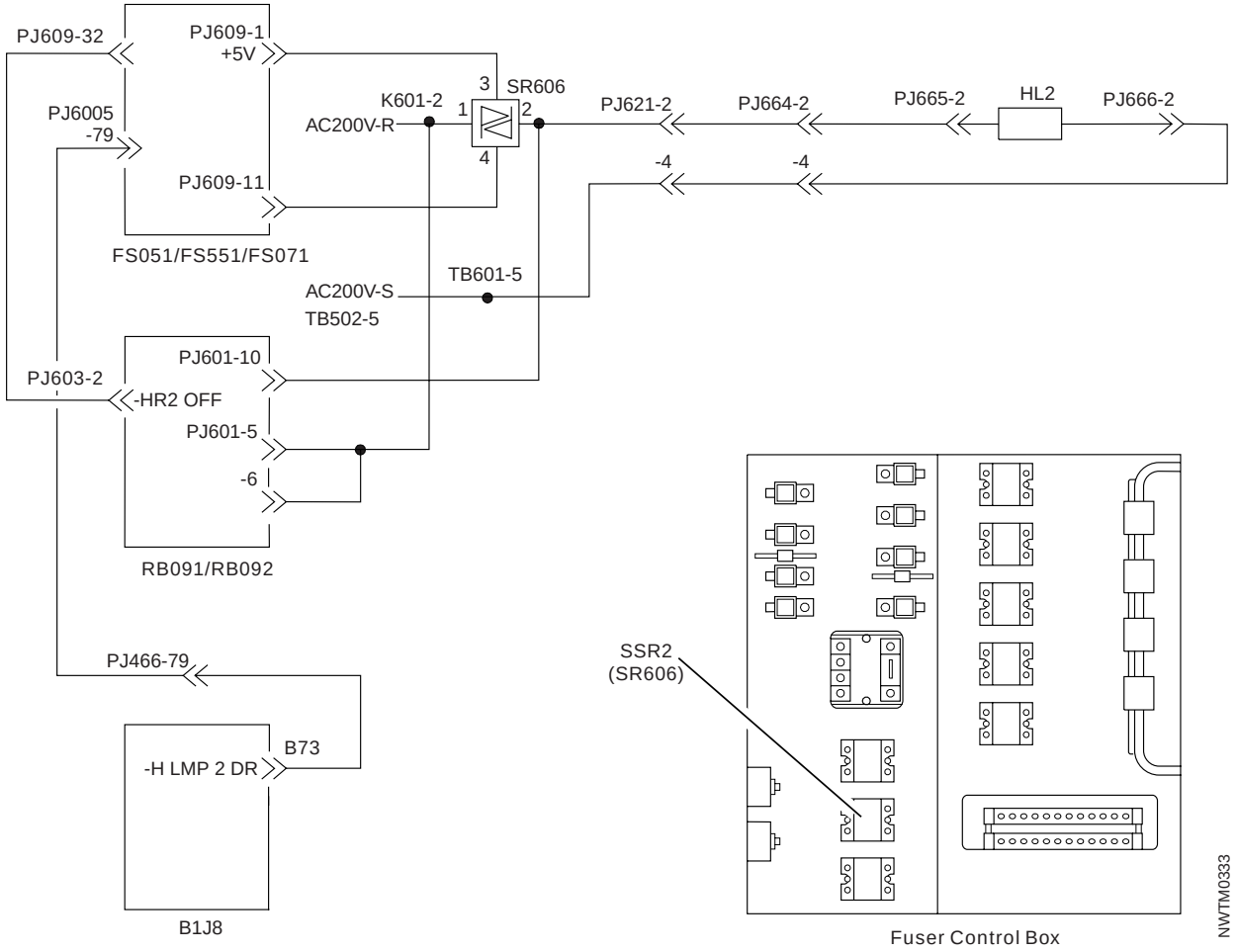
CD82 - Hot Roll Lamp 1 Relay (SR605)



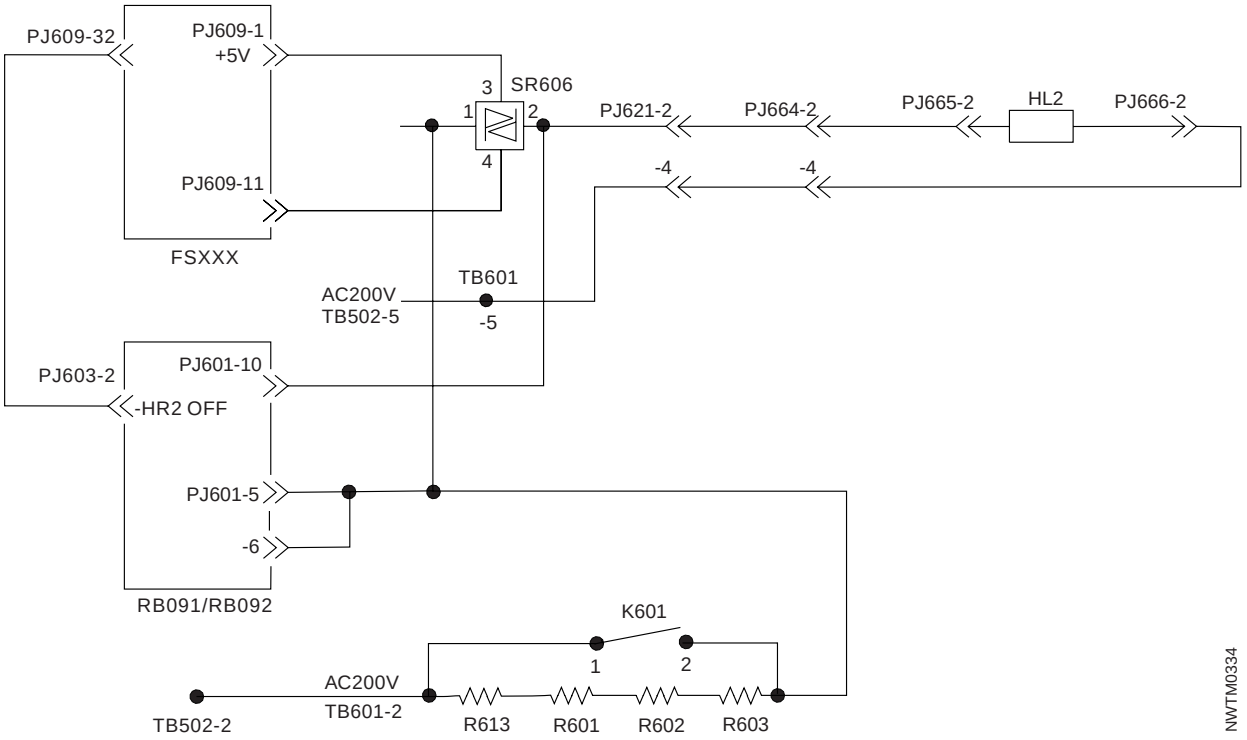
CD83 - Hot Roll Lamp 1



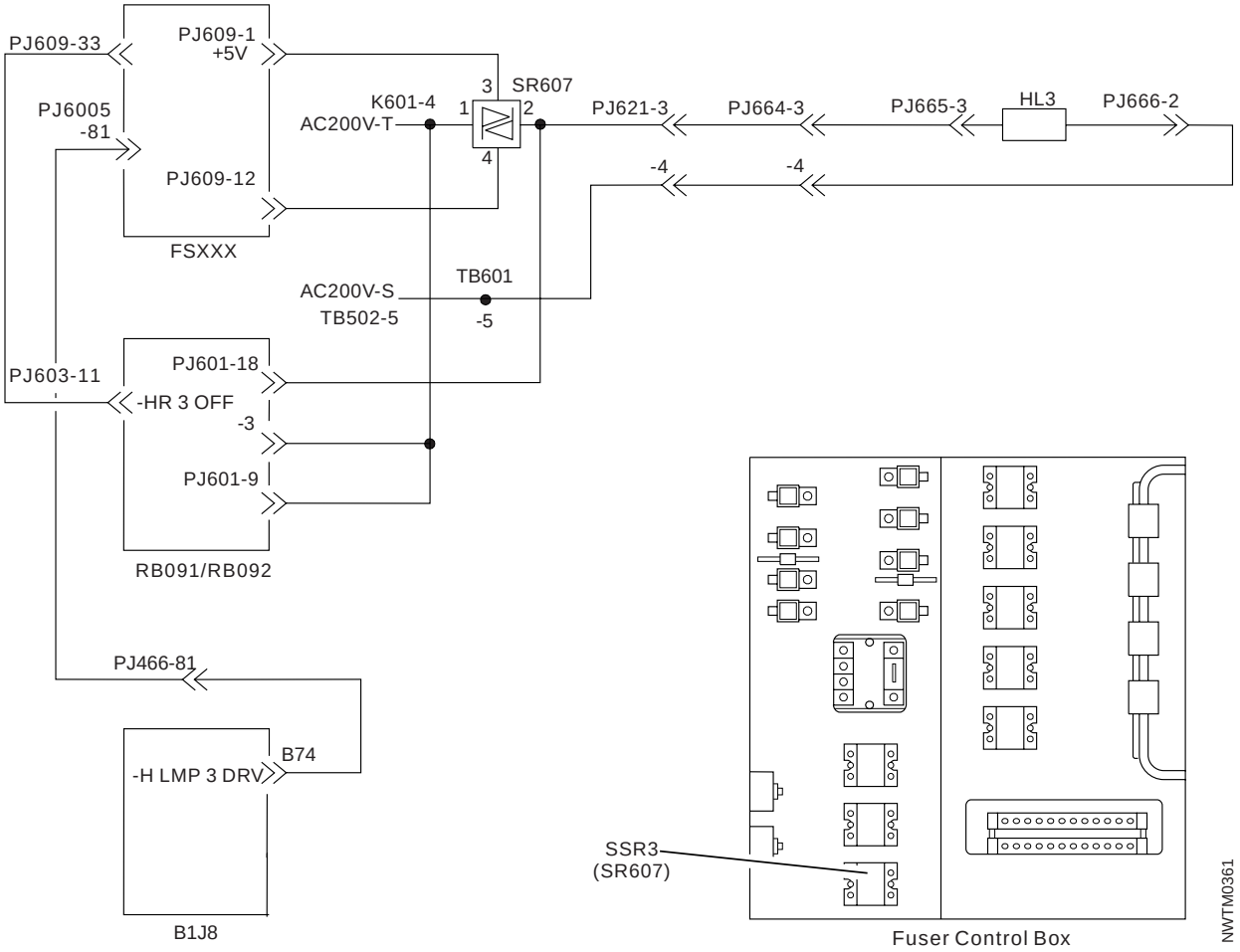
CD84 - Hot Roll Lamp 2 Relay (SR606)



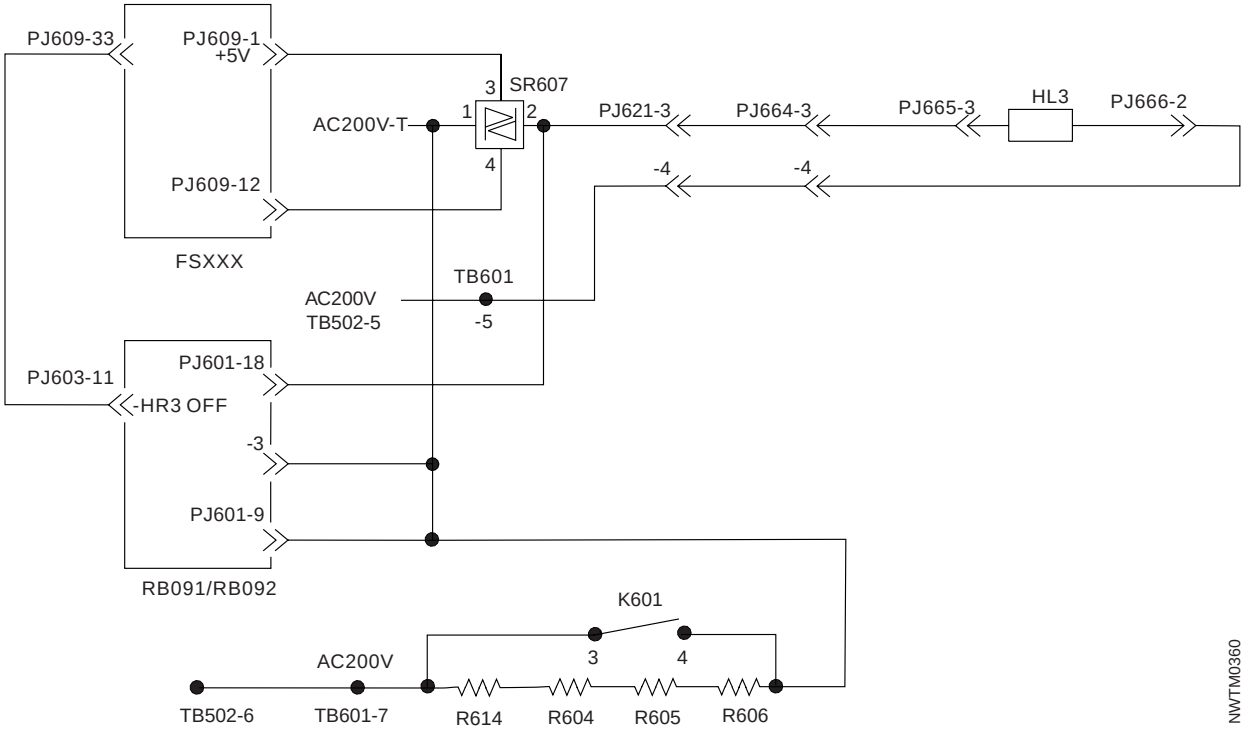
CD85 - Hot Roll Lamp 2



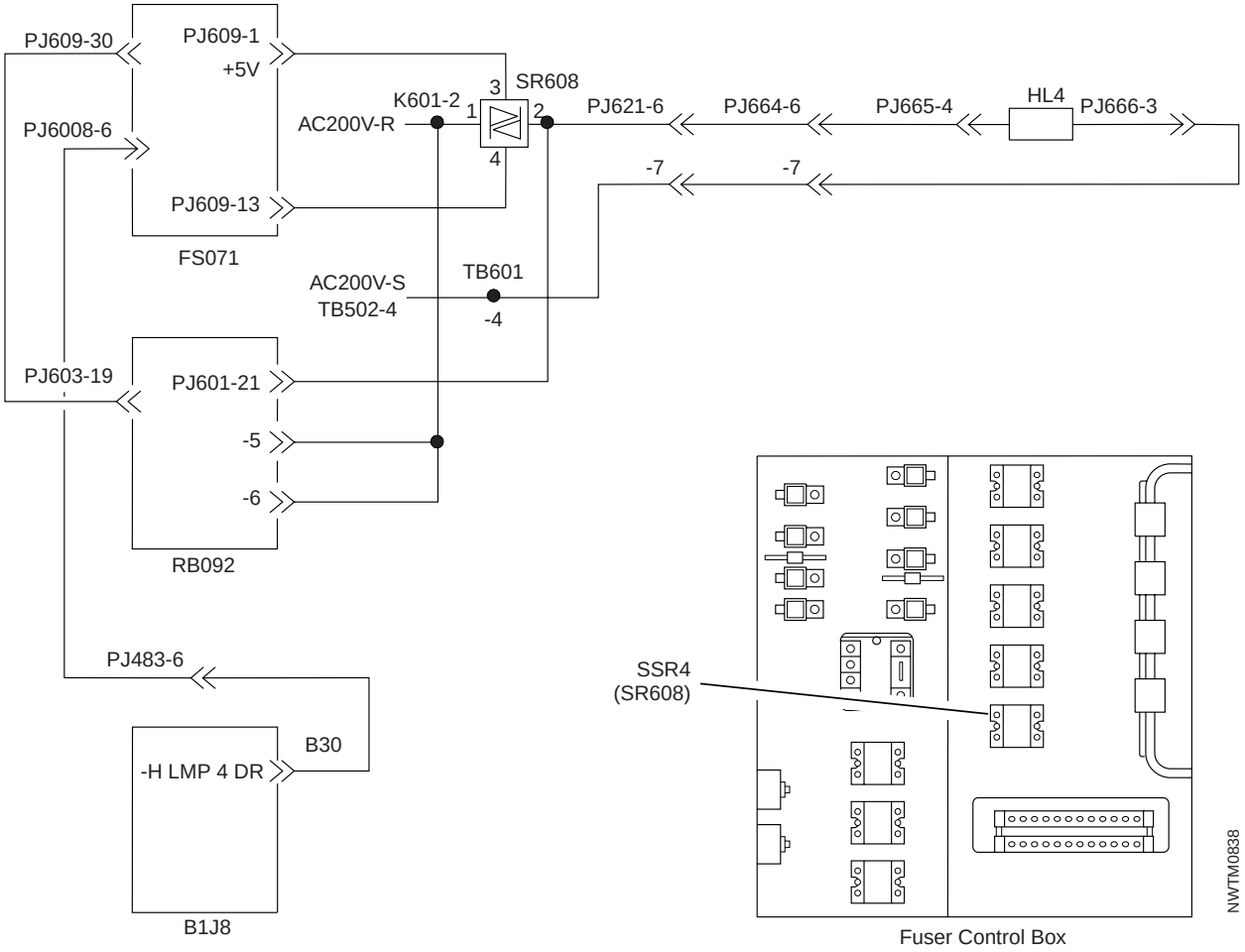
CD86 - Hot Roll Lamp 3 Relay (SR607)



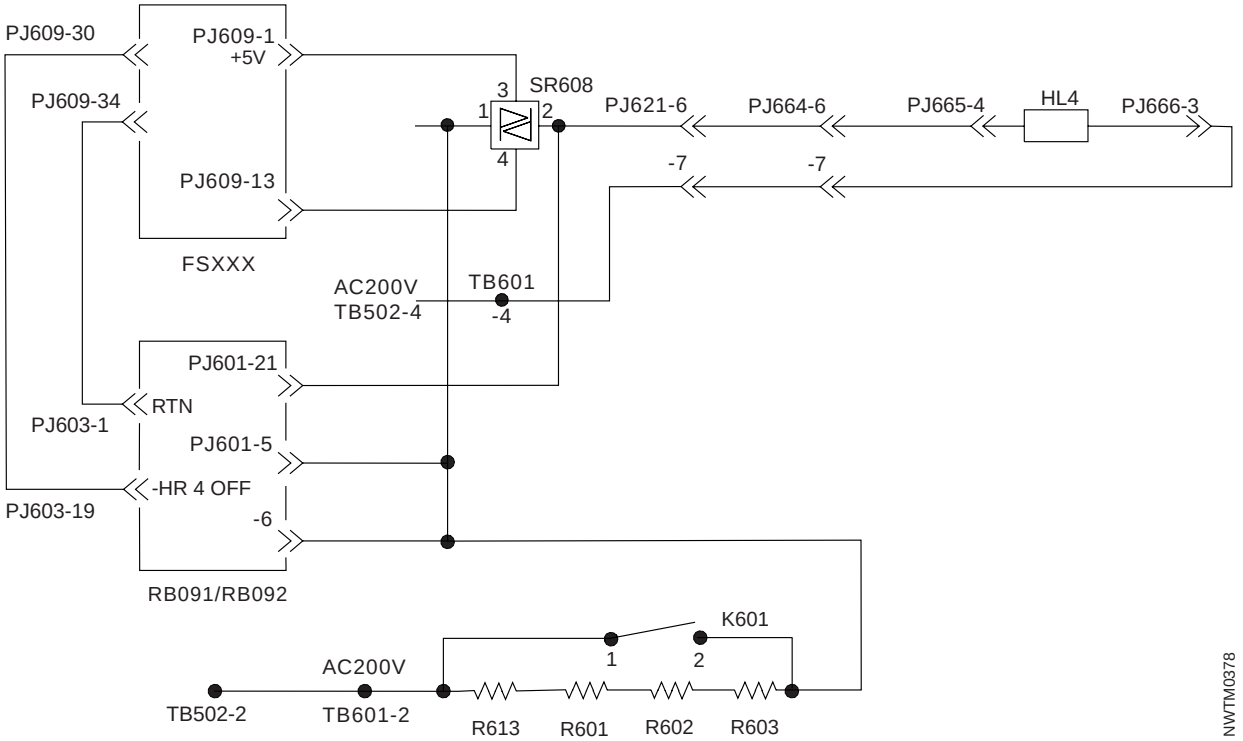
CD87 - Hot roll Lamp 3



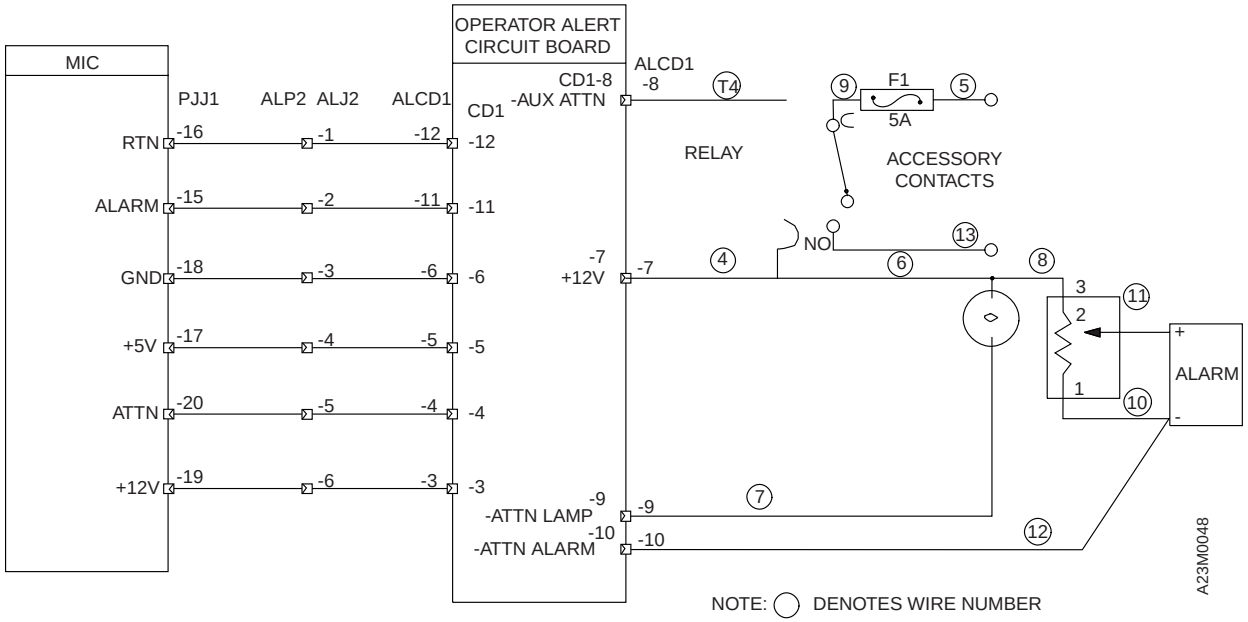
CD88 - Hot Roll Lamp 4 Relay (SR608) (3900 0Wx & DWx Models, Infoprint 4000 ISx & IDx Models)



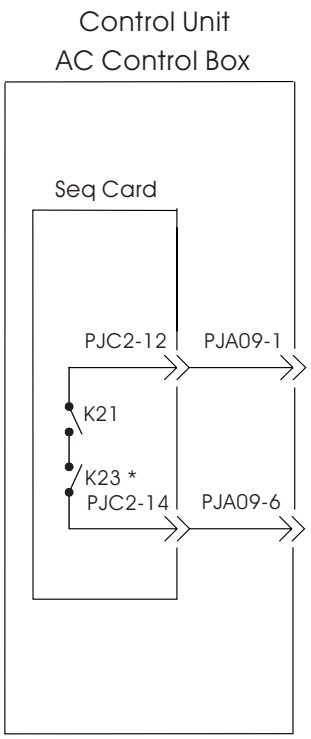
CD89 - Hot Roll Lamp 4

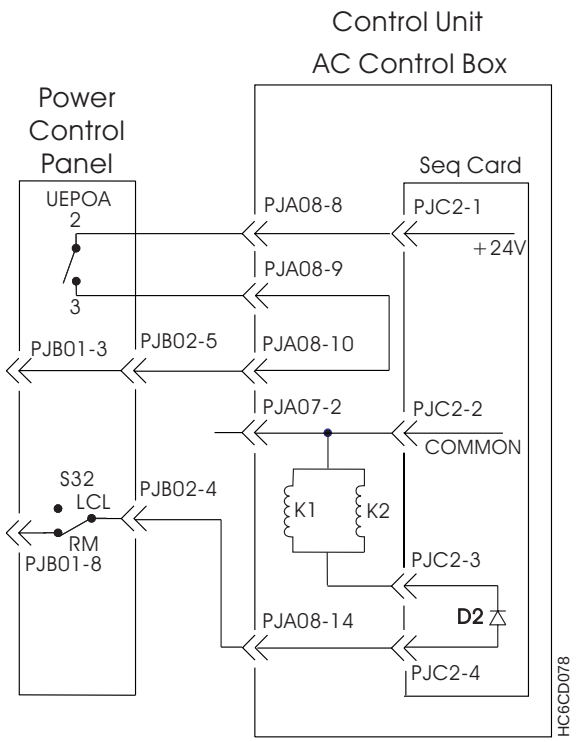


CD90 - Operator Alert

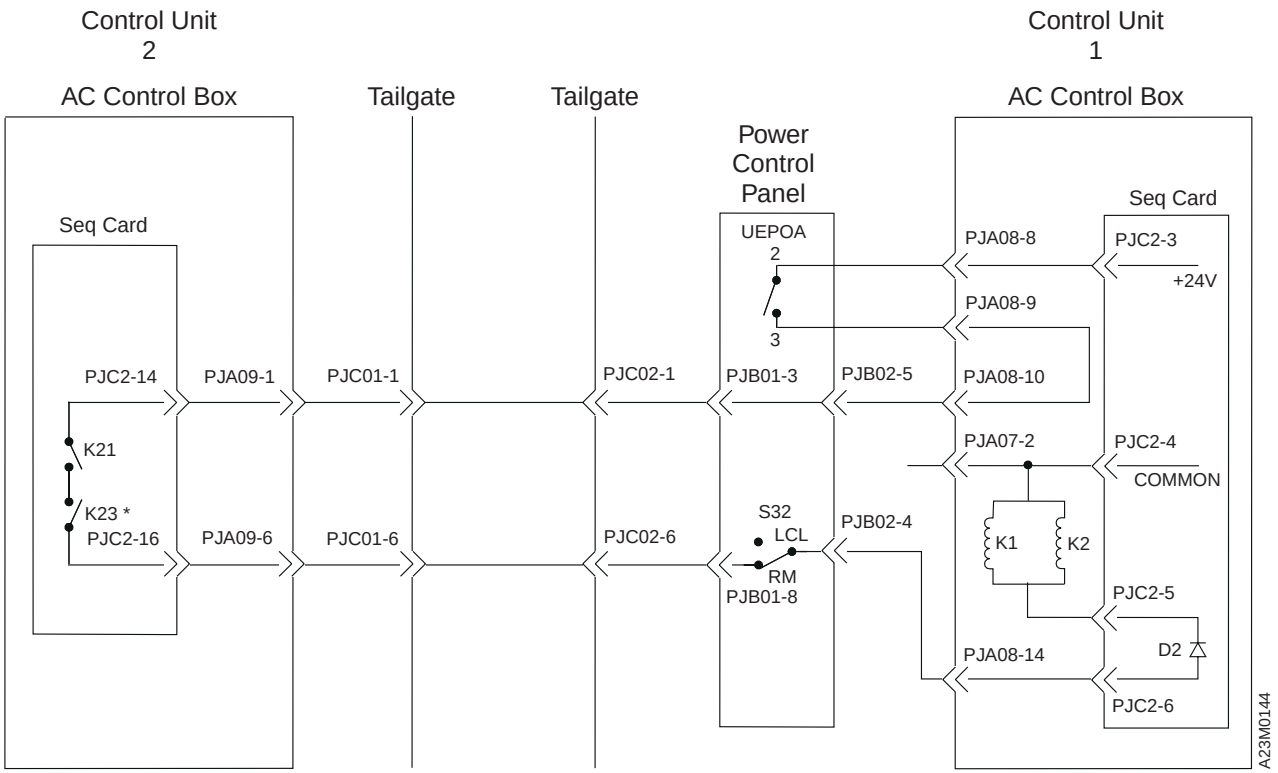


CD91 - Printer Remote Power

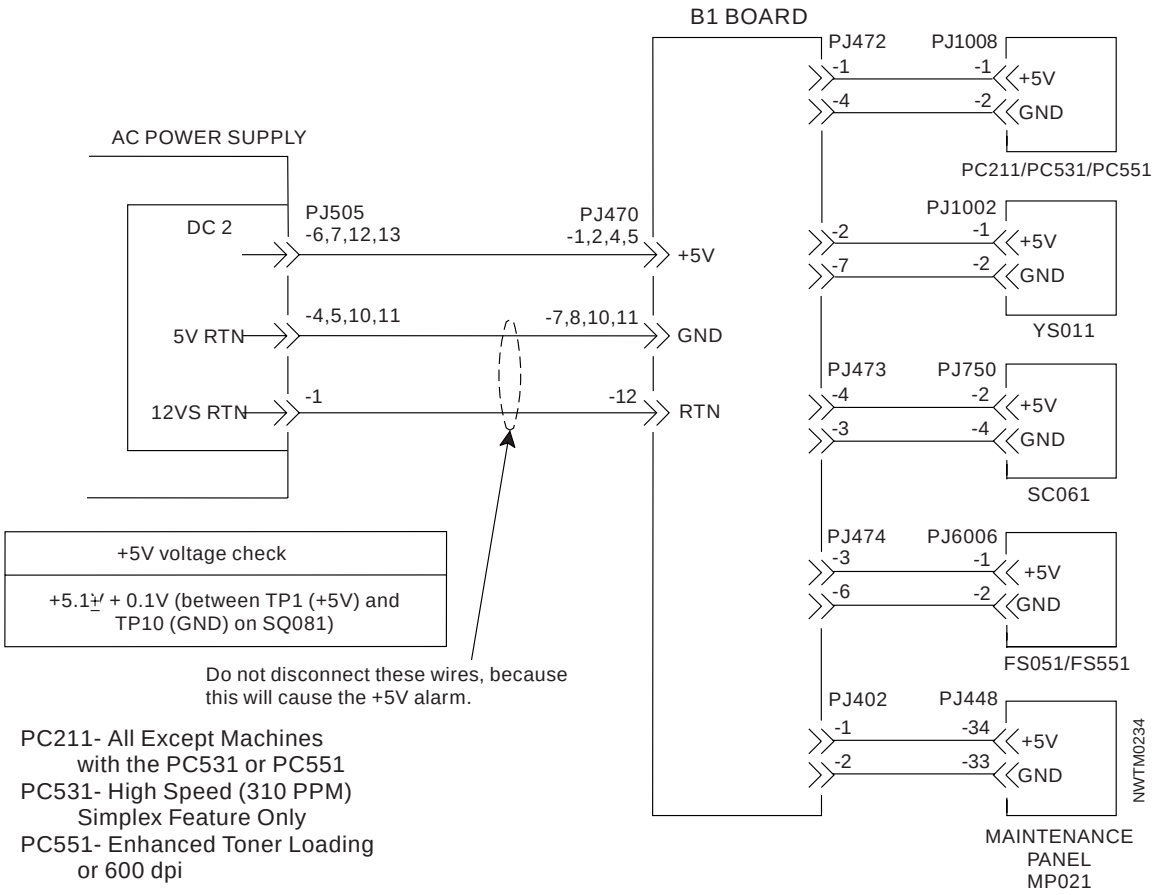




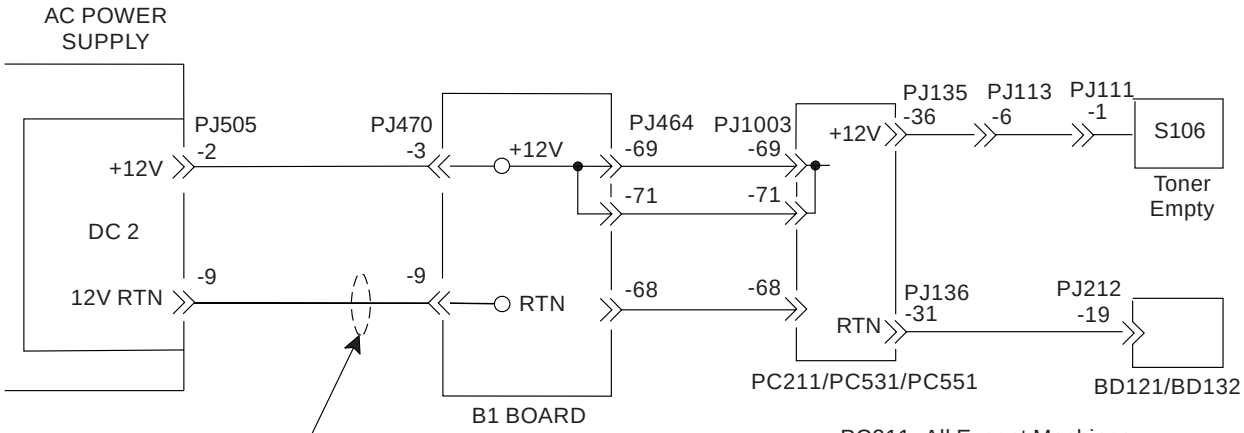
CD92 - Printer 1 Remote Power



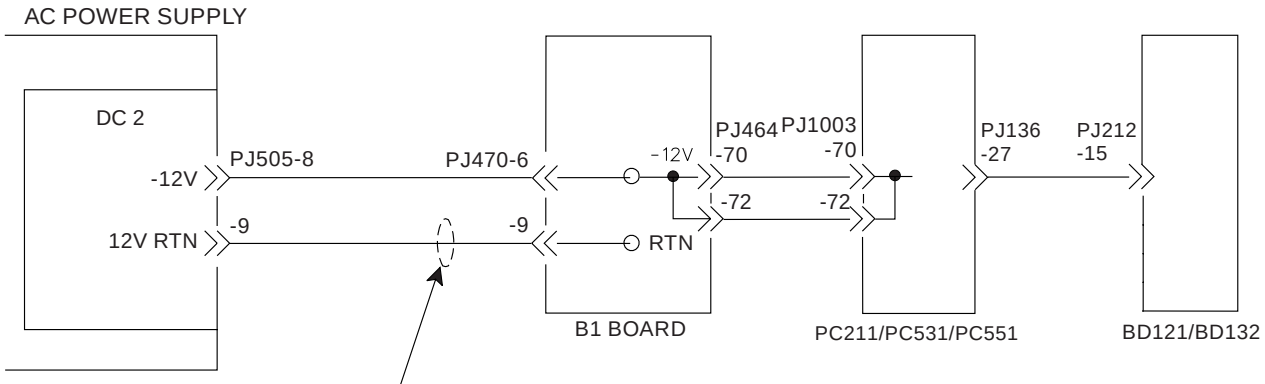
CD93 - (+5 V) Voltage Distribution



CD94 - (+12 V) Voltage Distribution



CD95 - (−12 V) Voltage Distribution



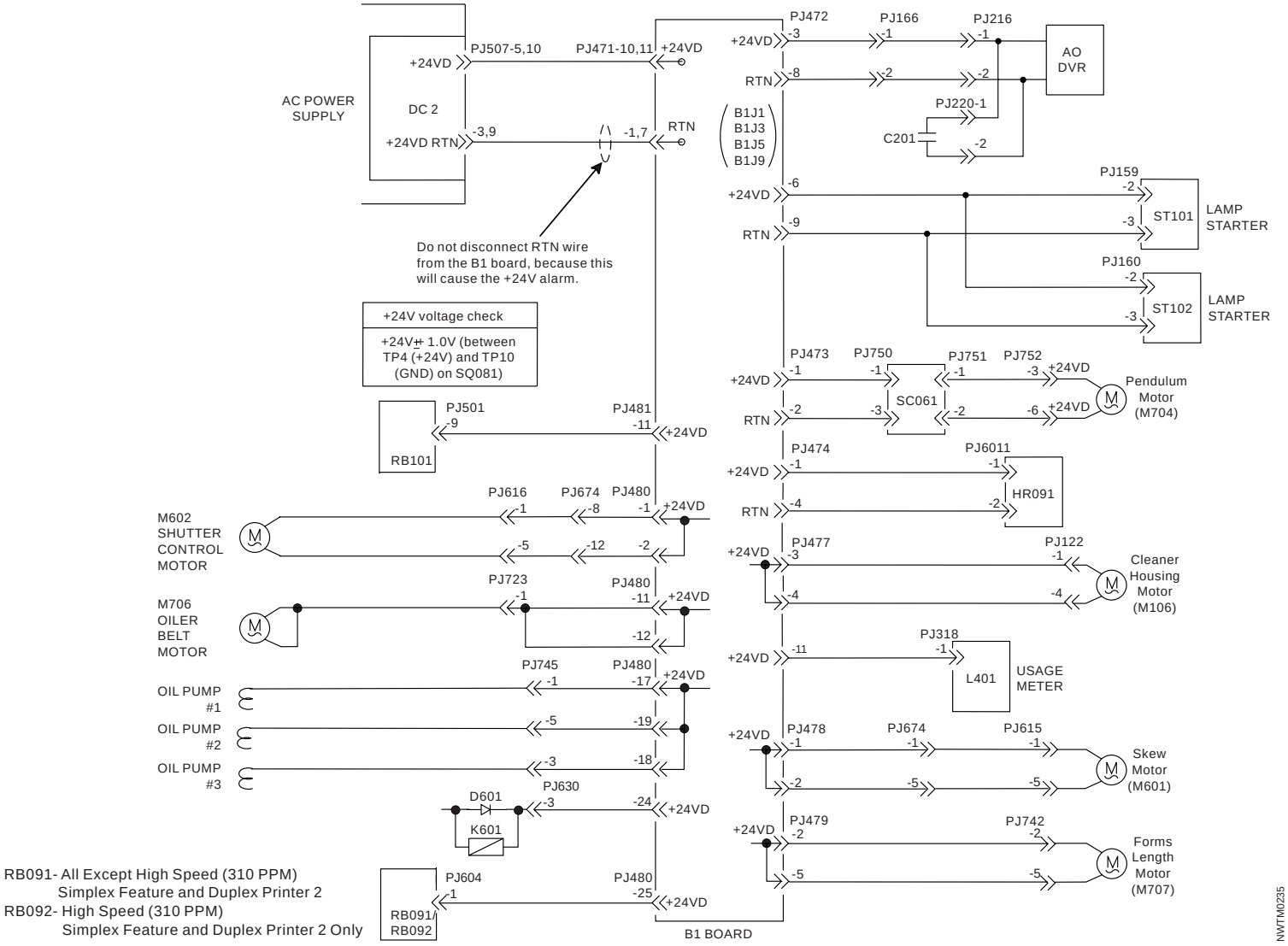
Do not disconnect RTN wire from the B1 board, because this will cause the +12V / -12V alarm.

-12V voltage check
-12V ± 1.0V (between TP3 (-12V), and TP10 (GND) on SQ081)

PC211- All Except Machines with the PC531 or PC551
PC531- High Speed (310 PPM) Simplex Feature Only
PC551- Enhanced Toner Loading or 600 dpi

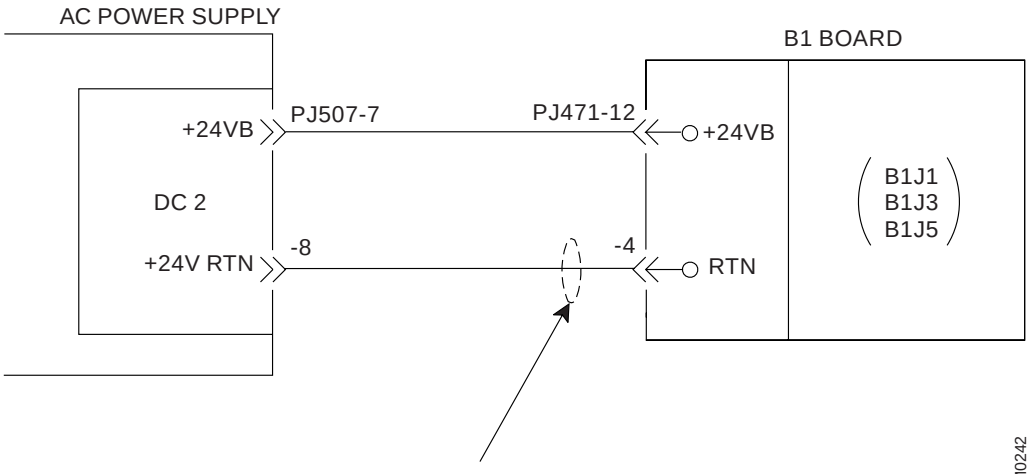
NWTM0241

CD96 - (+24 VD) Voltage Distribution (Three Oil Pump)



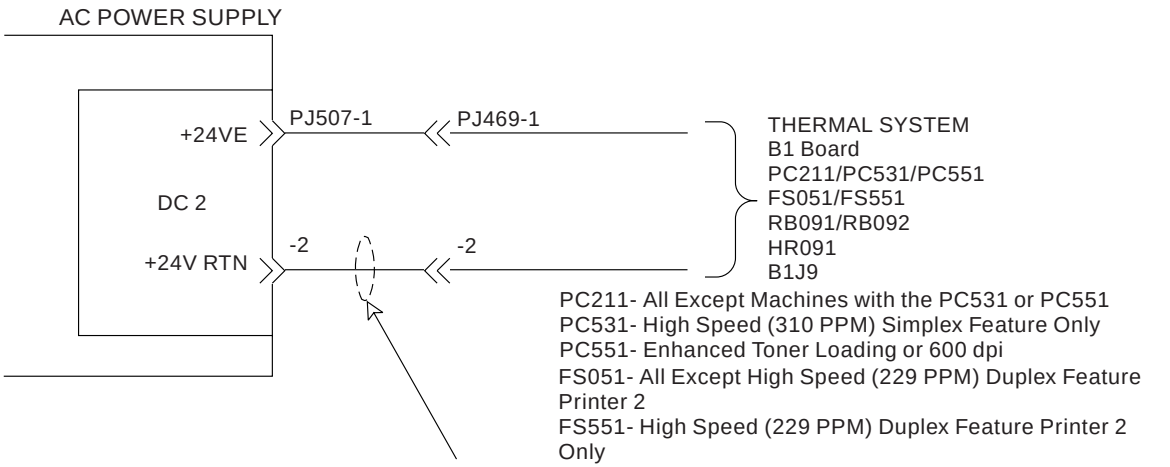
RB091- All Except High Speed (310 PPM)
Simplex Feature and Duplex Printer 2
RB092- High Speed (310 PPM)
Simplex Feature and Duplex Printer 2 Only

CD97 - (+24 VB) Voltage Distribution



Do not disconnect RTN wire from the B1 board, because this will cause the +24V alarm.

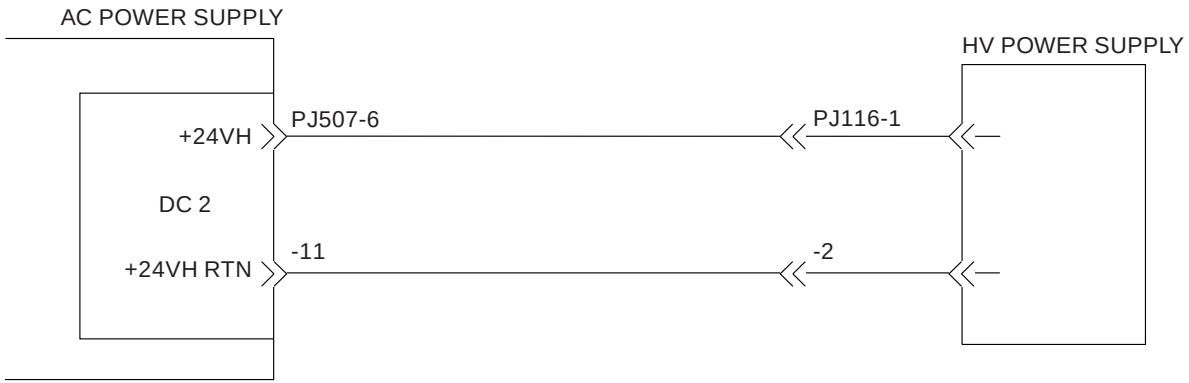
CD98 - (+24 VE) Voltage Distribution



PC211- All Except Machines with the PC531 or PC551
PC531- High Speed (310 PPM) Simplex Feature Only
PC551- Enhanced Toner Loading or 600 dpi
FS051- All Except High Speed (229 PPM) Duplex Feature Printer 2
FS551- High Speed (229 PPM) Duplex Feature Printer 2 Only
RB091- All Except High Speed (310 PPM) Simplex Feature and Duplex Printer 2
RB092- High Speed (310 PPM) Simplex Feature and Duplex Printer 2 Only

NWTM0243

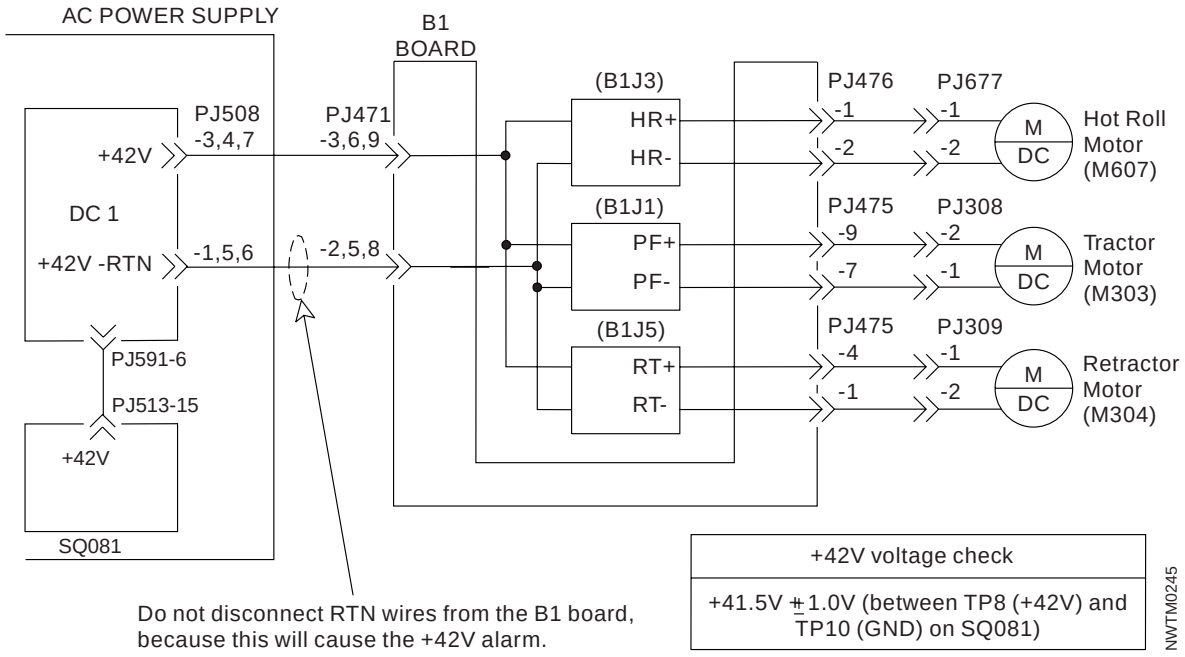
CD99 - (+24 VH) Voltage Distribution



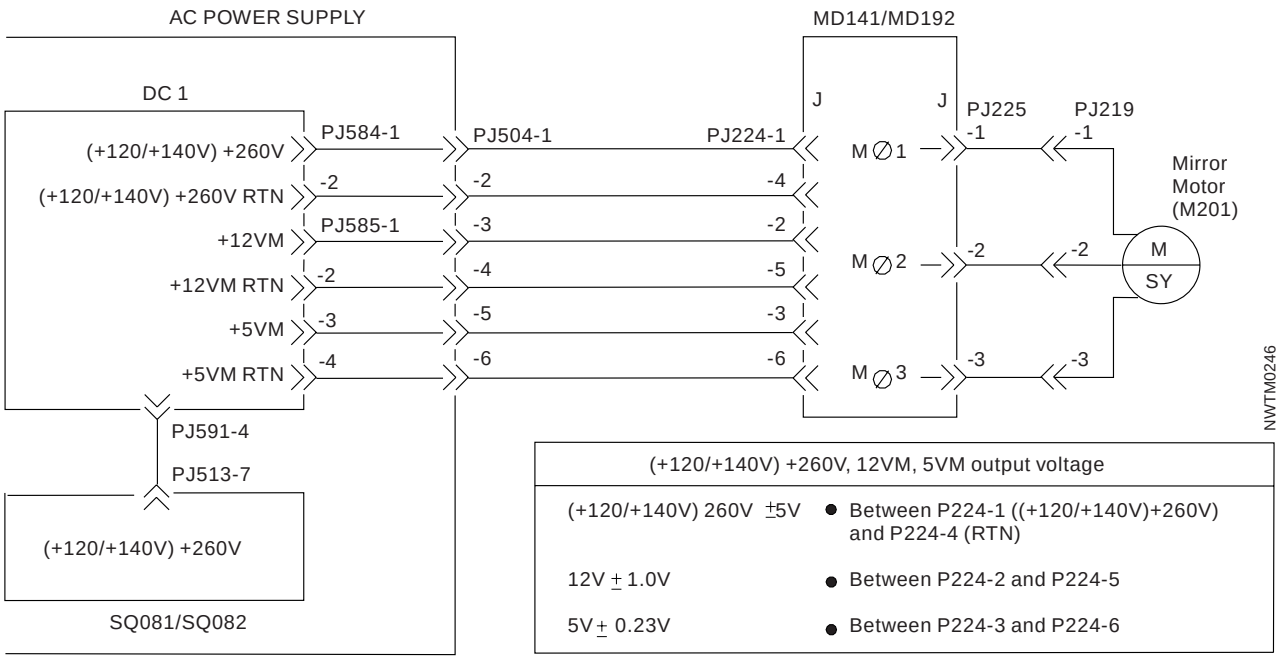
+24V voltage check
+24V ± 0.7V (between TP7 (+24VH) and TP11 (+24VH GND) on SQ081)

NWTM0244

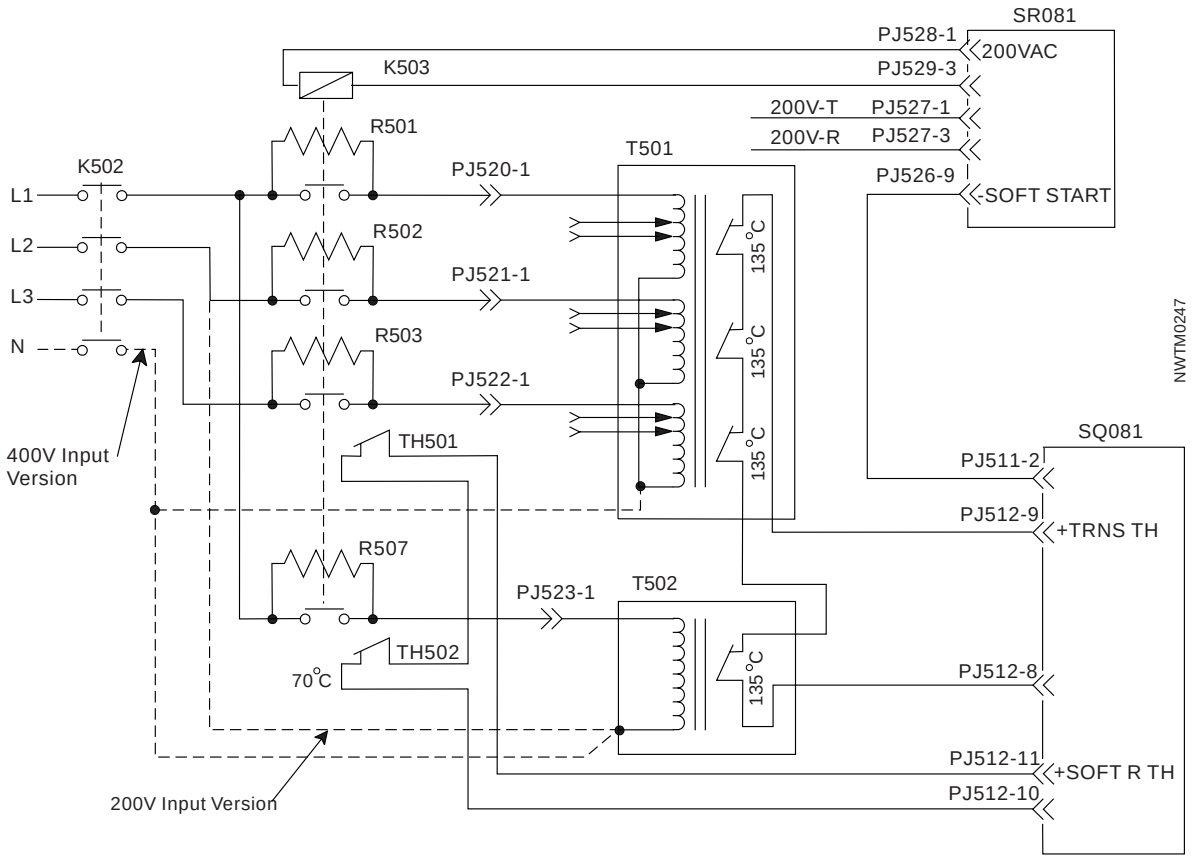
CD100 - (+42 V) Voltage Distribution



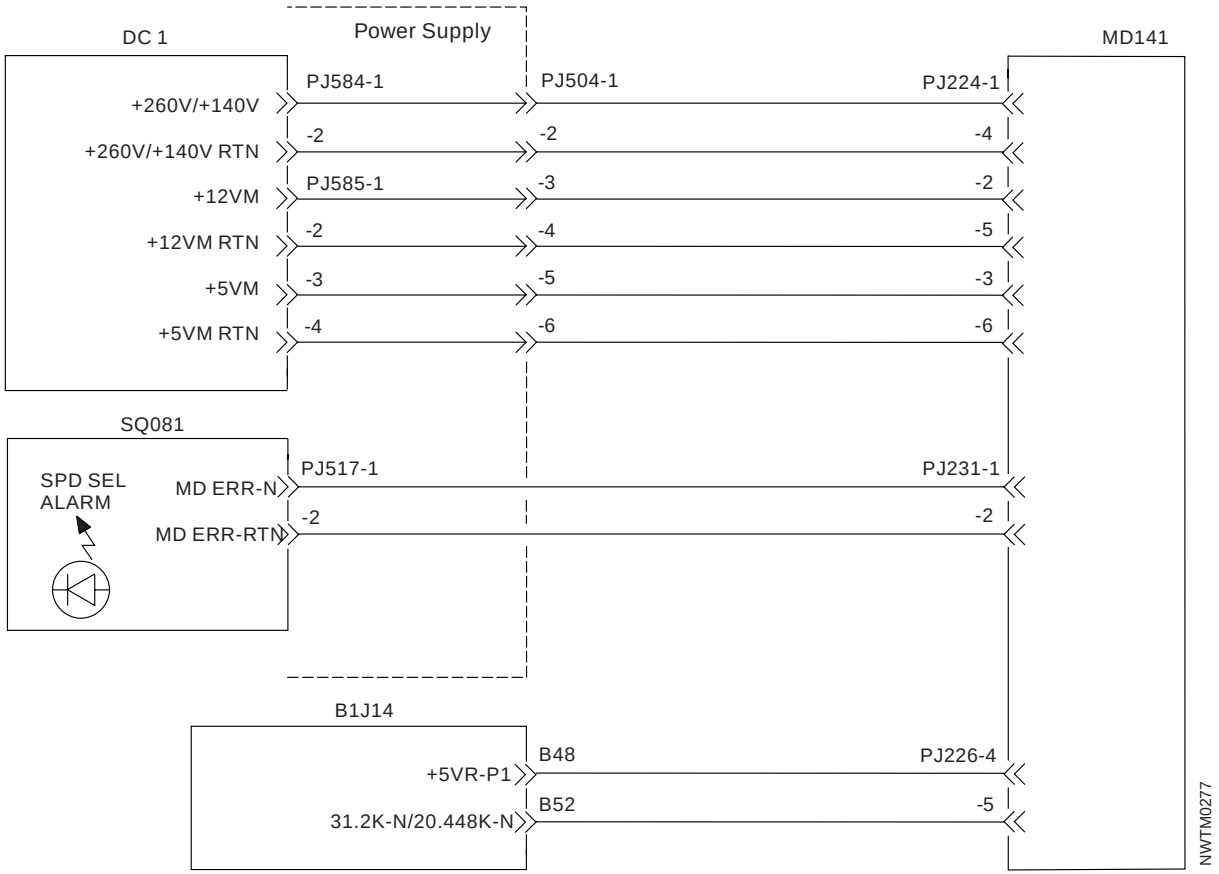
CD101 (+5 VM/+12 VM and +120/+140/+260 V) Voltage Distribution



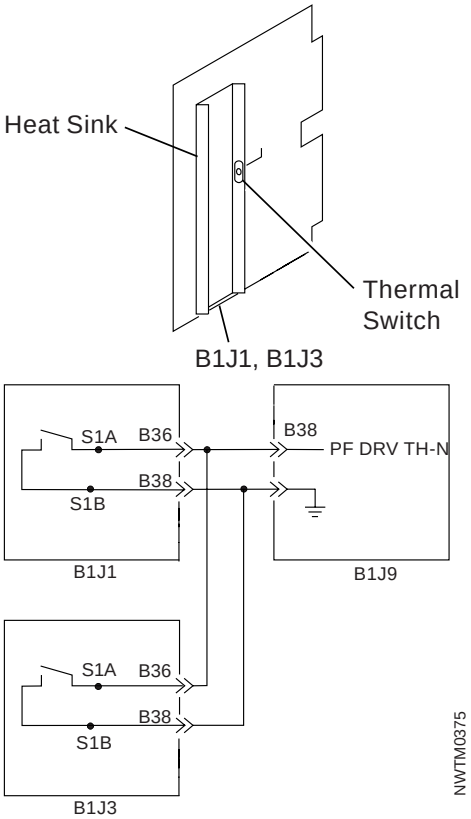
CD102 -Transformer and Soft Start Resistor Thermal



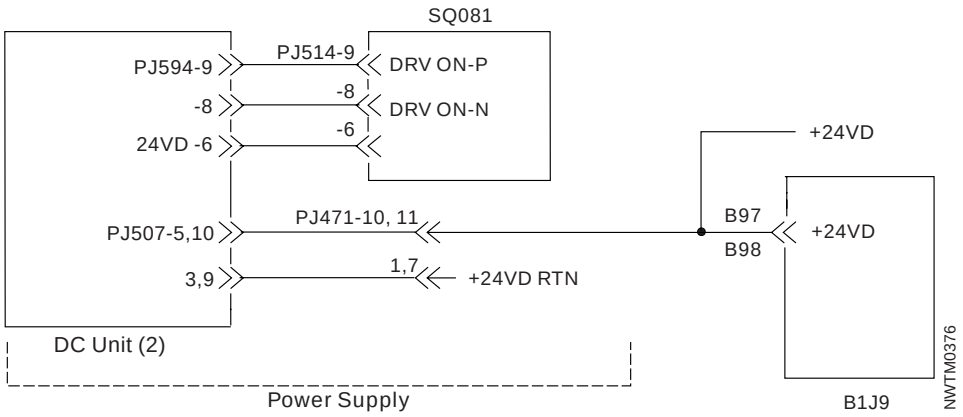
CD103 - Speed Select Alarm



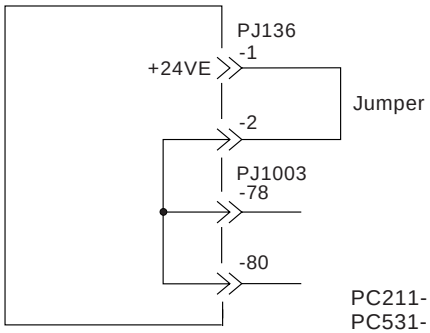
CD104 - B1 Logic Gate Thermal



CD105 - (24 VD) Power Supply



CD106 - PJ136 Jumper

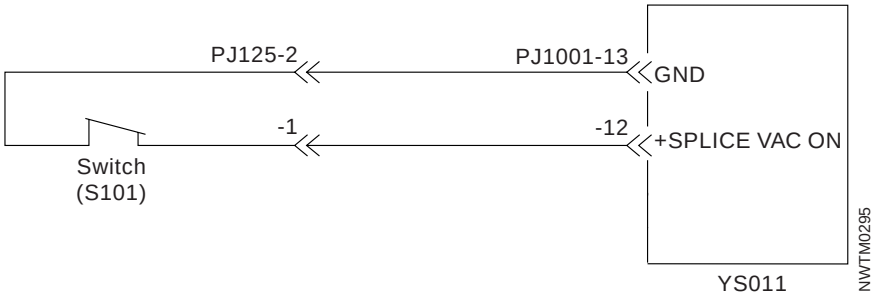


PC211/PC531/PC551

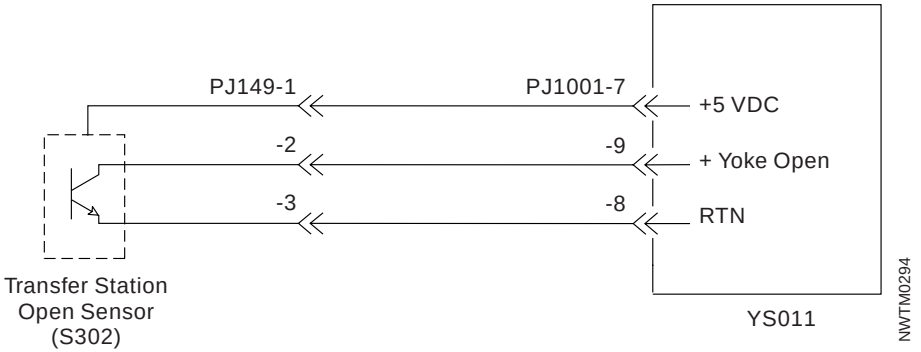
PC211- All Except Machines with the PC531 or PC551
PC531- High Speed (310 PPM) Simplex Feature Only
PC551- Enhanced Toner Loading or 600 dpi

NWTM0377

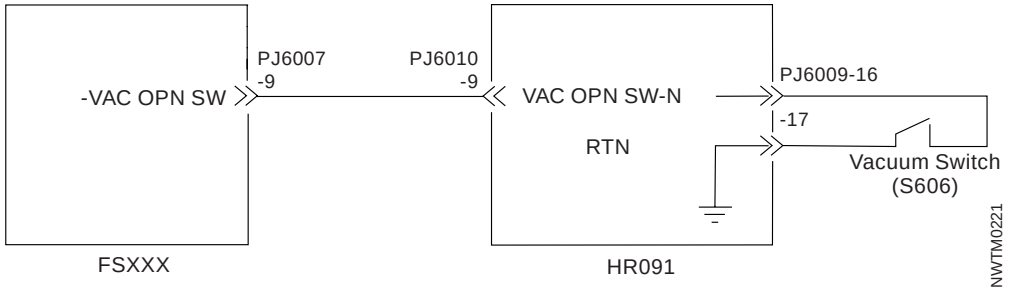
CD107 – Splice Lever Switch (S101)



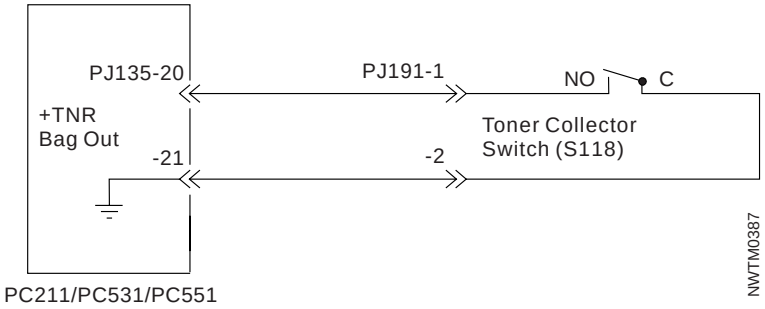
CD108 - Transfer Station Open Sensor (S302)



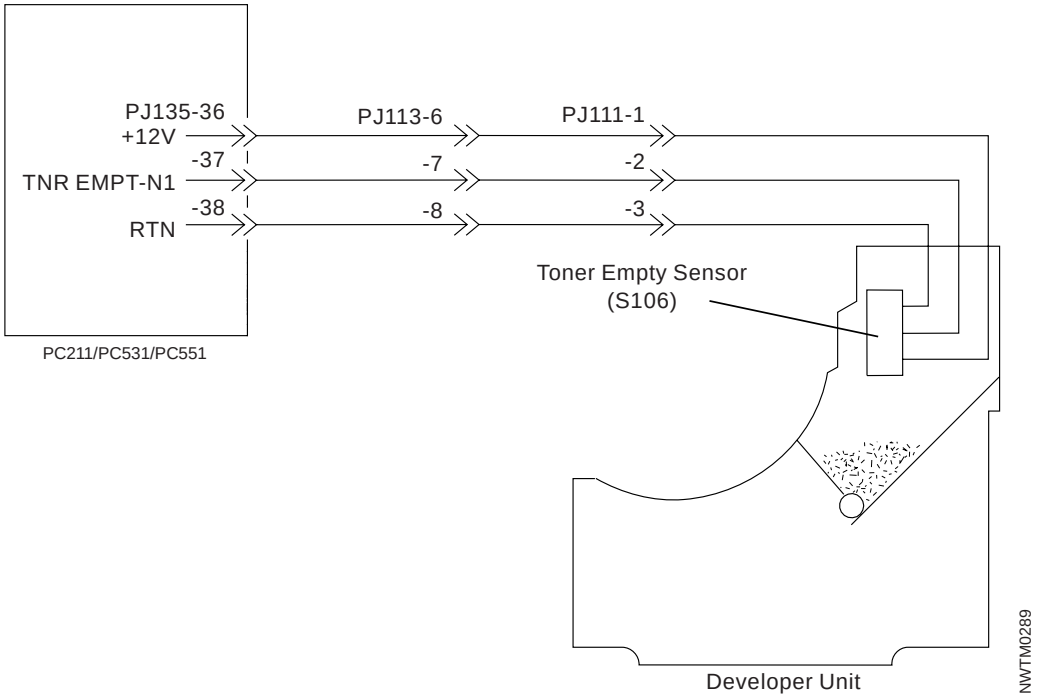
CD109 - Vacuum Switch (S606)



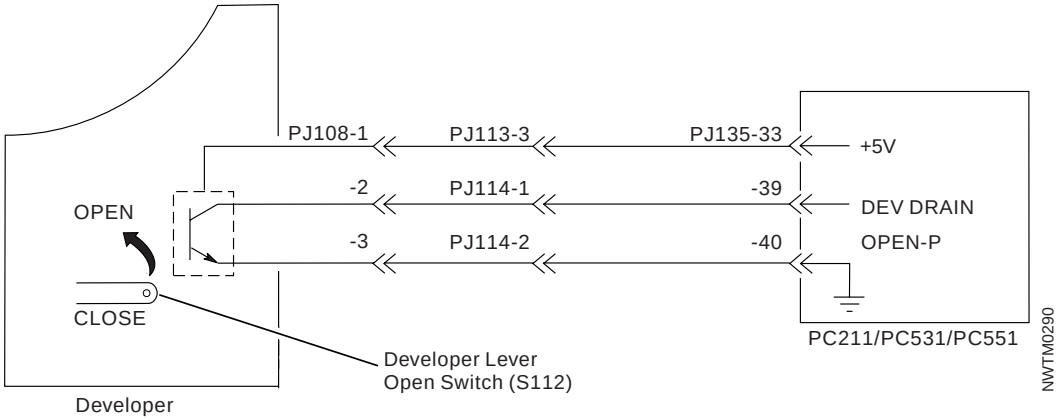
CD110 - Toner Collector Bottle Switch (S118)



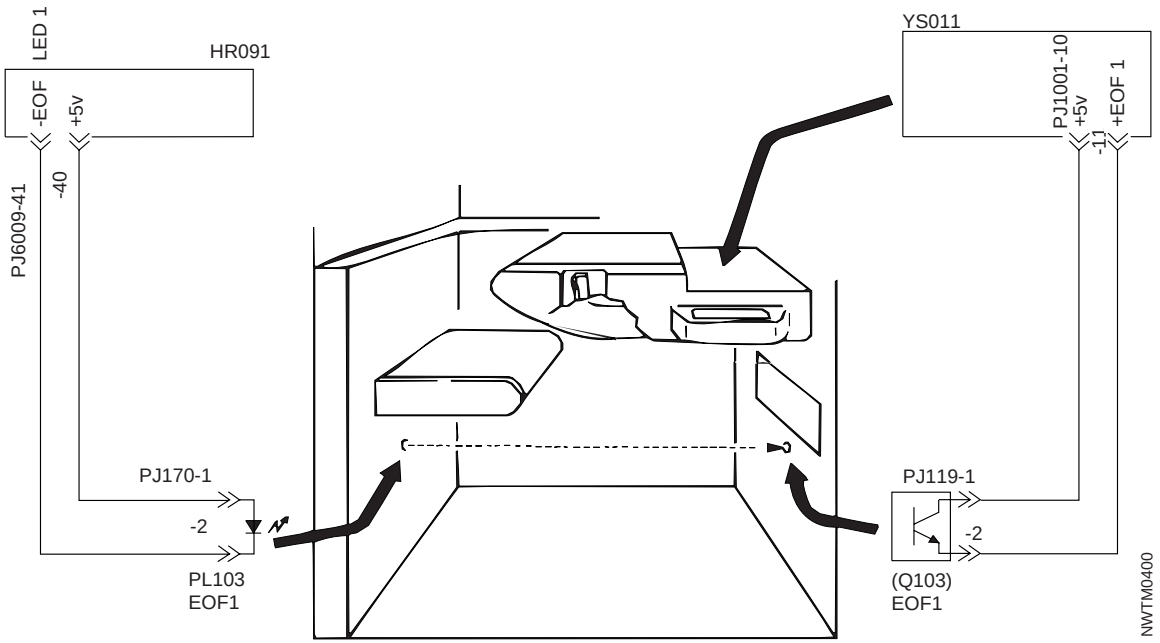
CD111 - Toner Empty Sensor (S106)



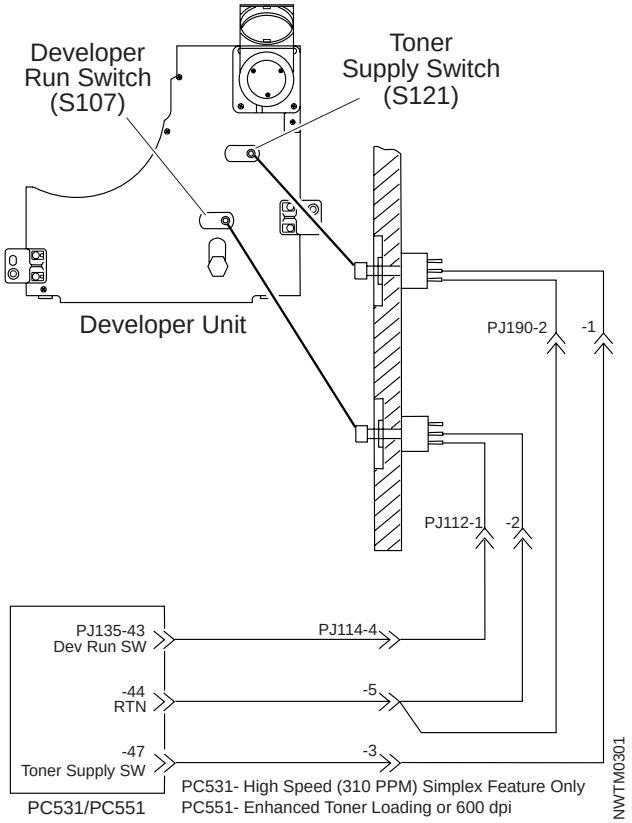
CD112 - Developer Drain Lever Switch (S112)



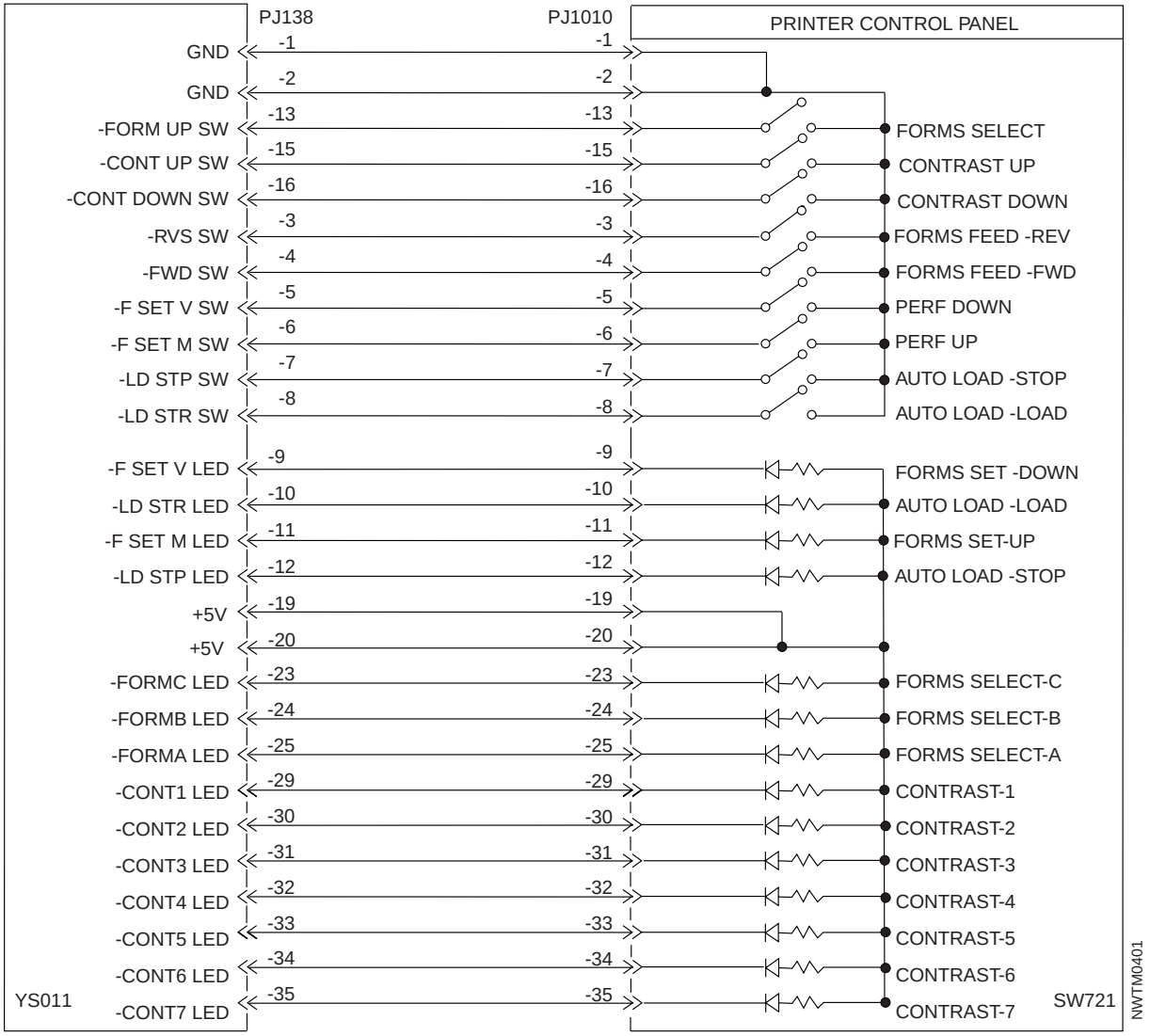
CD113 - End of Forms (EOF) Sensor (Q103)



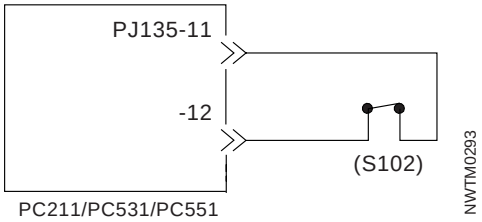
CD114 - Developer Run Switch (S107)



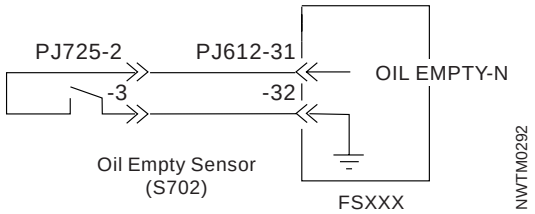
CD115 - Printer Control Panel (SW721)



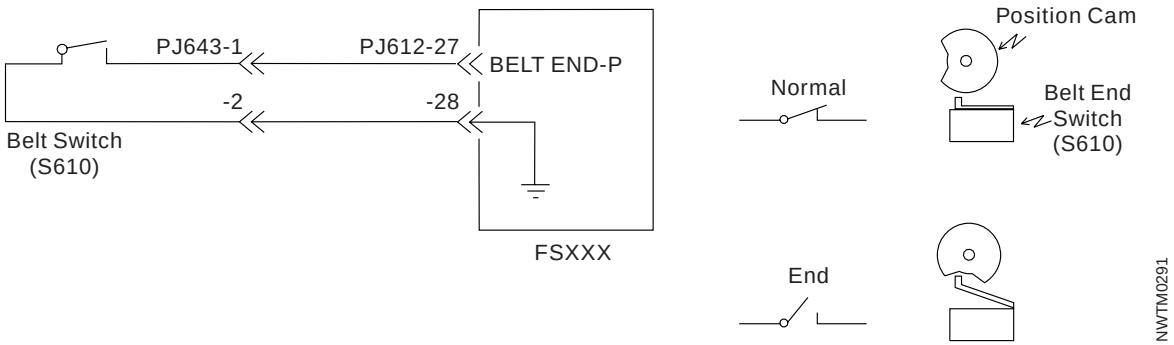
CD116 - Filter Pressure Switch (S102)



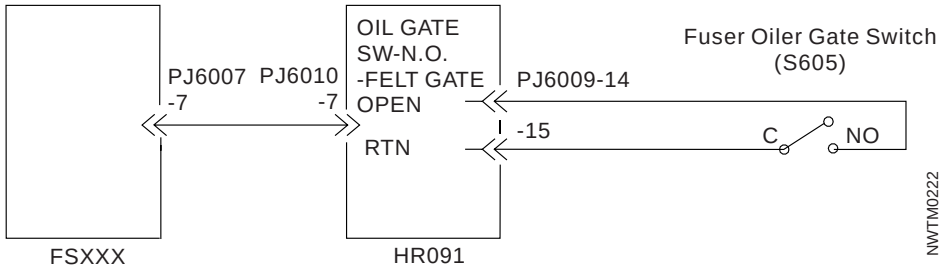
CD117 - Fuser Oil Empty Sensor (S702)



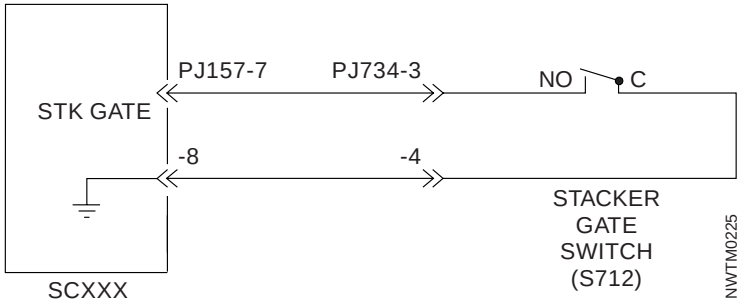
CD118 - Oiler Belt End Switch (S610)



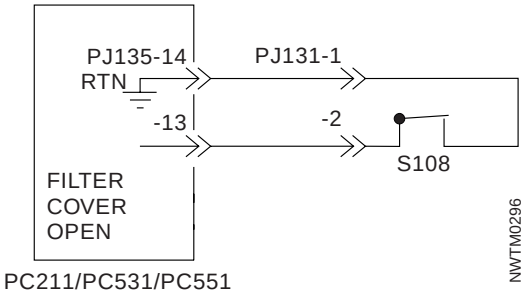
CD119 - Oiler Gate Open Switch (S605)



CD120 - Stacker Gate Open Switch (S712)

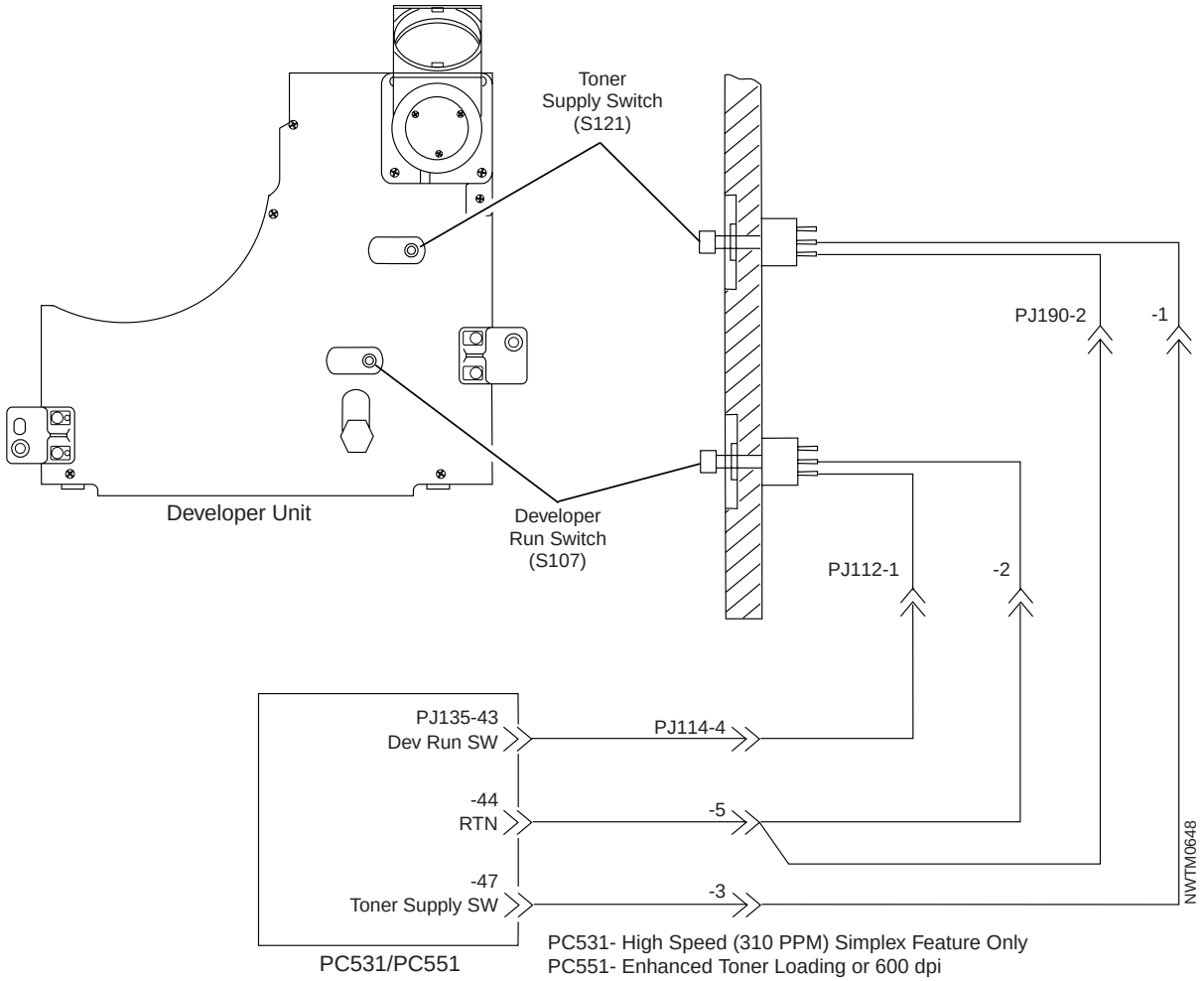


CD121 - Fine Filter Switch (S108)

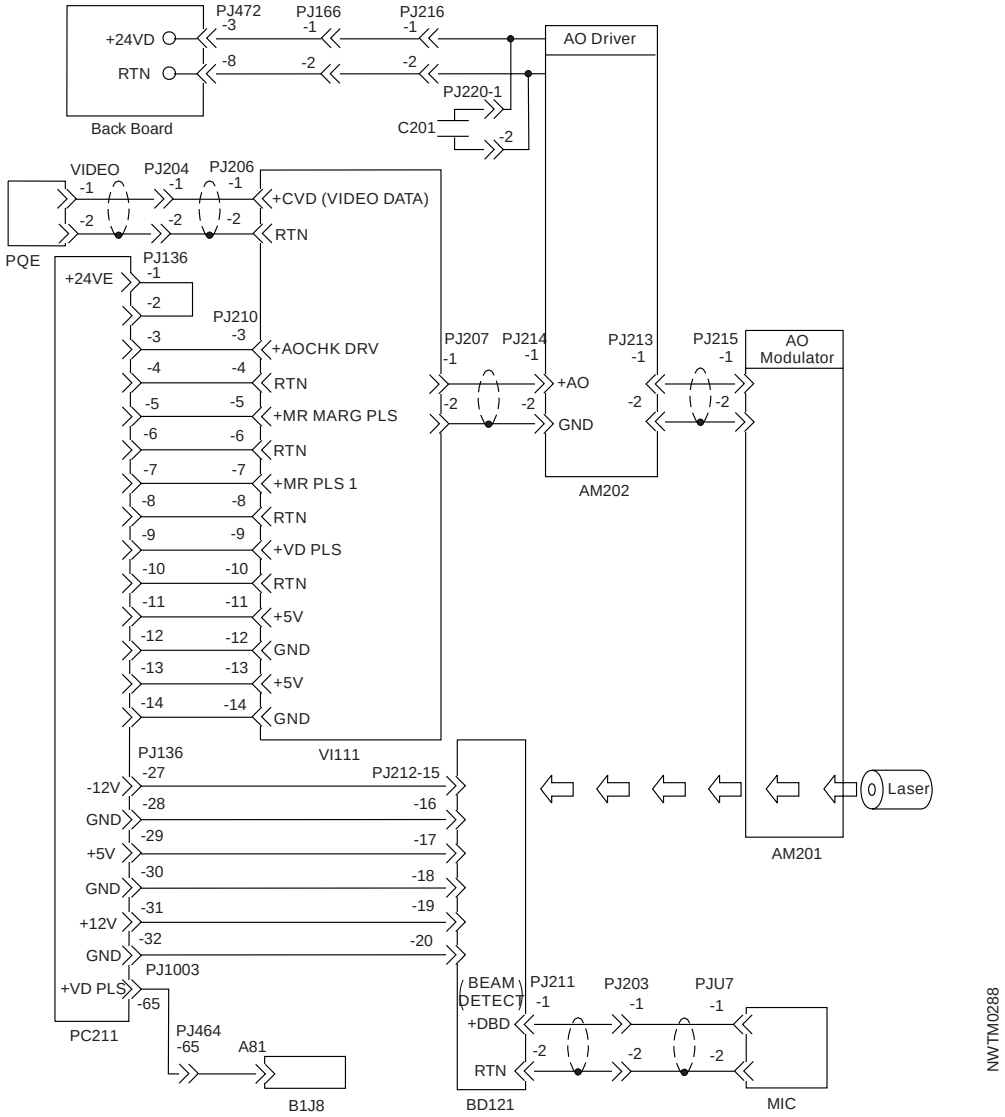


PC211/PC531/PC551

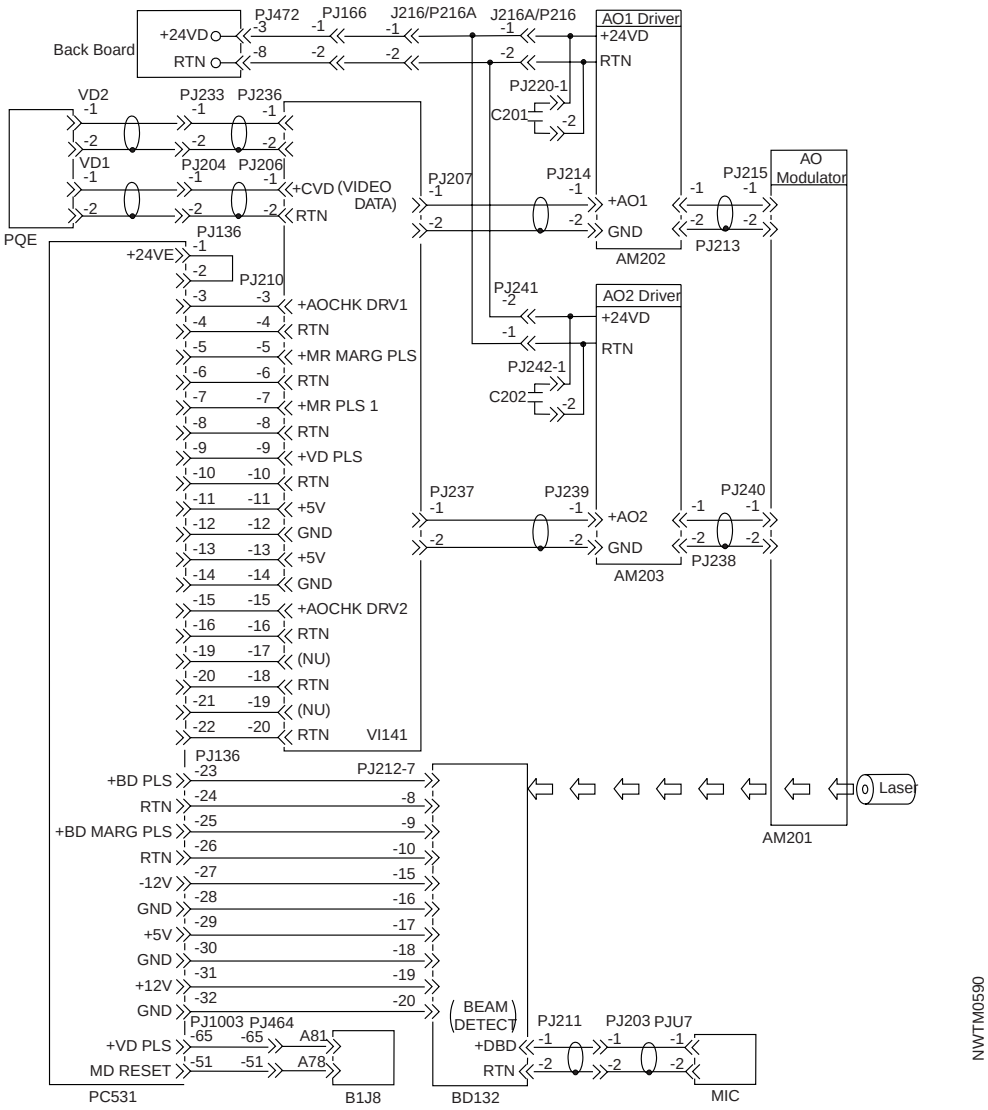
CD122 - Toner Supply Switch (S121)



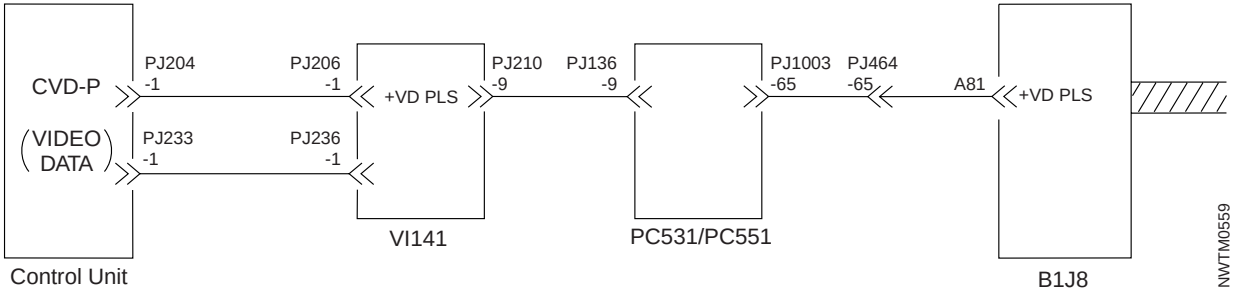
CD123 - Beam Detect (BD121) — (Single Beam)



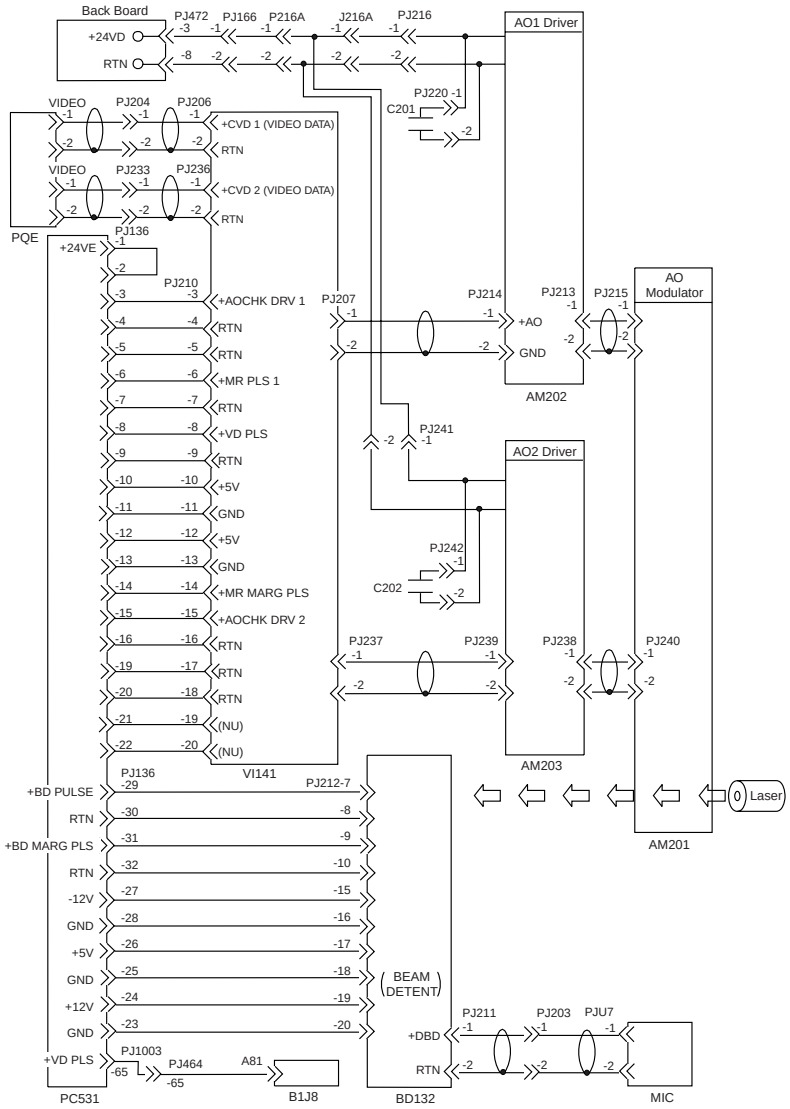
CD124 - Beam Detect (BD131, BD132, BD141) — (Two, Four, or Five Beam)



CD125 - Video Data for All Two Beam Printheads

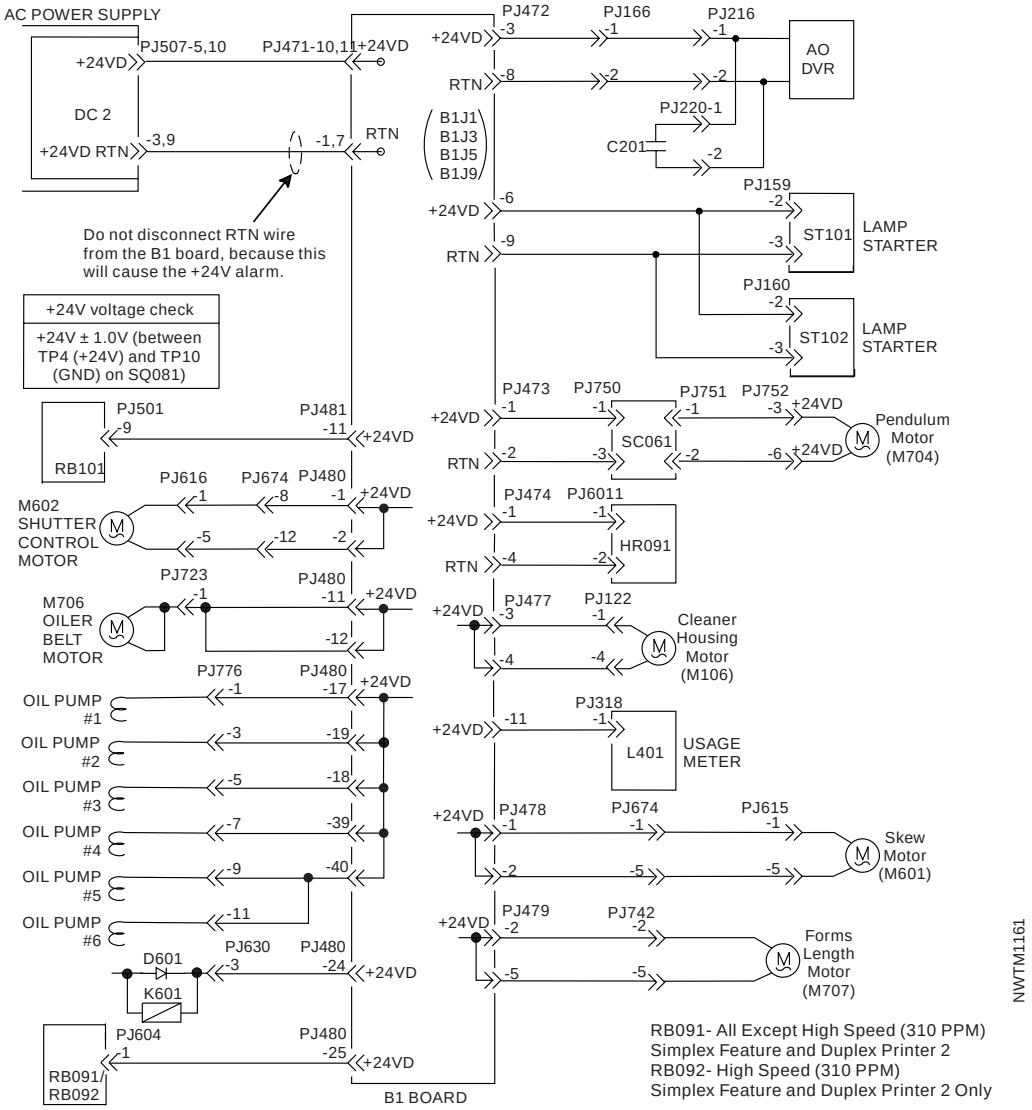


CD126 - Two Beam Printheads

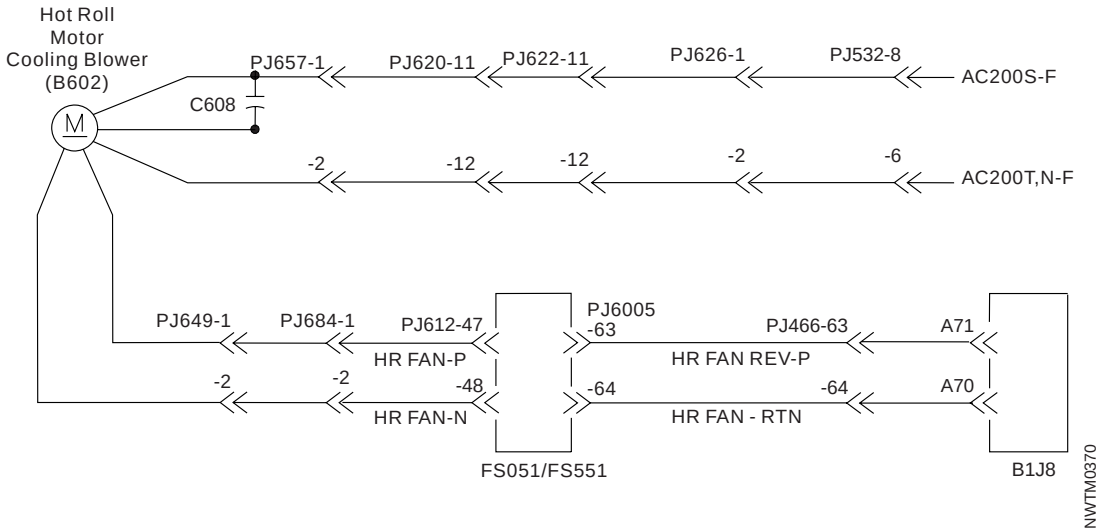


NWTM0560

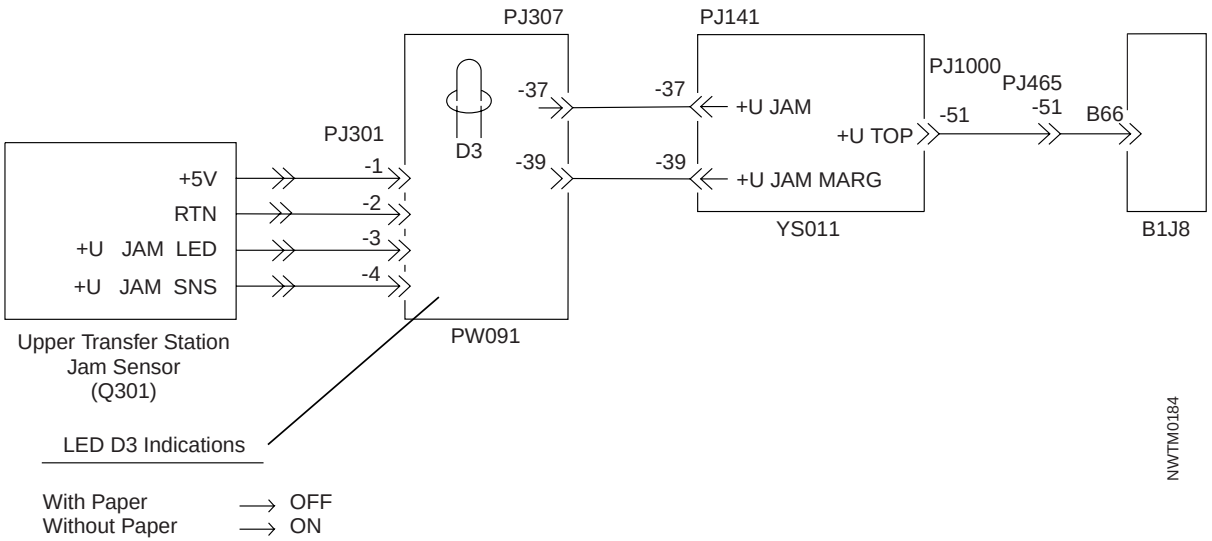
CD127 - (+24 VD) Voltage Distribution (Six Oil Pump)



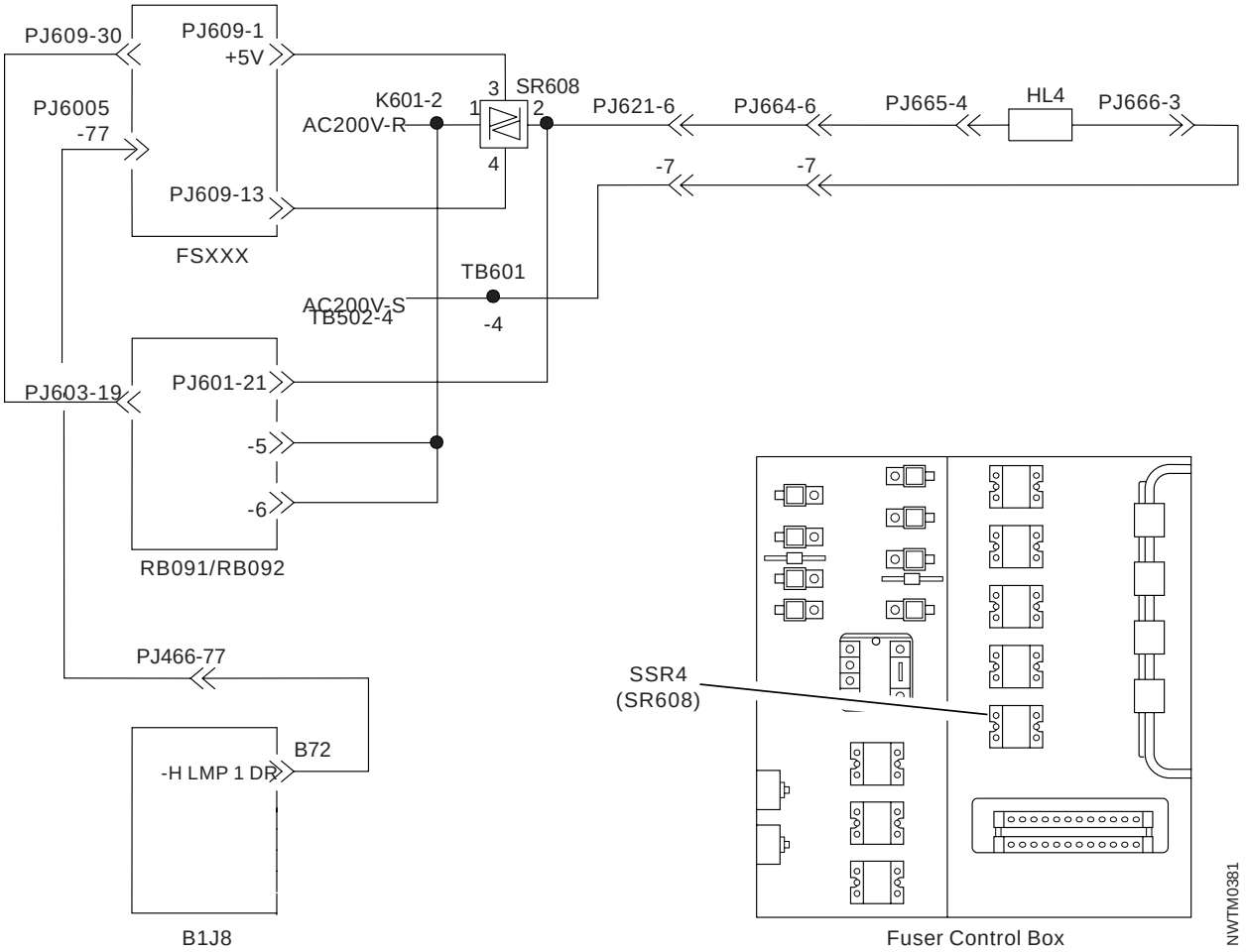
CD128 - Hot Roll Motor Blower (B602)



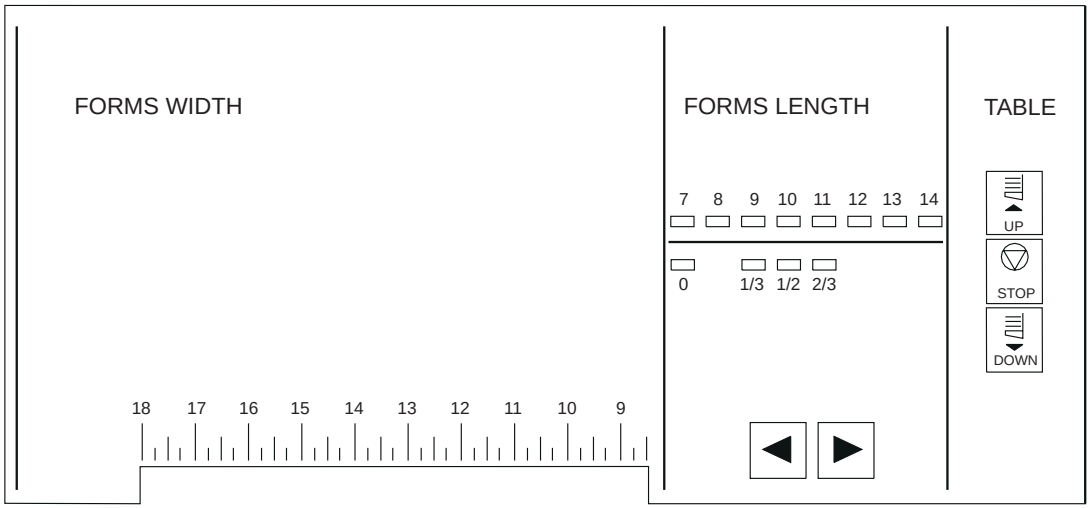
CD129 - Upper Tractor Jam Sensor (Q301)

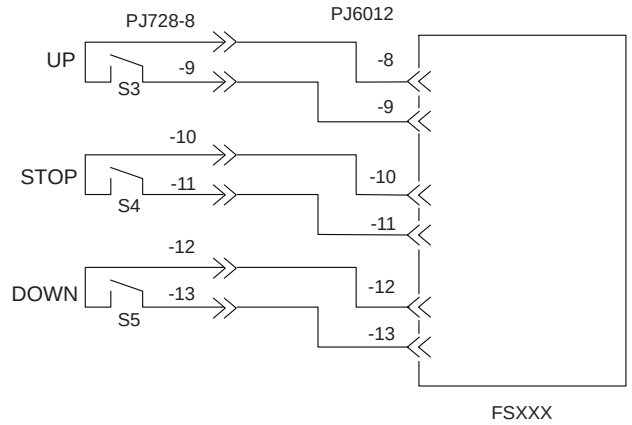


CD130 - Hot Roll Lamp 4 Relay (3900 DR1/2 & Infoprint 4000 IRx Models)



CD131 - Stacker Control Panel (SW511)





PJ6012 Level: Switch ON ... LOW
Switch OFF ... HIGH

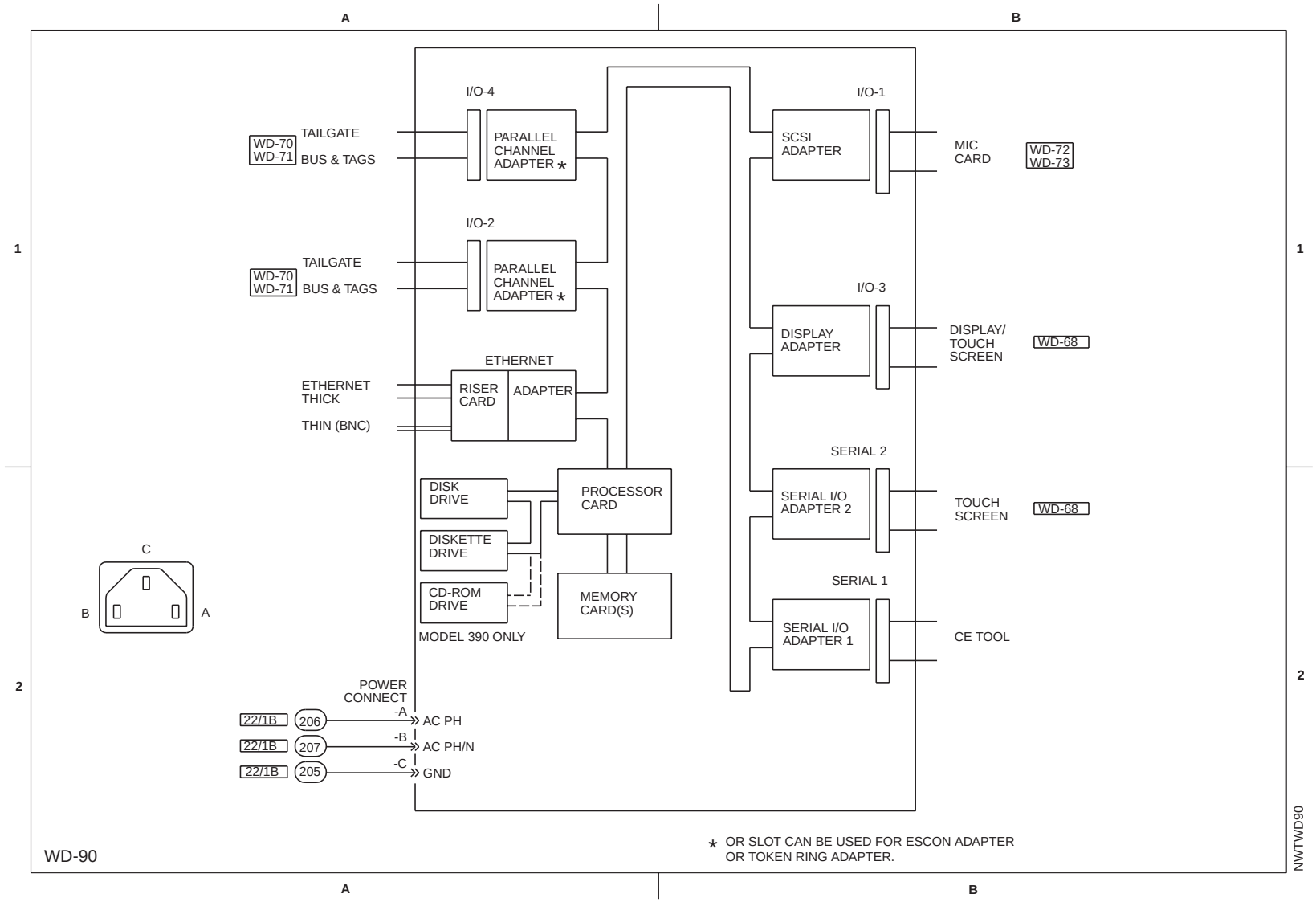
NWTM0431

Block Diagrams - Logic Flow

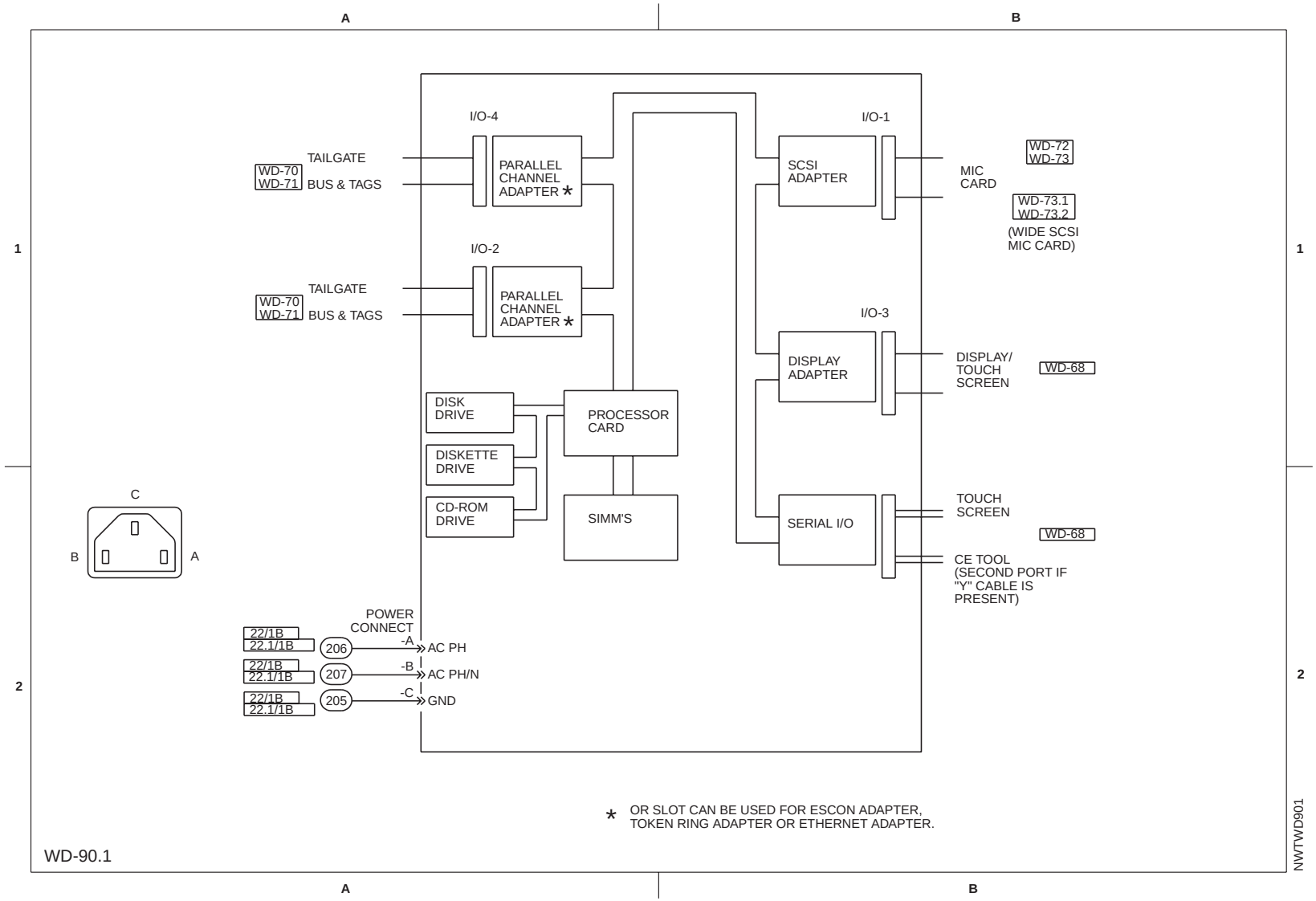
Block Diagrams of Logic Flow 2038
WD90 - RS/6000 Controller Type 7012 2038
WD90.1 - RS/6000 Controller Type 7009 2039
WD90.2 - RS/6000 Controller Type 7013, Model 591 2040
WD90.3 - RS/6000 Controller Type 7013, Model 595 2041
WD90.4 - RS/6000 Controller Type 7025 (IR1/IR2) 2042
WD90.5 - RS/6000 Controller Type 7025 (IR3/IR4) 2043
WD91 - MIC (Single Beam Printhead) 2044
WD91.1 - MIC (Two Beam Printhead) 2045
WD91.2 - MIC (Four Beam Printhead) 2046
WD91.3 - MIC (Five Beam Printhead) 2047
WD92 - Control Unit Channel Attach 2048
WD93 - Printer Simplified Logic Flow 2049

Block Diagrams of Logic Flow

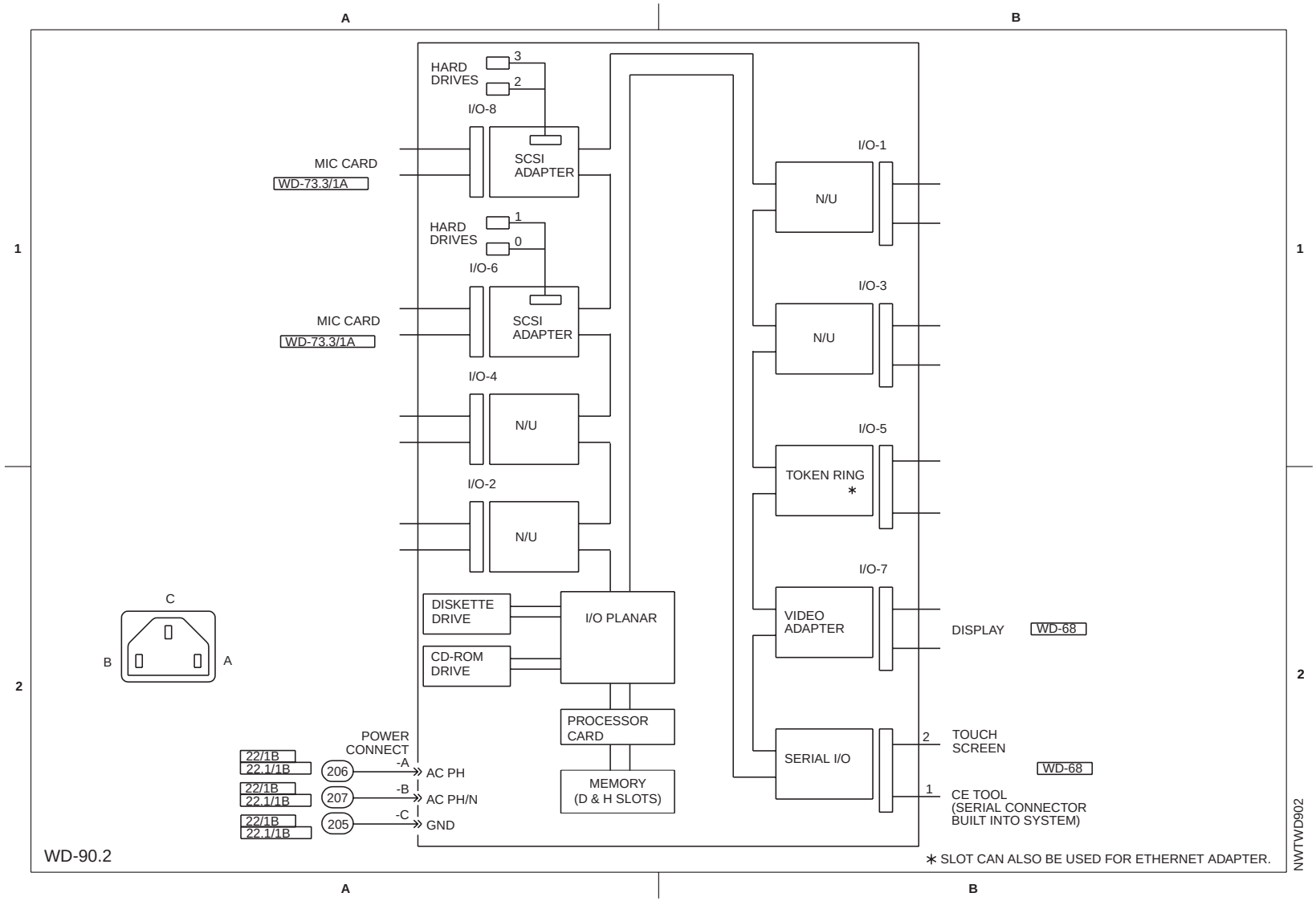
WD90 - RS/6000 Controller Type 7012



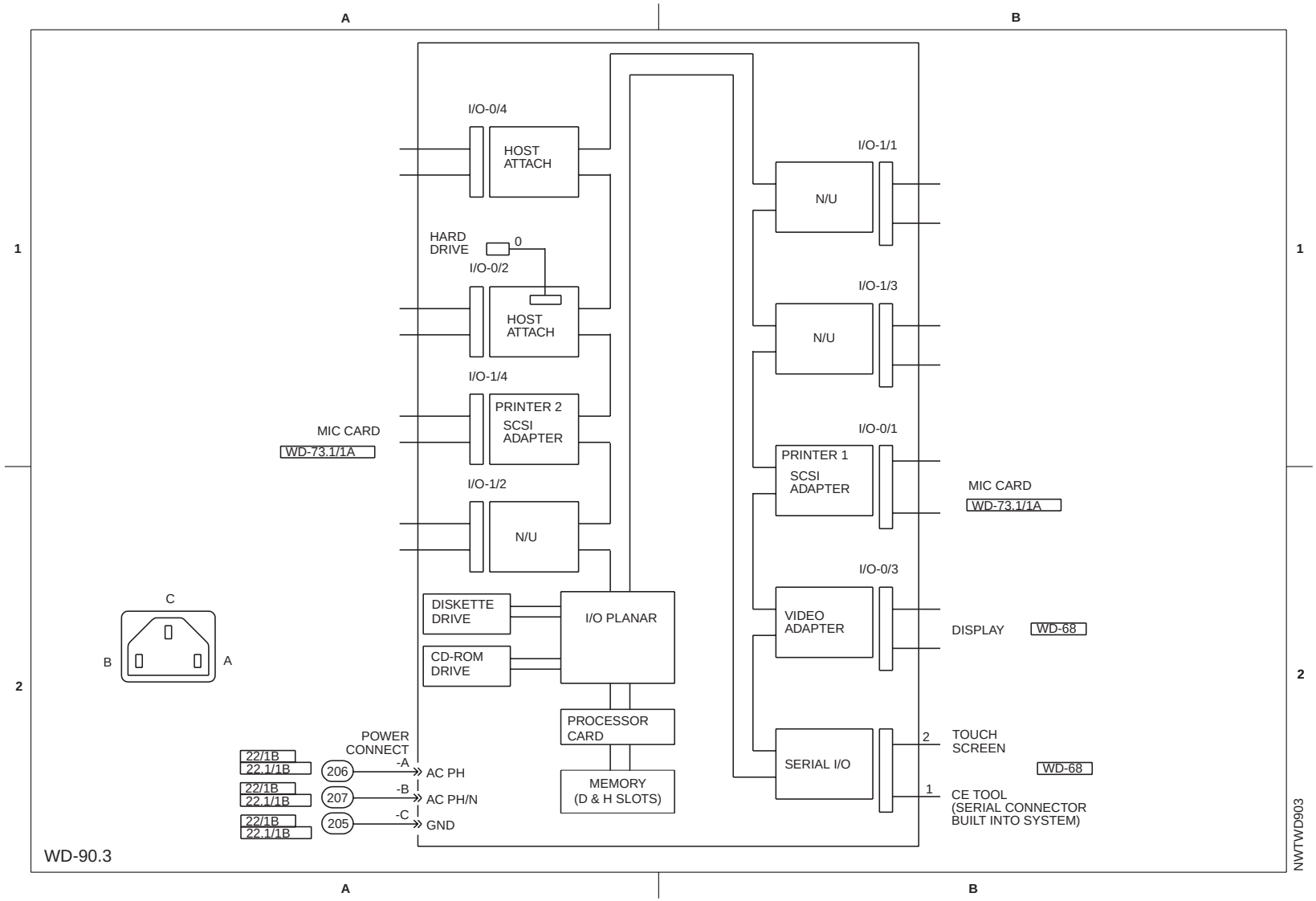
WD90.1 - RS/6000 Controller Type 7009



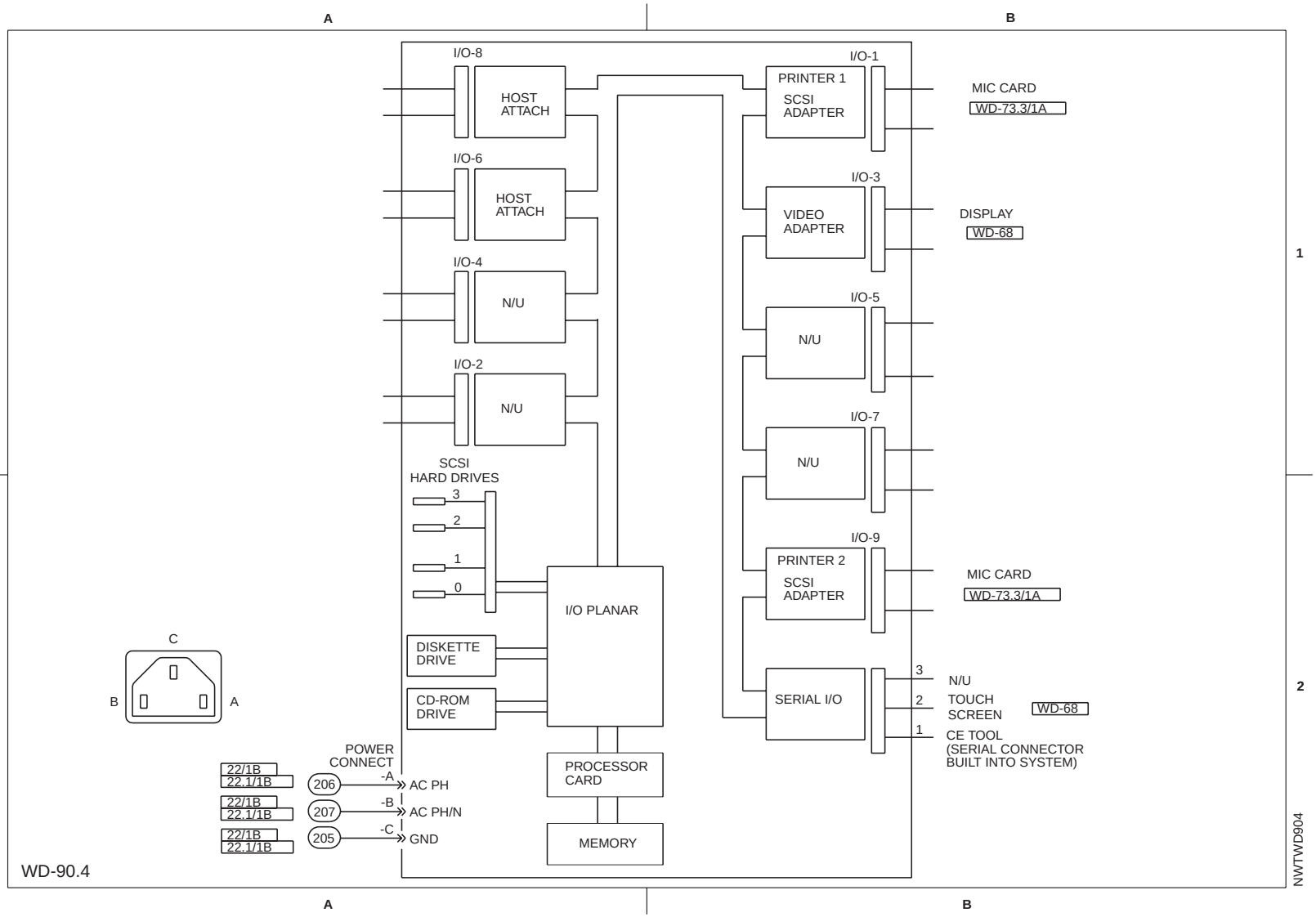
WD90.2 - RS/6000 Controller Type 7013, Model 591



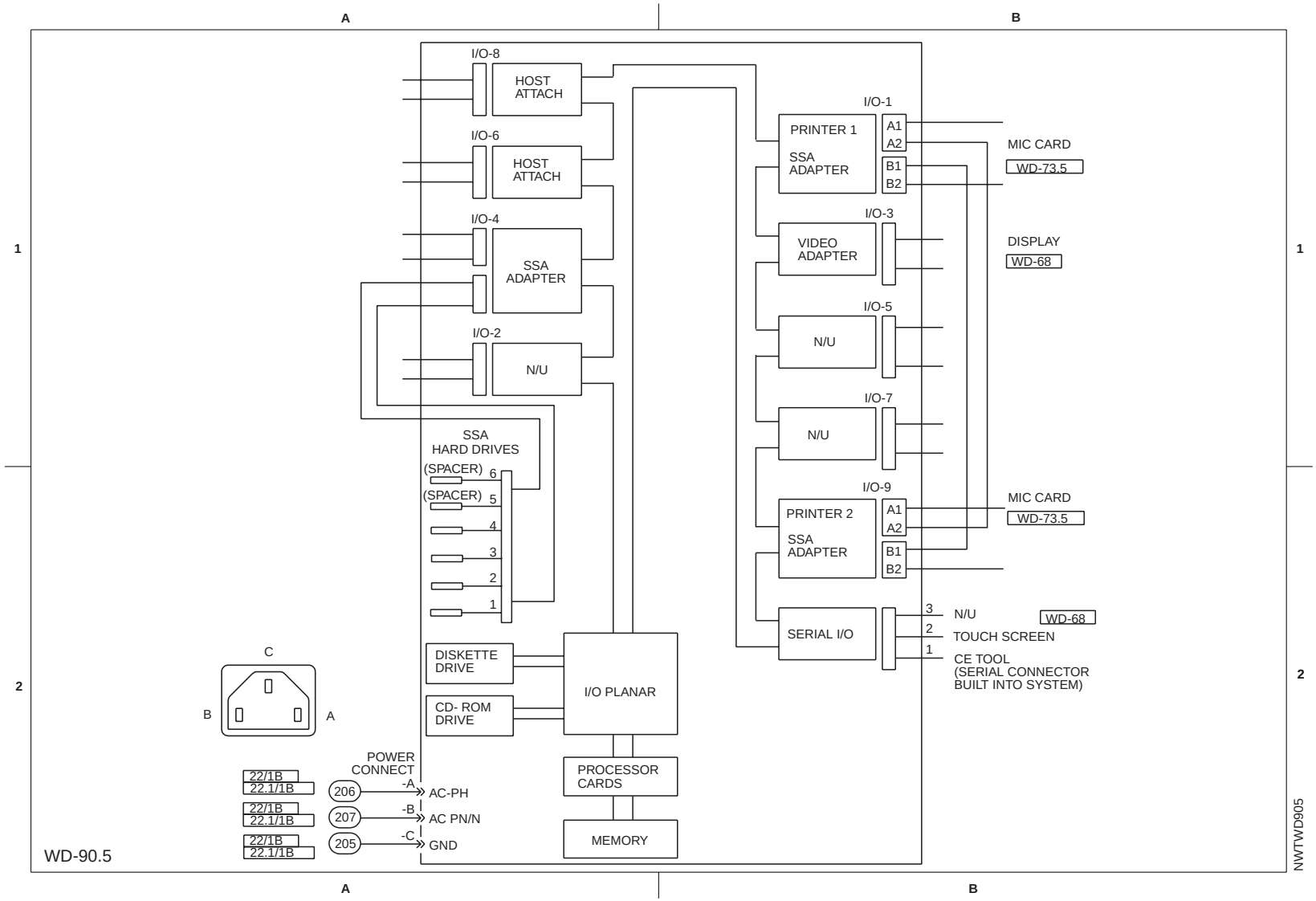
WD90.3 - RS/6000 Controller Type 7013, Model 595



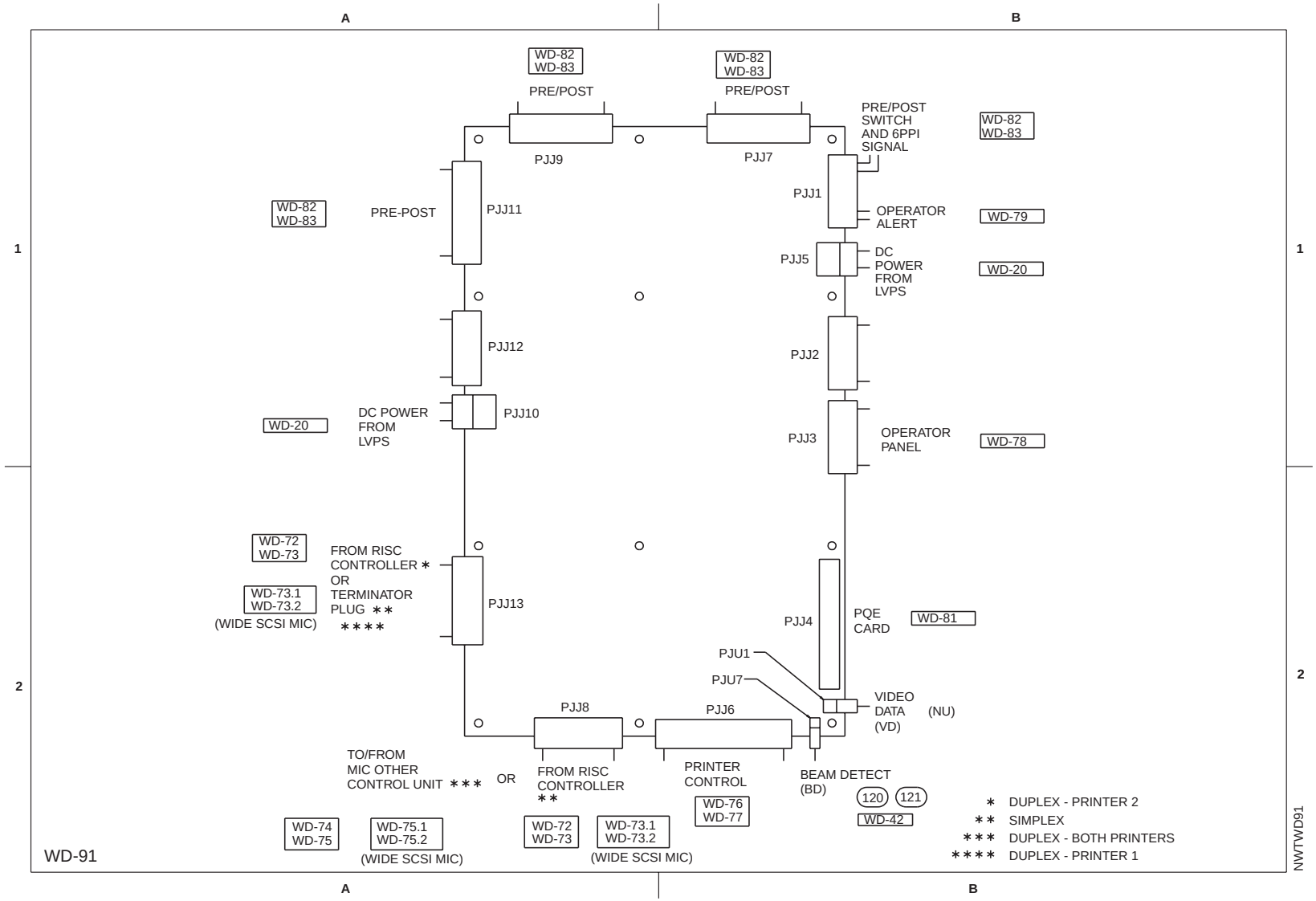
WD90.4 - RS/6000 Controller Type 7025 (IR1/IR2)



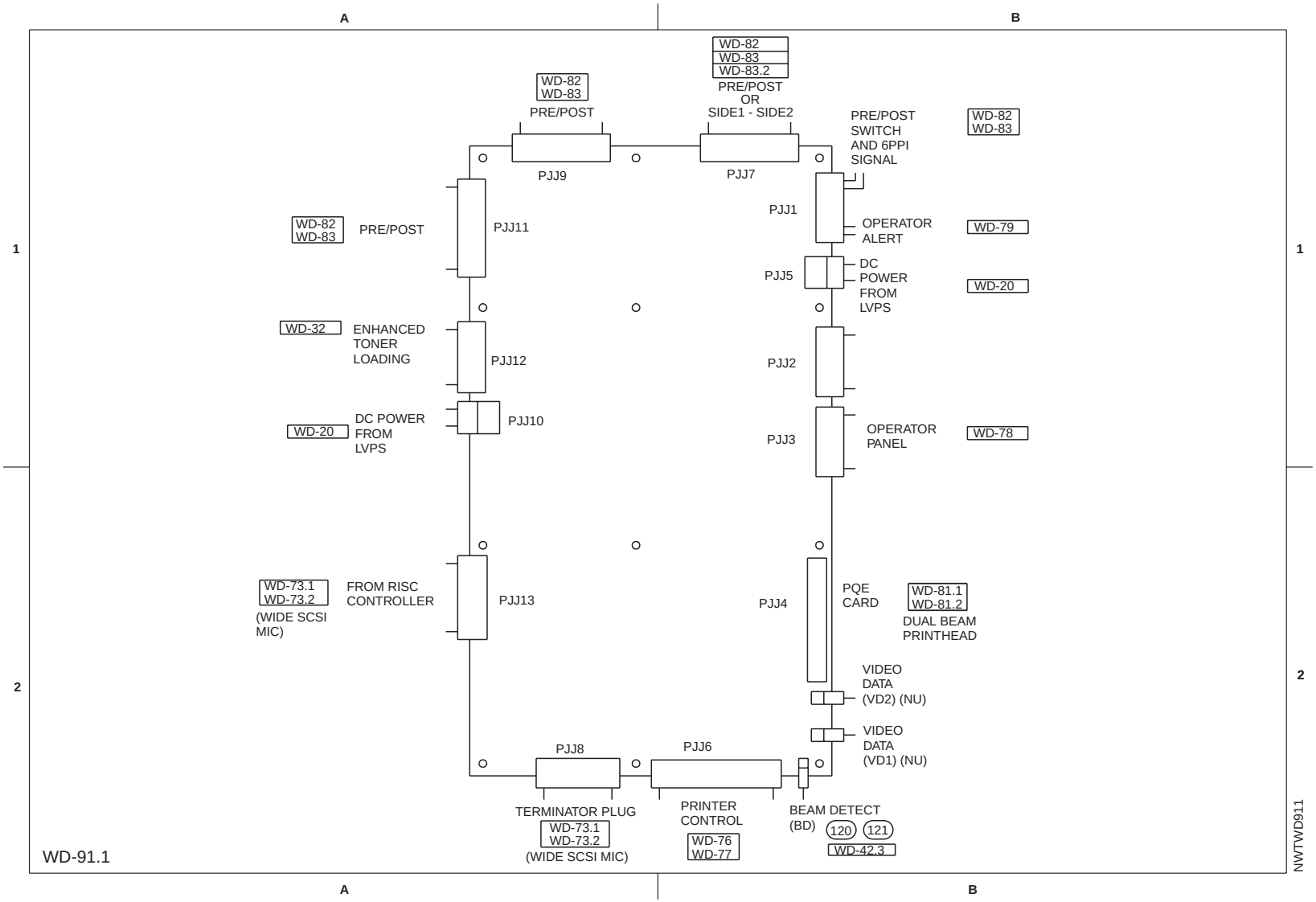
WD90.5 - RS/6000 Controller Type 7025 (IR3/IR4)



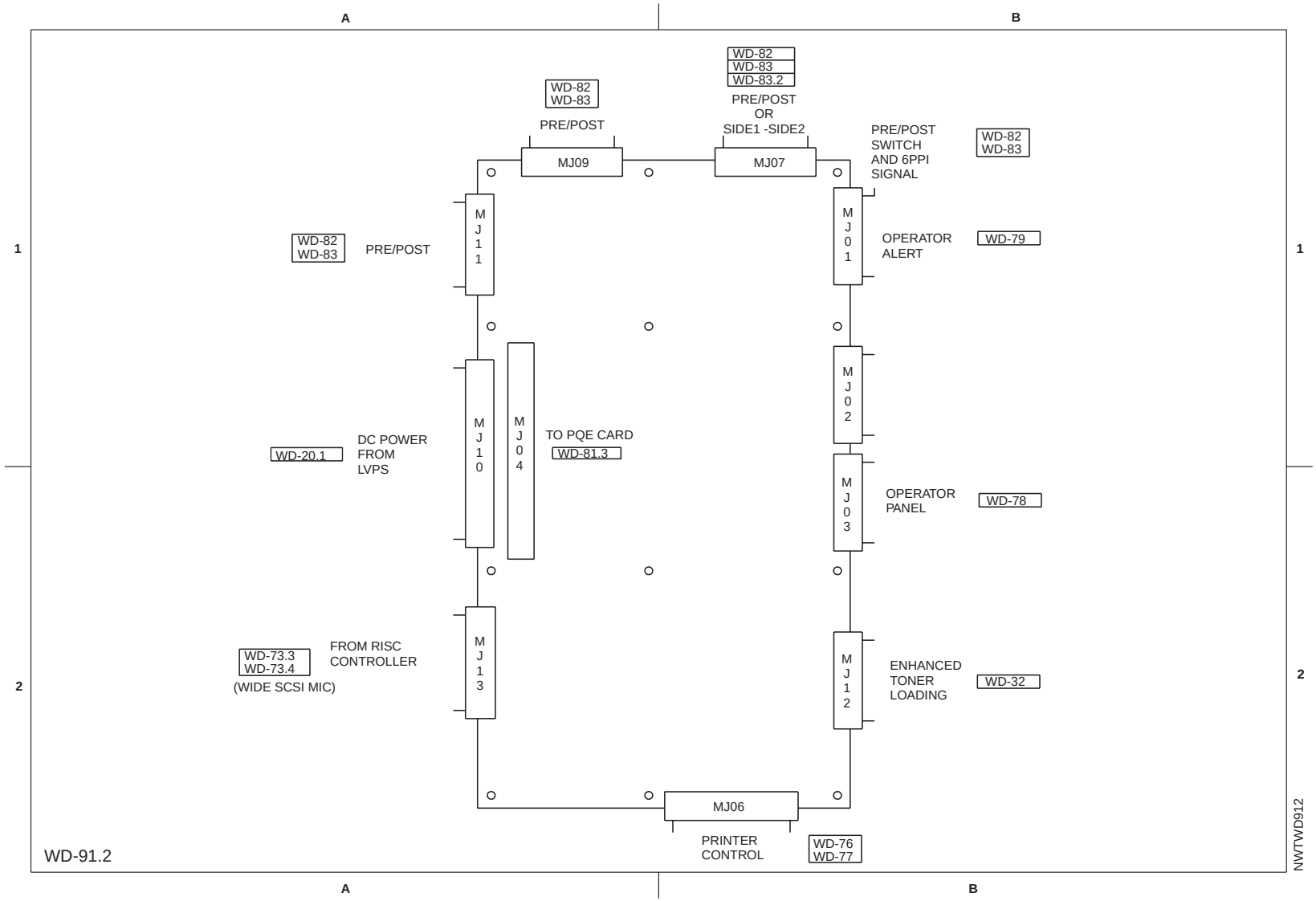
WD91 - MIC (Single Beam Printhead)



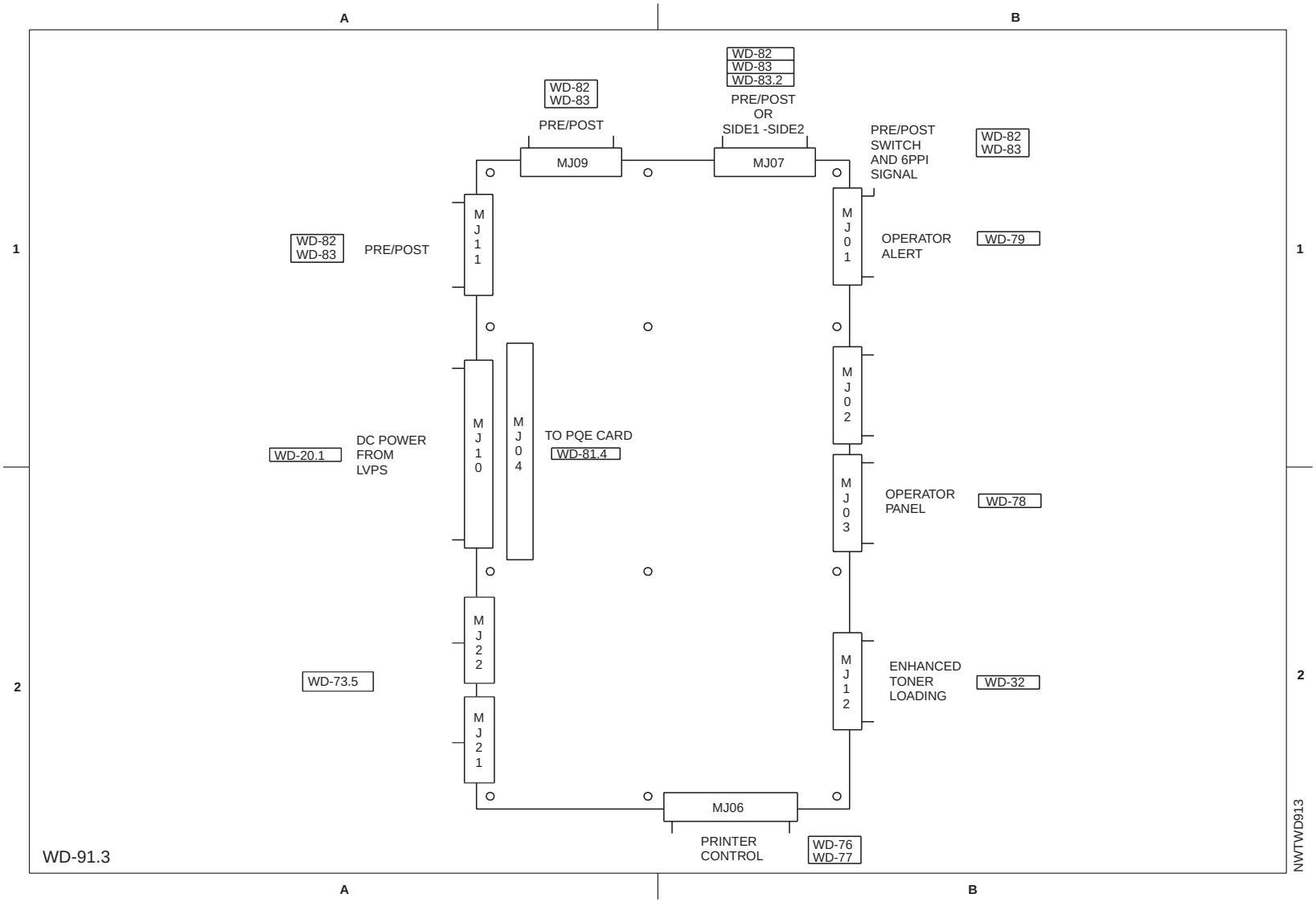
WD91.1 - MIC (Two Beam Printhead)



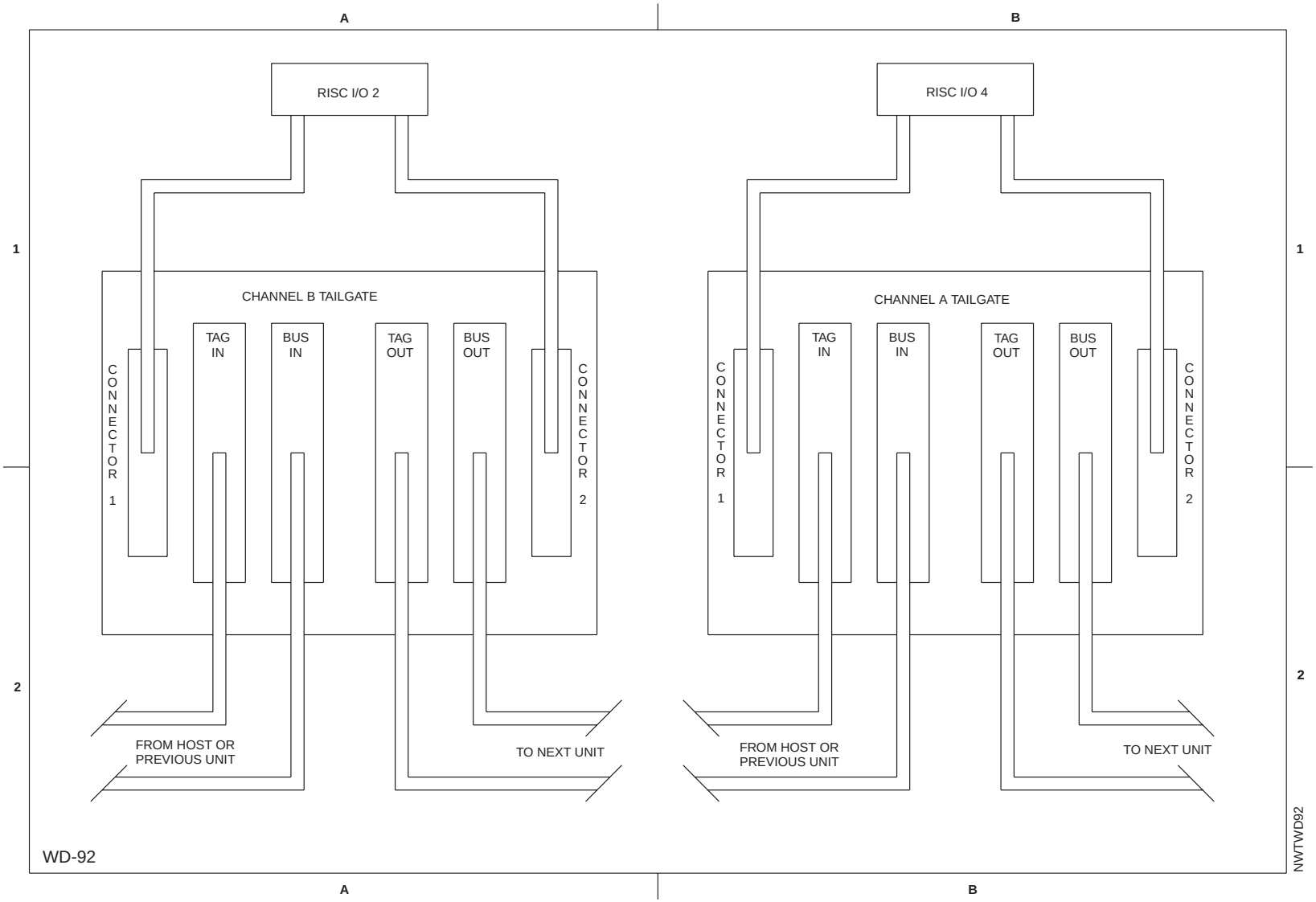
WD91.2 - MIC (Four Beam Printhead)



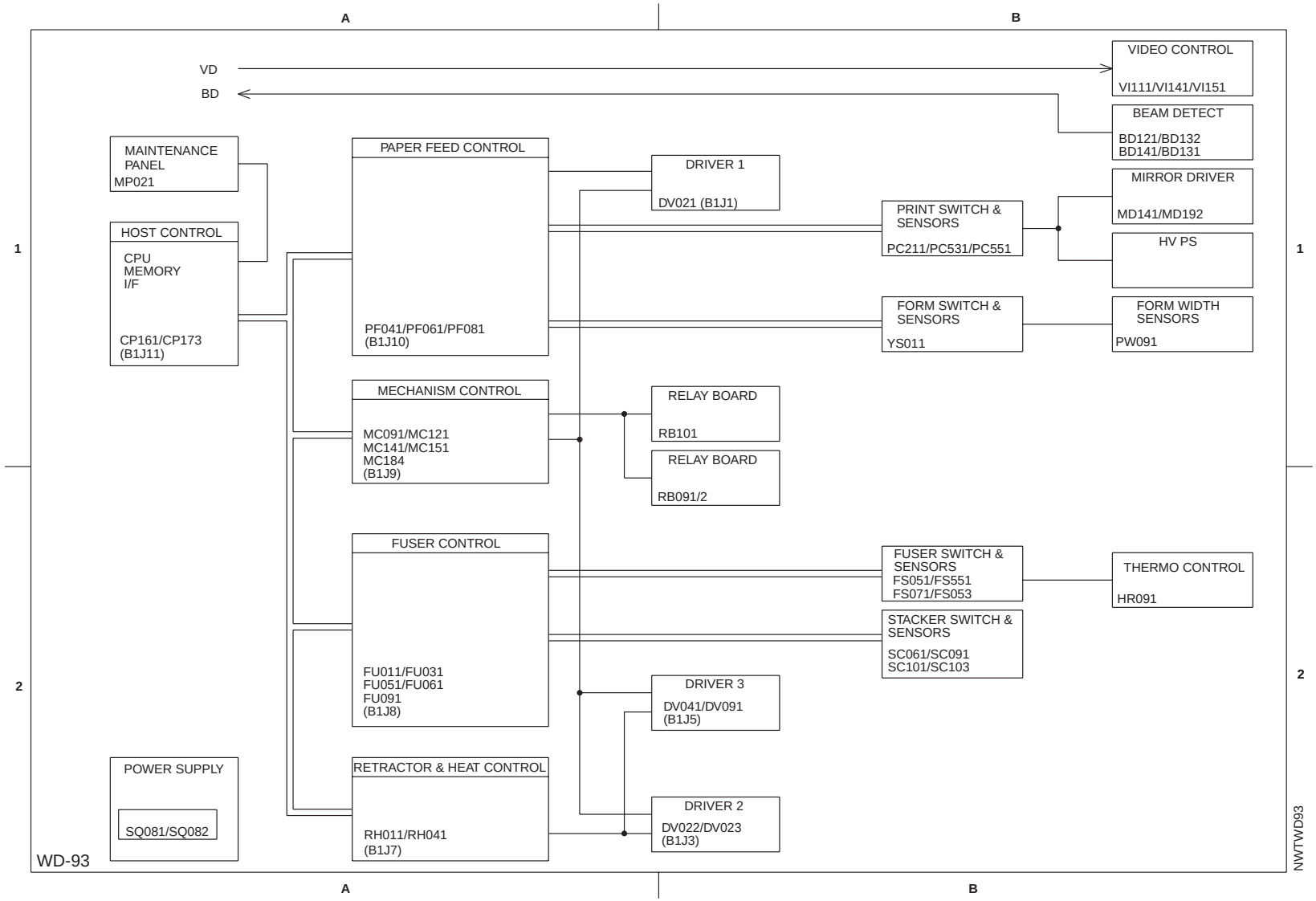
WD91.3 - MIC (Five Beam Printhead)



WD92 - Control Unit Channel Attach



WD93 - Printer Simplified Logic Flow



Chapter 4. Locations

Printer Components (1) 2053
Printer Components (2) 2055
Printer Components (3) 2057
Printer Components (4) 2059
Printer Components - Enhanced Toner Loading Feature 2062
Air System 2063
Auto Load Bridge 2064
Developer Components (Front) 2066
Developer Components (Rear) 2067
Developer - Front 2068
Developer - Rear 2070
Developer Carriage 2072
Fuser - Front 2073
Fuser - Rear 2076
Fuser Control Box (1) 2079
Fuser Control Box (2) 2080
Input Area 2081
PC Drum and Charging Components 2082
Power Supply - Printer AC 2084
Power Supply Connectors - 200 Volt 2086
Power Supply Components - 200 Volt 2088
Power Supply Connectors - 400 Volt 2090
Power Supply Components - 400 Volt 2092
Printhead Links 2094
Printhead Connectors (Single-Beam) 2100
Printhead Components (Single-Beam) 2102
Printhead Connectors (Two-Beam 240) 2104
Printhead Components (Two-Beam 240 DPI) 2106

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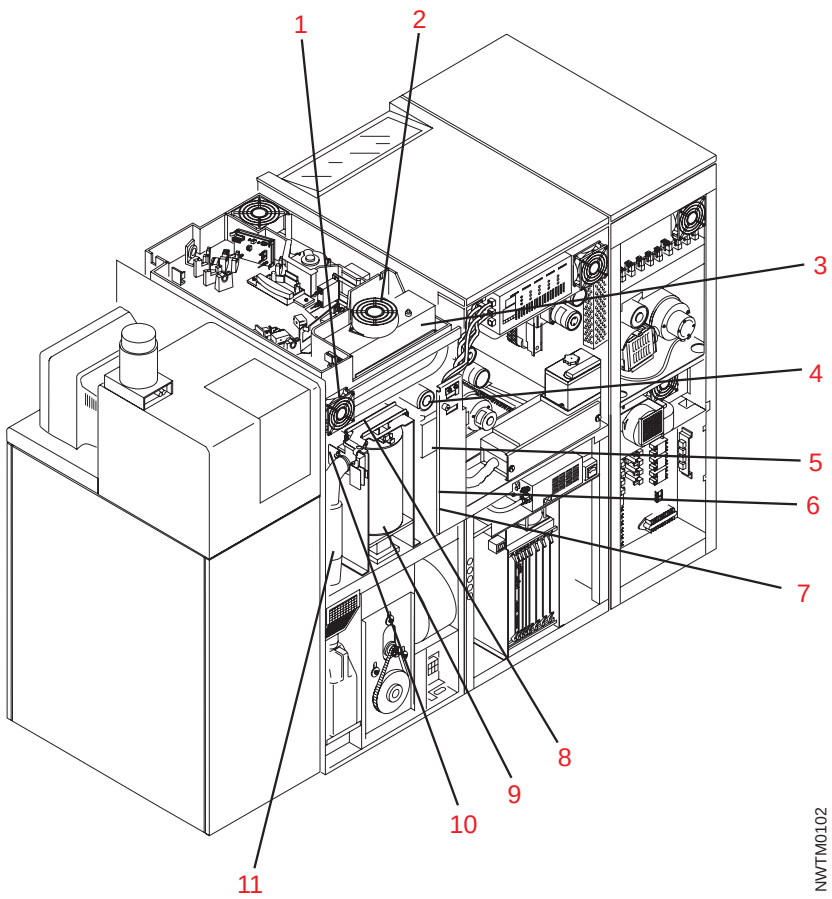
Printhead Connectors (Two-Beam 240/300 DPI) 2108
Printhead Components (Two-Beam 240/300 DPI) 2110
Printer Interface Links. 2112
Printer Interface - IF041. 2113
Printer Interface - IF411. 2114
Printer Interface - IF421. 2115
Splicing Station 2116
Stacker (1) 2117
Stacker (2) 2118
Stacker Control 2120
Transfer Station - Lower 2122
Transfer Station - Upper, Front 2123
Transfer Station - Upper, Rear 2125
B1 Logic Card Links 2126
B1 Board Connectors. 2127
B1 Logic Cards 2128
B1J10 Card. 2129
B1J11 Card. 2130
Cards 2131
  Fuser Control Card – FSxxx 2131
  Hot Roll Control - HR091 2133
  Mirror Motor Driver - MDxxx 2134
  Relay Board - RB091. 2135
  Relay Board - RB092. 2136
  Toner Control Cards - PCxxx 2137
  Forms Width Sensor Board - PW091. 2139
  Stacker Control - SCxxx 2140
  Sequence Control - SQ081/SQ082 2142
  YS011. 2144
Control Unit Links. 2145
Control Unit - Front 2146

Control Unit - Rear (1) 2148
Control Unit - Rear (2) 2150
Control Unit - Rear (3) 2152
Side 1/Side 2 Verification Card 2153
MIC & PQE - Single Beam Printhead 2154
MIC & PQE - Two Beam Printhead 2156
7013 Model 595 - Front View 2158
7013 Model 595 - Rear View 2159
7013 Model 595 - Internal View 2161
7013 Model 595 - CPU Planar Connectors 2162
7013 Model 595 - I/O Planar Connectors 2163
7013 Model 595 - Power Supply Connectors 2164
7025 Model F50 - Card Locations 2166
7025 Model F50 - Bay Locations 2167
7043 Model 43P-140 - External View 2168
7043 Model 43P-140 - Internal View 2170

Printer Components (1)

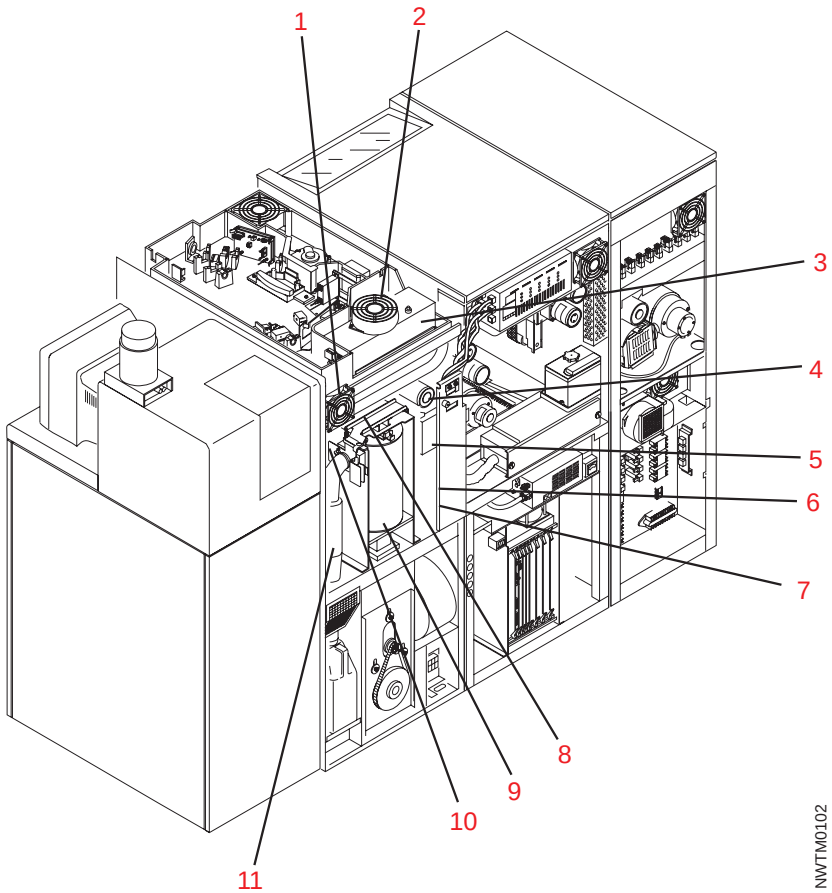
Table 447. Printer Components (1)



Part Name	Callout
Cyclone	11
B101, Rear Upper Process Fan	1
Toner Control Card PCxxx (see page 2137)	10
Filter, Fine	9
Laser	3
Laser Cooling Fan (part of laser)	2
M106, Cleaner Housing Motor	8
M107, Drum Motor	5
M108, Cleaner Brush Motor	4
PJ120	4
PJ122	8
PJ127	4
PJ128	8
PJ131	11
PJ132	7
PJ134	4

(continued on next page)

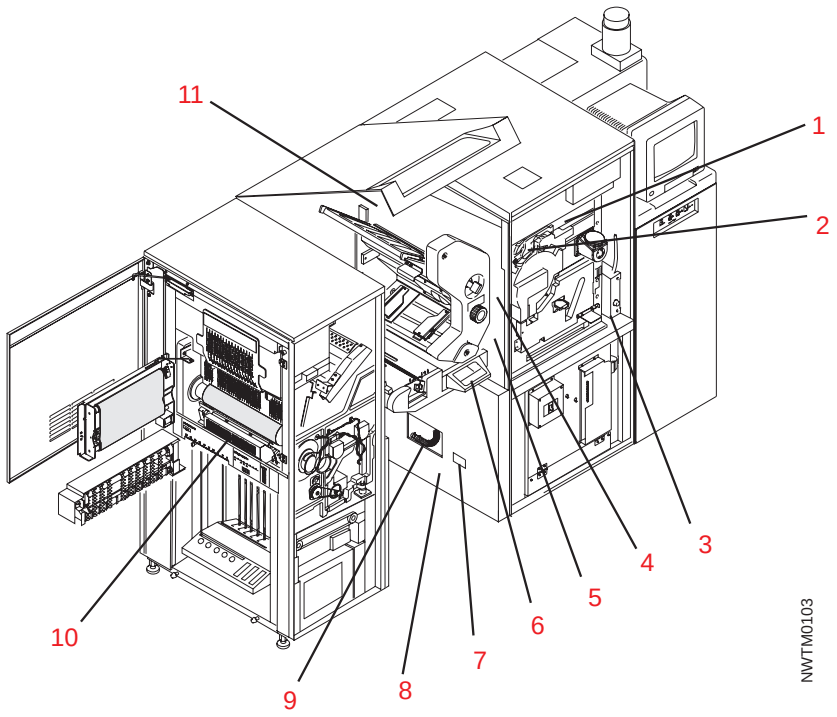
Table 447. Printer Components (1) (continued)



Part Name	Callout
PJ135	10
PJ136	10
PJ159	6
PJ160	6
PJ162	4
PJ166	11
PJ173	7
PJ174	7
PJ1003	10
PJ1006	10
PJ1007	10
PJ1008	10
PJ1020 (on the PC551 card only)	10
S102, Filter Pressure Switch	8
S103, Cleaner Housing Position Switch	8
S108, Fine Filter Switch	8

Printer Components (2)

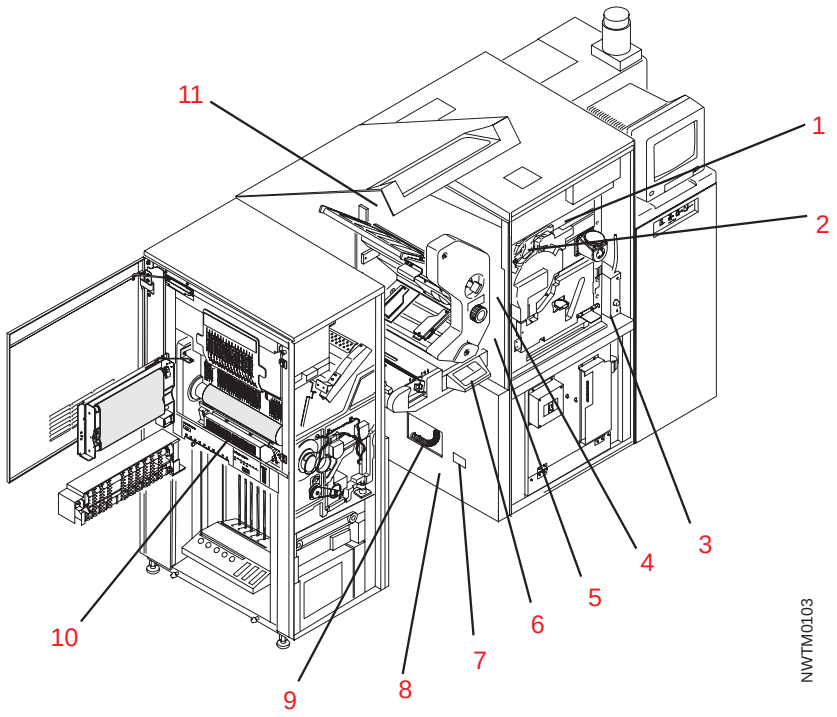
Table 448. Printer Components (2)



Part Name	Callout
Hose, Developer Drain	9
Mirror Motor Driver Card (See page 2134)	3
PJ147	17
PJ148	1
PJ161	1
PJ172	8
PJ175	1
PJ198	1
PJ687	10
PJ688	10
PJ689	10

(continued on next page)

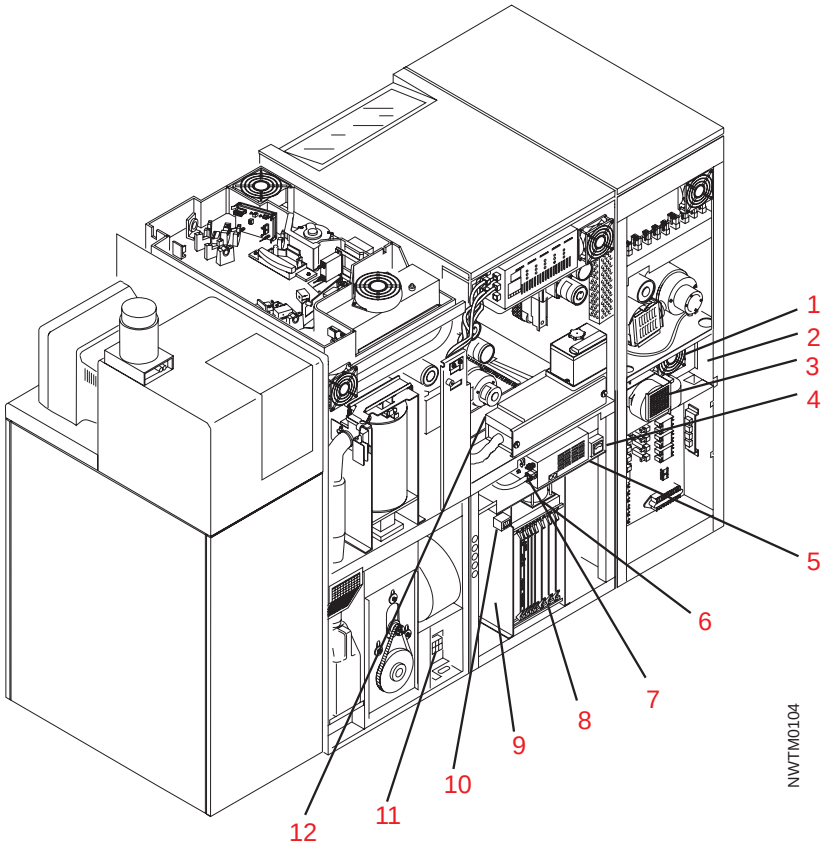
Table 448. Printer Components (2) (continued)



Part Name	Callout
PL101, Secondary Erase Lamp	1
Q101, Primary Erase Lamp Sensor	17
Q103, EOF Sensor	13
SW721, Printer Control Panel	12
S114, Cleaner Brush Rotation Sensor	2
S122, PC Drum Cover Interlock Switch	1
S302, Transfer Station Open Sensor	11
Upper Forms Guide	10

Printer Components (3)

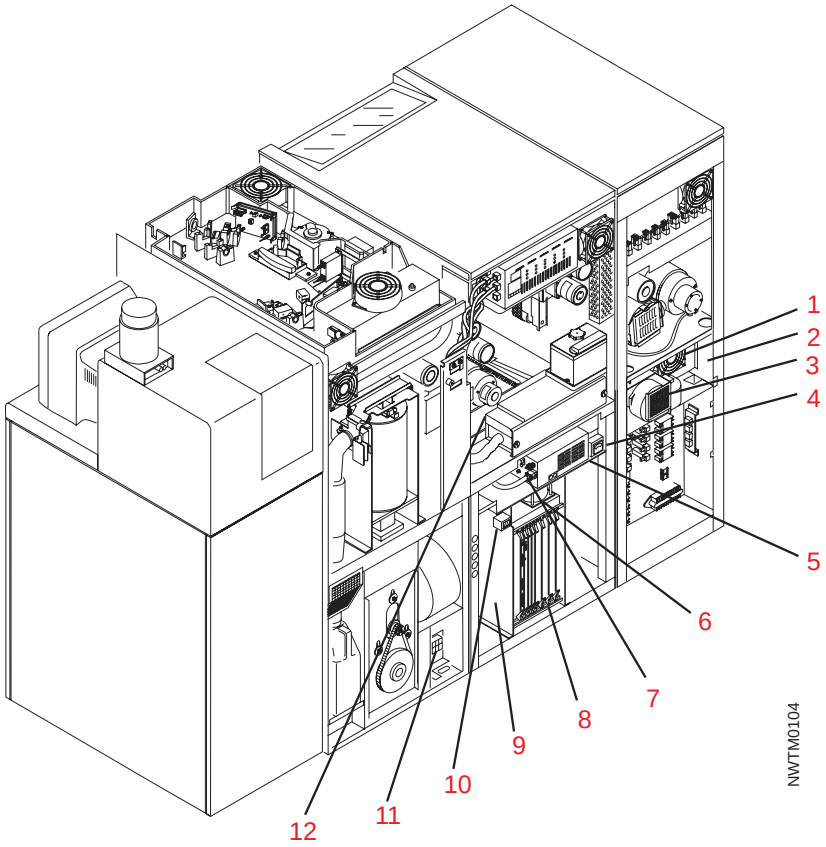
Table 449. Printer Components (3)



Part Name	Callout
B1 Board and Cards (See pages 2127 & 2128)	8
B403, B1 Board Fan	6
B603, Stacker Rear Cooling Fan	1
B703, Stacker Cooling Blower	3
C704, Capacitor	3
Laser Power Supply	5
L102, Laser Current Meter	4
L401, Usage Meter	10
PJ146	9
PJ312	12
PJ318	9
PJ401	9
PJ402	9
PJ439	9
PJ464	9
PJ465	9
PJ468	9

(continued on next page)

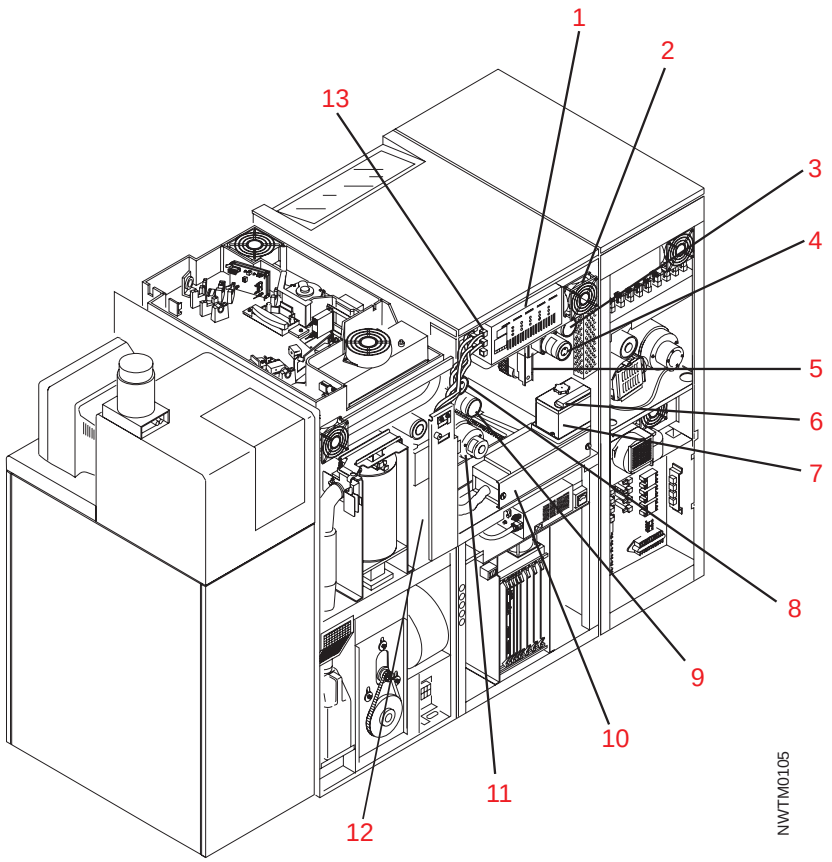
Table 449. Printer Components (3) (continued)



Part Name	Callout
PJ469	9
PJ470	9
PJ472	9
PJ481	9
PJ595	7
PJ596	7
PJ597	9
PJ598	7
PJ599	4
PJ718	2
PJ746	3
PJ747	3
PJ754	2
TB101, Terminal Block, Power Cord Connector	11

Printer Components (4)

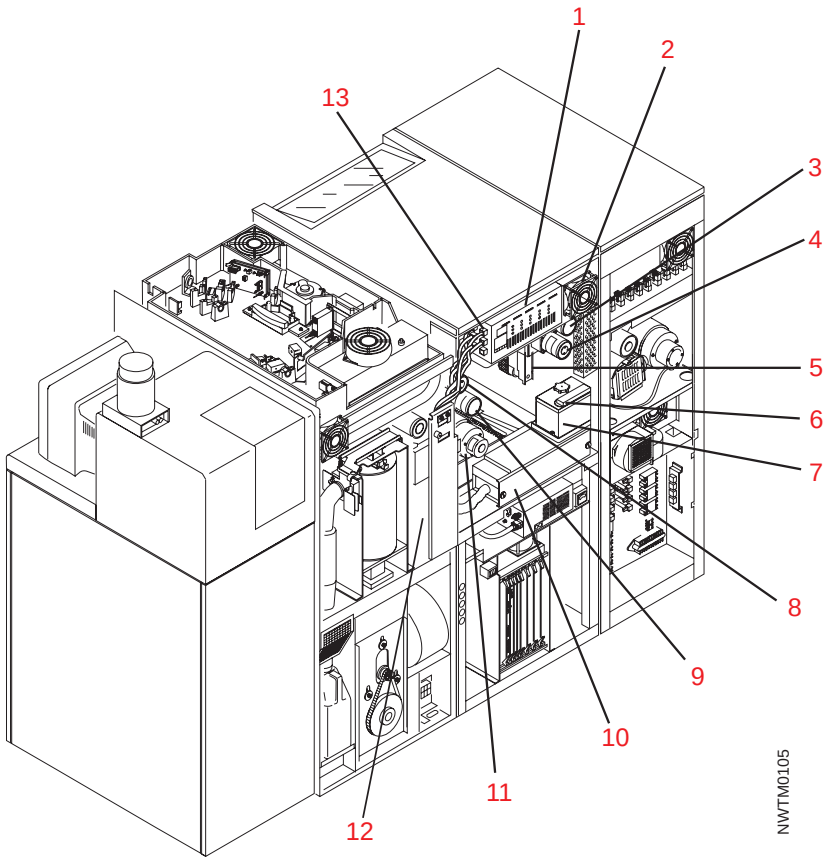
Table 450. Printer Components (4)



Part Name	Callout
Autoload Bridge	5
B604, High Voltage Power Supply Fan	2
CH1	13
CH2	13
CH3	13
CH4	13
CH5	13
C302, Capacitor	8
C605, Capacitor	3
C606, Capacitor	4
EN122, Tension Arm Encoder Board	8
EN123, Tension Arm Encoder Board	8
Filter, Vacuum	10
High Voltage Power Supply	1
L701, Oil Pump 1	7
L702, Oil Pump 2	7
L703, Oil Pump 3	7

(continued on next page)

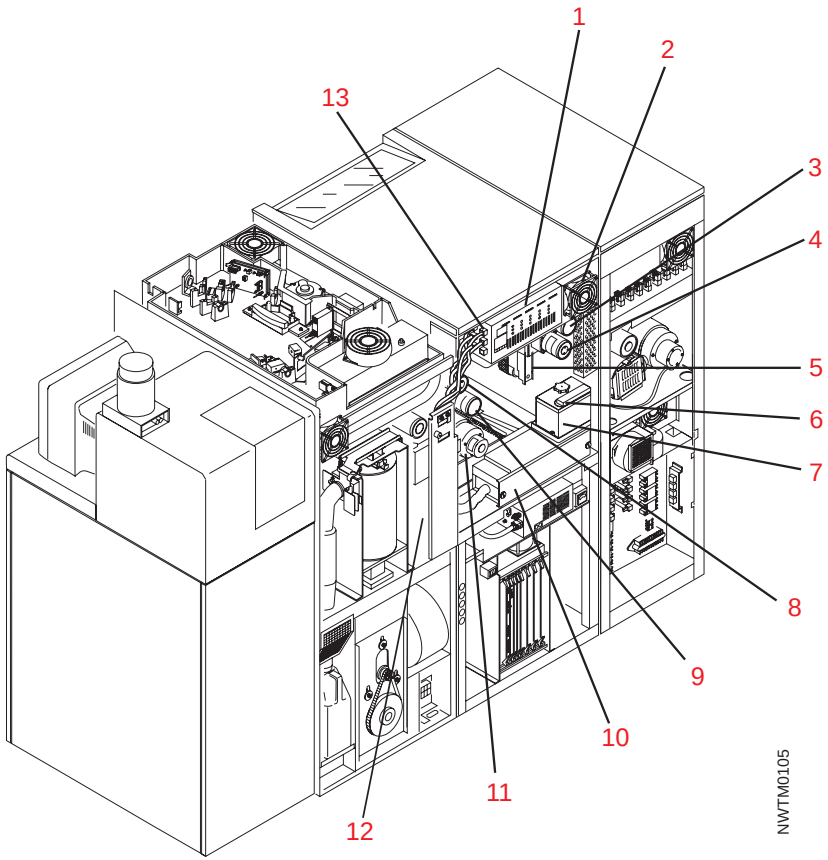
Table 450. Printer Components (4) (continued)



Part Name	Callout
L704, Oil Pump 4	7
L705, Oil Pump 5	7
L706, Oil Pump 6	7
M301, Capstan Pinch Roll Motor	8
M302, Capstan Roll Motor	9
M303, Tractor Motor	11
M605, Bridge Feed Motor	3
M606, Bridge Lift Motor	4
Oil Reservoir	7
PJ115	1
PJ116	1
PJ308	11
PJ310	8
PJ311	8
PJ312	11
PJ617	4
PJ618	4

(continued on next page)

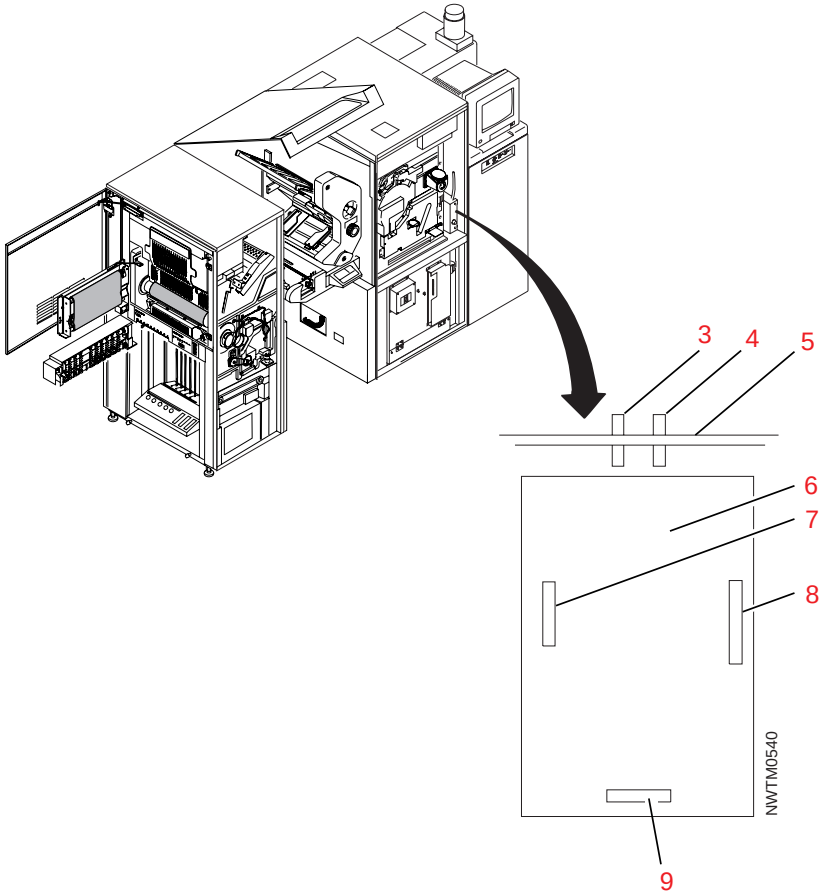
Table 450. Printer Components (4) (continued)



Part Name	Callout
PJ654	4
PJ655	4
PJ686	4
PJ725	7
PJ745	7
PJ776	7
ST101, Secondary Erase Lamp Starter	12
ST102, Primary Erase Lamp Starter	12
S608, Bridge Up Switch	4
S609, Bridge Down Switch	4
S702, Oil Empty Sensor	6

Printer Components - Enhanced Toner Loading Feature

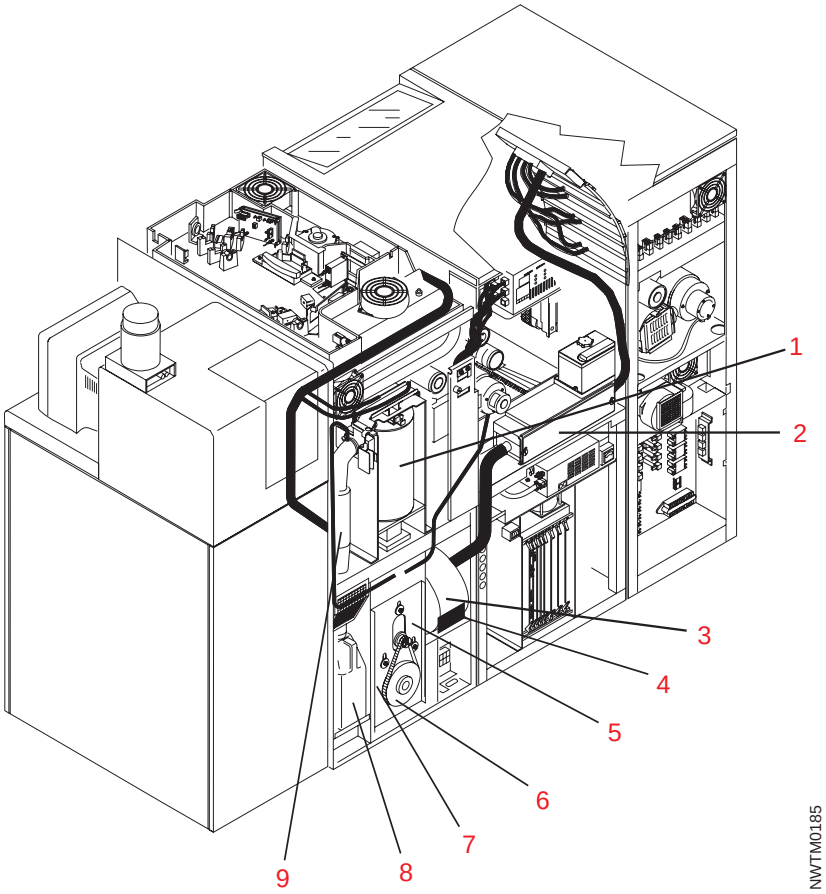
Table 451. Printer Components - Enhanced Toner Loading Feature



Part Name	Callout
Bracket, MD141/MD192 and RB241 Mounting	3
PJ1012	6
PJ1013	7
PJ1014	5
PJ1015	1
PJ1016	2
RB241, Relay Board	4

Air System

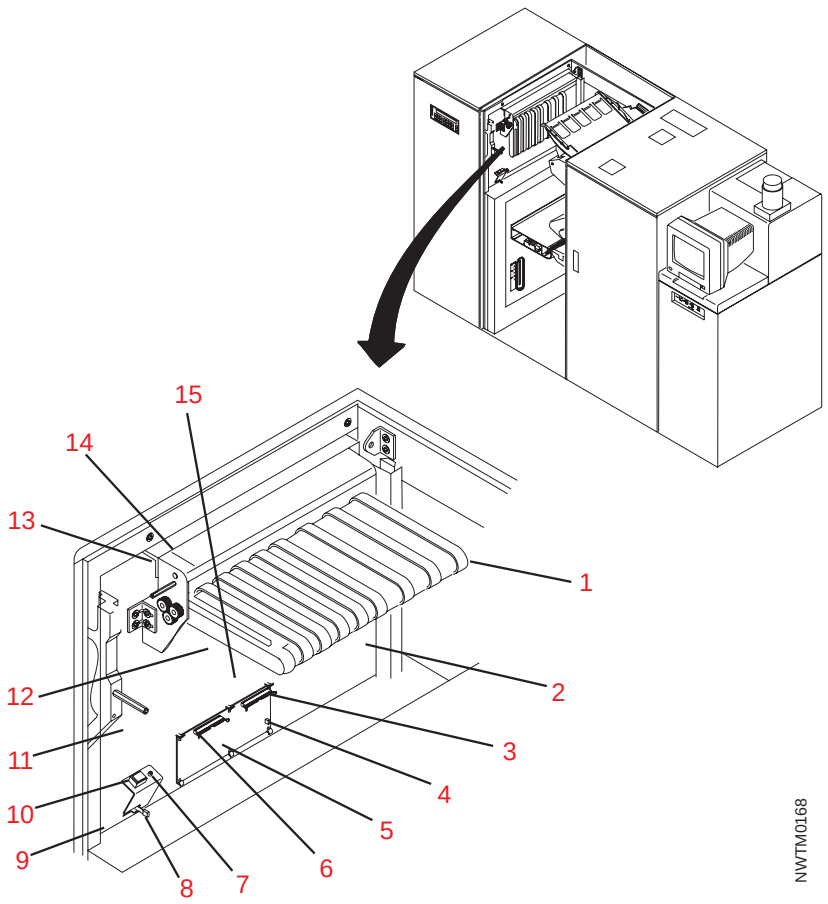
Table 452. Air System



Part Name	Callout
Cyclone Blower	5
Cyclone Precipitator	9
Fine Filter	1
Manifold Distribution Filter	2
M104, Cyclone Blower Motor	6
M105, Vacuum Blower Motor	3
Ozone Filter	4
PJ123	5
PJ124	5
PJ150	7
PJ191	8
PJ633	3
PJ672	3
S116, Cyclone Blower Rotation Sensor	5
S118, Toner Collector Bottle Switch	8
Toner Collector Bottle	8

Auto Load Bridge

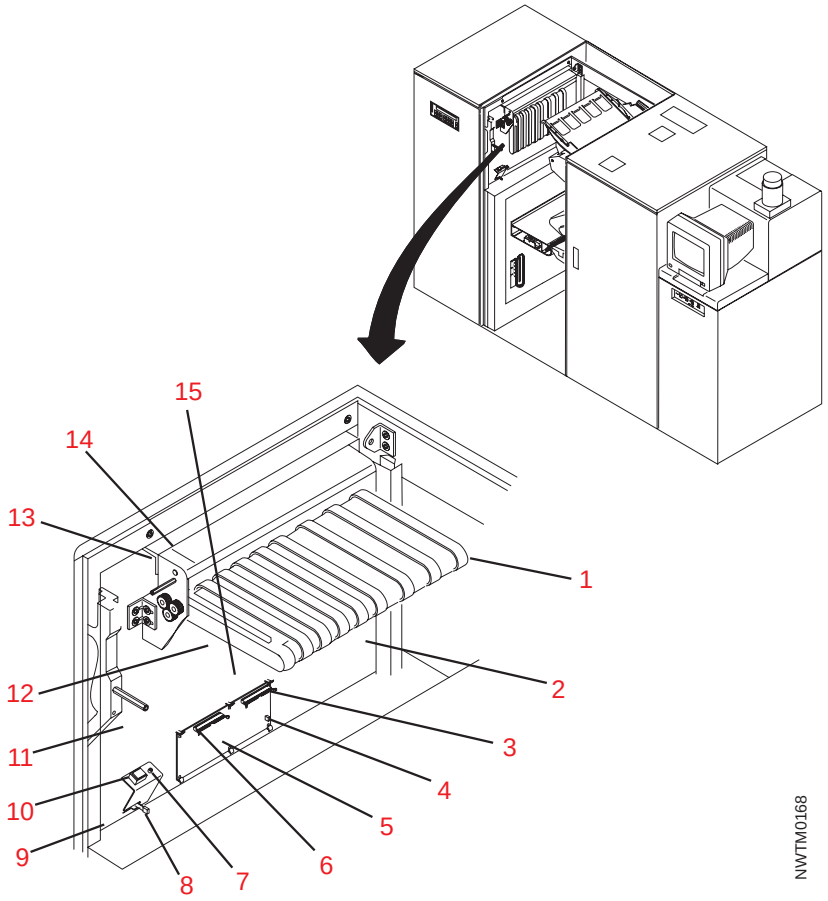
Table 453. Auto Load Bridge



Part Name	Callout
Auto Load Bridge Assembly	1
D602, Vacuum LED	7
D603, Skew Sensor	13
Forms Alignment Guideline	14
HR091, Hot Roll Control Card (see page 2133)	5
Lever, Scuff Roll Release	8
M601, Steering Motor	15
M602, Shutter Control Motor	12
M610, Backup Roll Lift Motor	15
PJ615	2
PJ616	2
PJ636	11
PJ637	9
PJ638	11
PJ647	9
PJ6009	6

(continued on next page)

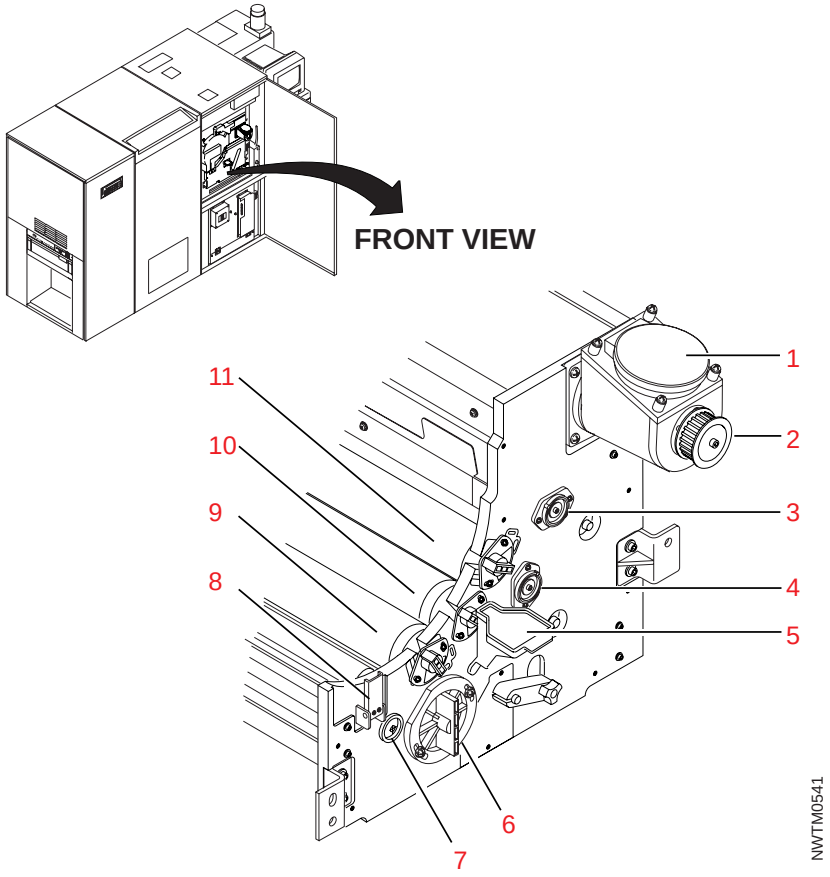
Table 453. Auto Load Bridge (continued)



Part Name	Callout
PJ6010	3
PJ6011	4
PJ6018	11
PJ6019	11
S604, Vacuum Shutter Home Sensor	12
S606, Vacuum Switch	10
S624, Backup Roll Lift Position Sensor	15

Developer Components (Front)

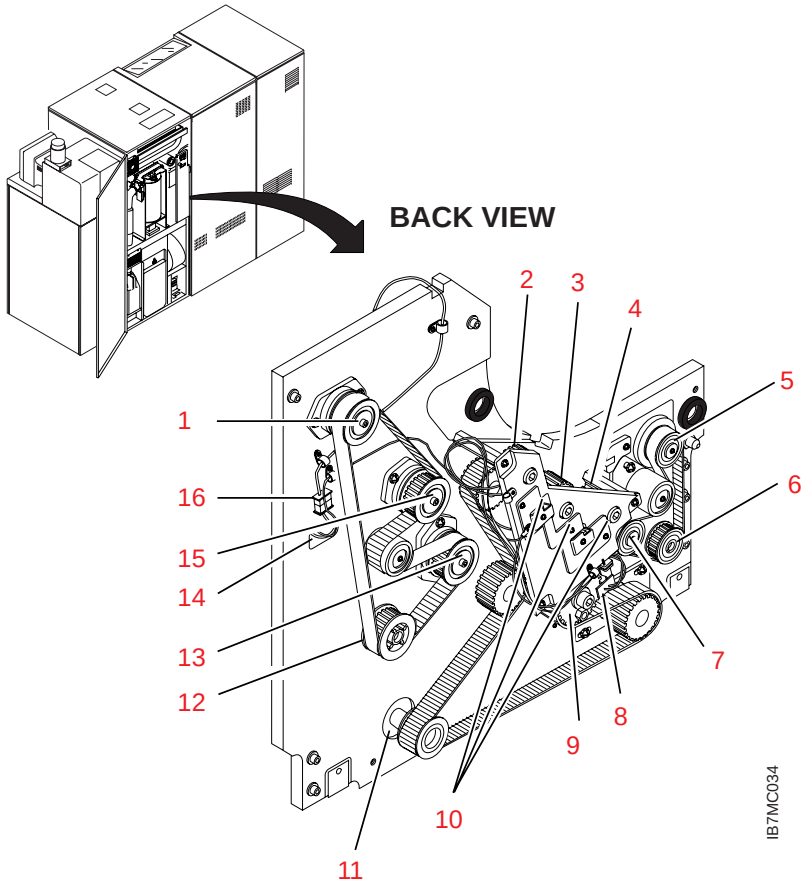
Table 454. Developer Components



Part Name	Callout
Inlet, Developer Mix	5
Inlet, Toner	1
Lever, Scavenger Roll	8
Mag Brush, A	11
Mag Brush, B	10
Mag Brush, C	9
Paddle, Toner Hopper	3
Pulley, Toner Auger Drive (only with Enhanced Toner Loading Feature)	2
Roll, Conveyor	6
Seal, Conveyor Roll	6
Shaft, Toner Control	7
Shaft, Toner Feed	4

Developer Components (Rear)

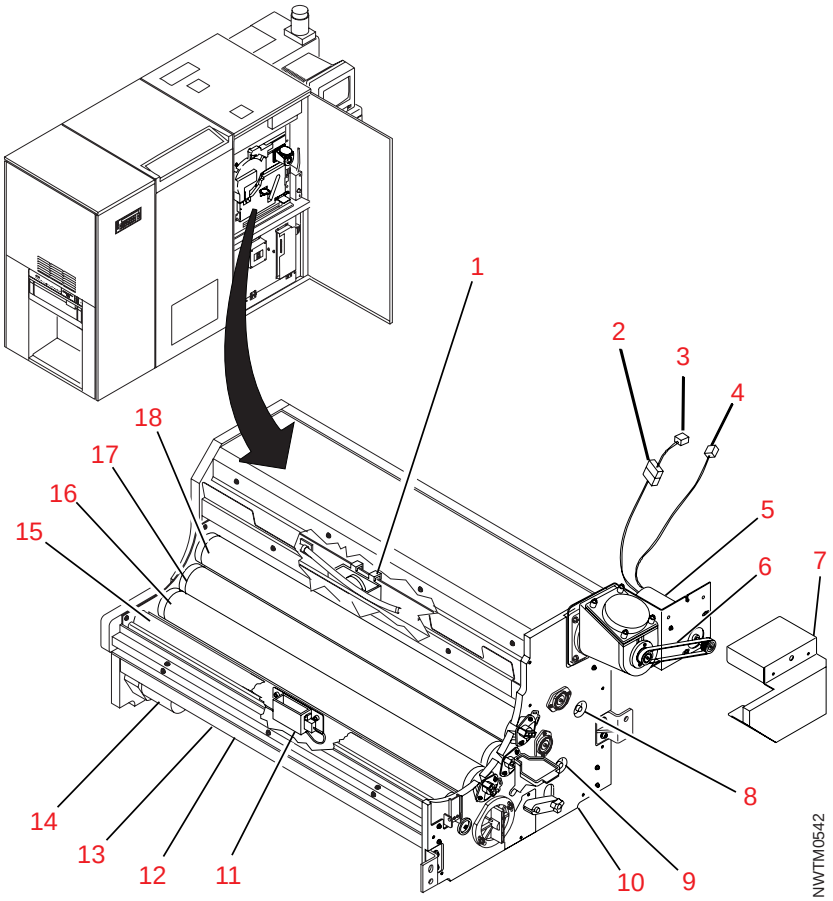
Table 455. Developer Components



Part Name	Callout
Auger, Toner (without Enhanced Toner Loading Feature)	1
Brushes, Bias	10
Mag Brush, A	2
Mag Brush, B	3
Mag Brush, C	4
Idler Pulley (only with Enhanced Toner Loading Feature)	1
M101, Mag Brush Motor	11
M102, Toner Feed Motor	12
M103, Toner Control Motor	6
Paddle, Toner Hopper	15
PJ110 Connector	14
PJ111 Connector	16
Roll, Conveyor	9
Roll, Scavenger	5
Shaft, Toner Control	7
Shaft, Toner Feed	13
S113, Conveyor Roll Rotation Sensor	8

Developer - Front

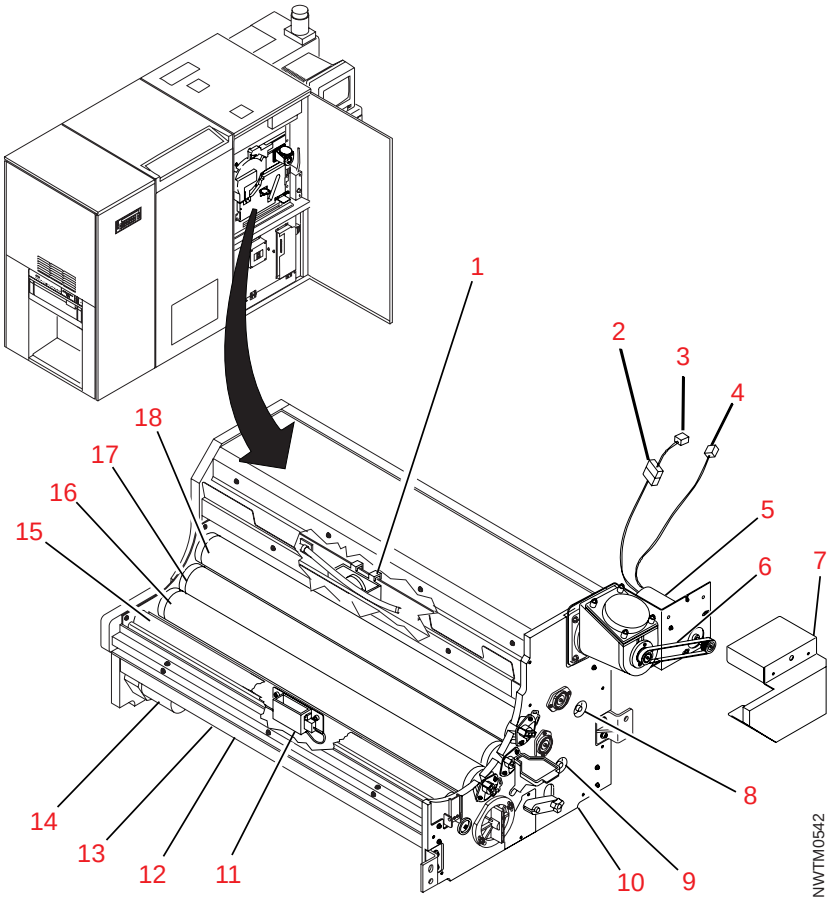
Table 456. Developer-Front



Part Name	Callout
Belt, Toner Auger Drive (only with Enhanced Toner Loading Feature)	6
Cover, Toner Supply Motor (only with Enhanced Toner Loading Feature)	7
C103, Capacitor	14
C104, Capacitor (only with Enhanced Toner Loading Feature)	5
L101, Toner Control Sensor	11
Mag Brush, A	18
Mag Brush, B	17
Mag Brush, C	16
M103, Toner Control Motor	14
M112, Toner Supply Motor (only with Enhanced Toner Loading Feature)	5
PJ105	12
PJ107	13
P1015 (only with Enhanced Toner Loading Feature)	3

(continued on next page)

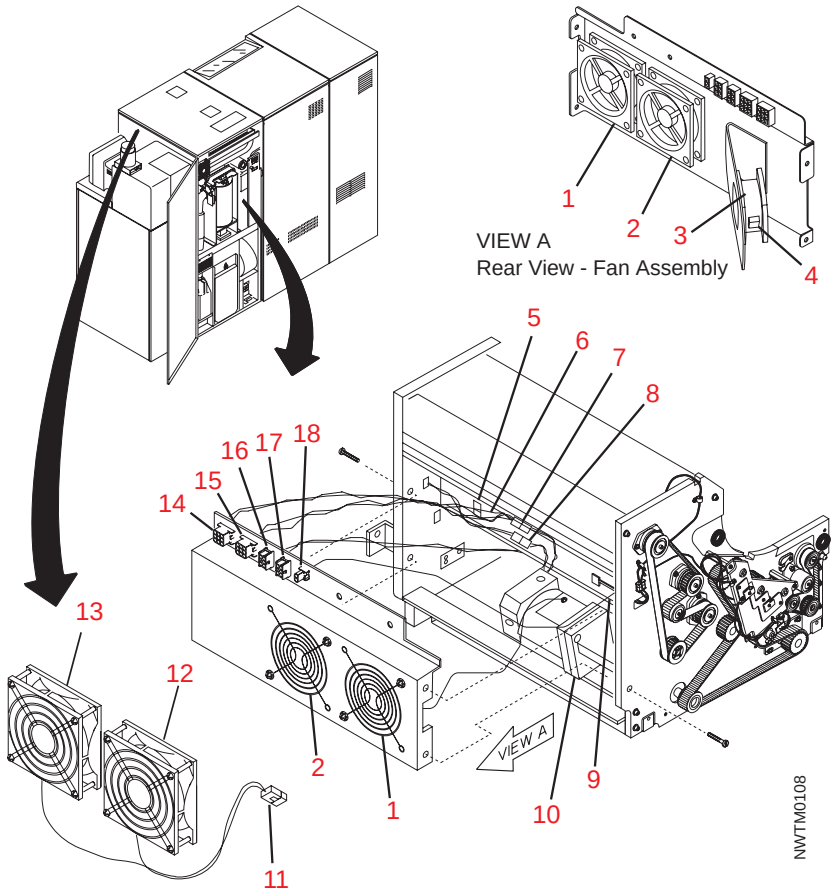
Table 456. Developer-Front (continued)



Part Name	Callout
P1016 (only with Enhanced Toner Loading Feature)	4
PJ1017 (only with Enhanced Toner Loading Feature)	2
Scavenger Roll	15
S106, Toner Empty Sensor	1
S107, Developer Run Switch	9
S112, Developer Drain Lever Switch	10
S121, Toner Supply Switch	8

Developer - Rear

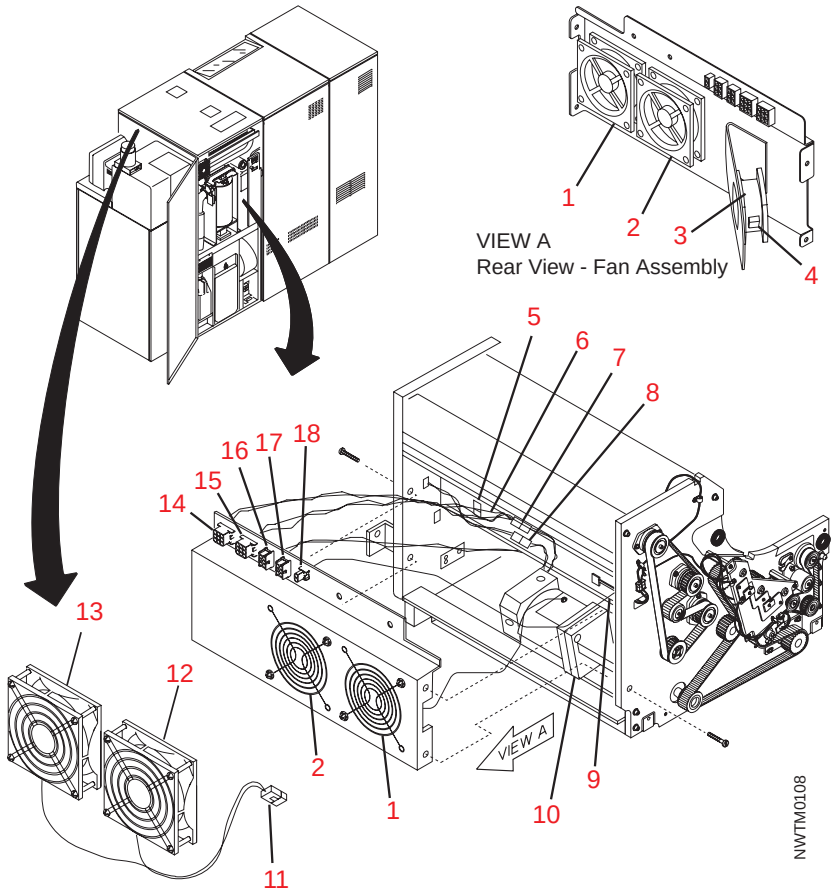
Table 457. Developer-Rear



Part Name	Callout
B110, Right Rear Developer Fan	1
B111, Right Front Developer Fan	2
B112, Developer Motor Cooling Fan	3
B114, Right Front Process Fan	13
B115, Right Rear Process Fan	12
C102, Capacitor	9
M101, Mag Brush Motor	10
PJ106	7
PJ108	5
PJ112	5
PJ113	14
PJ114	15
PJ118	7
PJ185	18
PJ190	6
PJ193	16

(continued on next page)

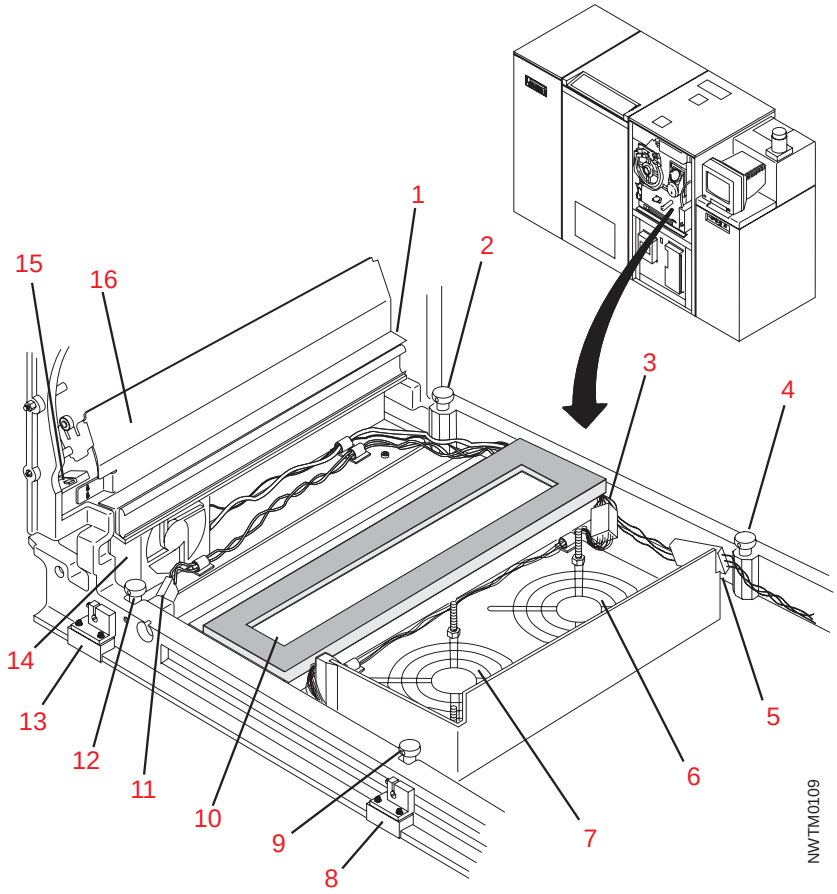
Table 457. Developer-Rear (continued)



Part Name	Callout
PJ194	8
PJ196	17
PJ199	4
PJ1011	11

Developer Carriage

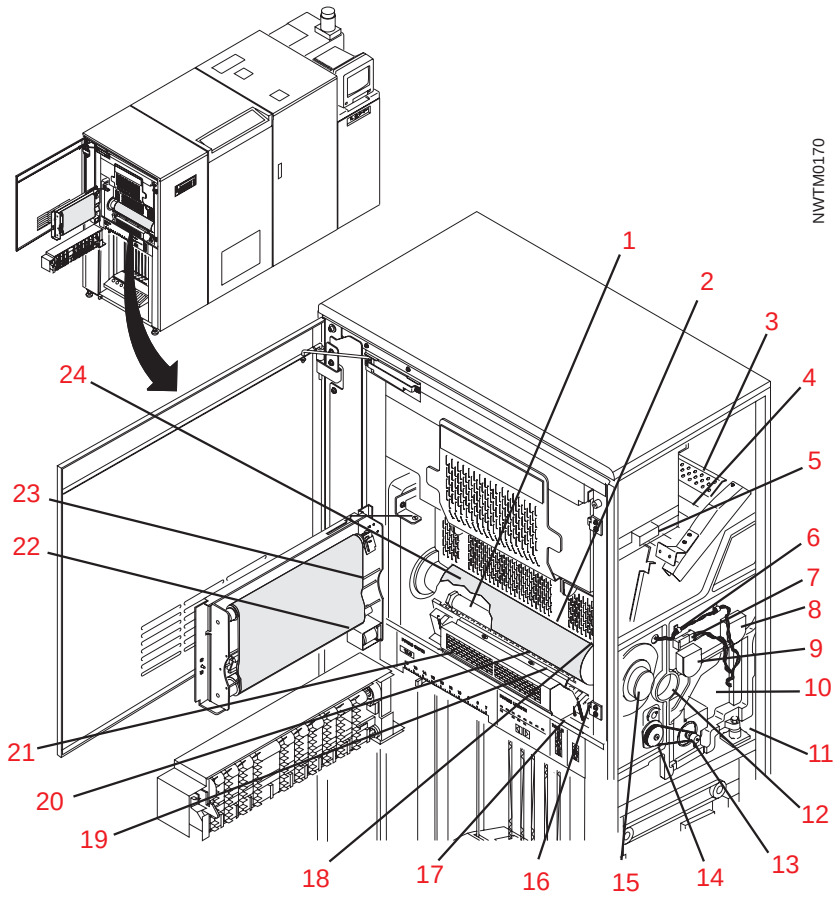
Table 458. Developer Carriage



Part Name	Callout
B104, Left Front Developer Fan	14
B108, Lower Rear Developer Fan	6
B109, Lower Front Developer Fan	7
Developer Height Rear Adjustment Stud	2
Developer Height Rear Adjustment Stud	4
Developer Height Front Adjustment Stud	9
Developer Height Front Adjustment Stud	12
Rear Height Stud Adjusting Shaft	8
Rear Height Stud Adjusting Shaft	13
Developer Mix Drain	10
Developer Rail	1
PJ149	11
PJ165	5
PJ192	3
Plate, Deflector	16
S302, Transfer Station Open Sensor	15

Fuser - Front

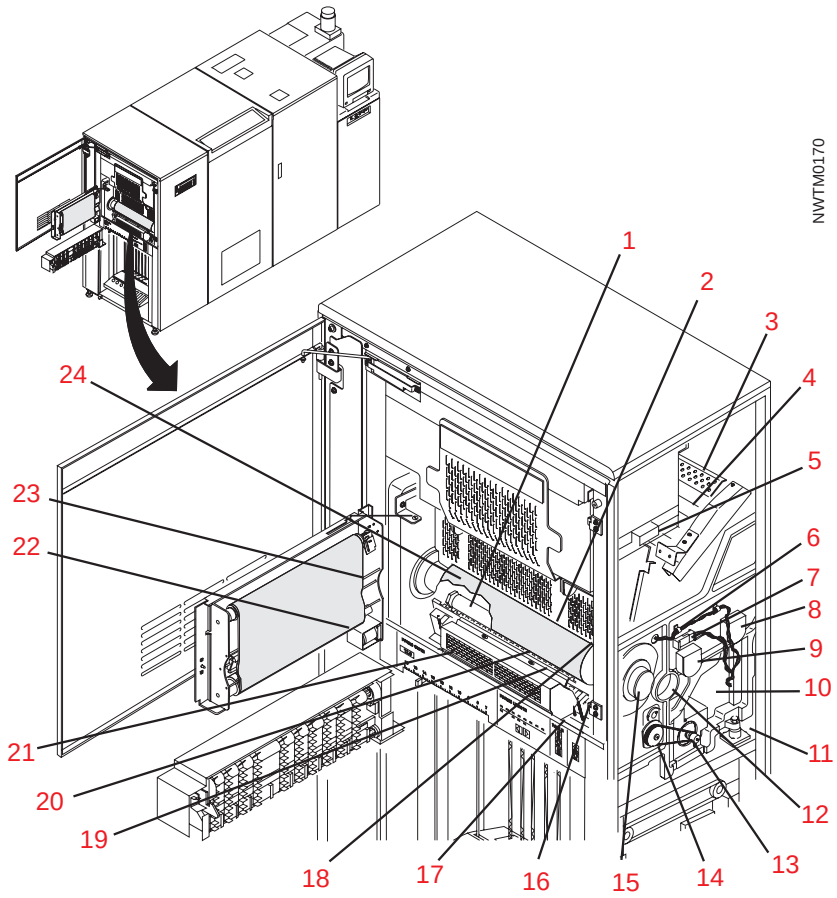
Table 459. Fuser - Front



Part Name	Callout
Backup Idler Roll (BIR) (when installed on certain printers)	1
Backup Roll (BUR)	12
B623, B624, B625, Paper Cooling Fans	21
B626, Paper Cooling Fan	10
C604, Capacitor	13
D603, Skew Sensor	3
EN131, BIR Position Encoder Board (if Backup Idler Roll is installed)	8
EN131, BUR Position Encoder Board	9
Fuser Cooling Filter	5
Hot Roll	24
L1, L2, L3, L4, Hot Roll Lamps	15
B1, B2, B3, B4, Hot Roll Lamps	15
L601, Hot Roll Temperature Control Sensor	18

(continued on next page)

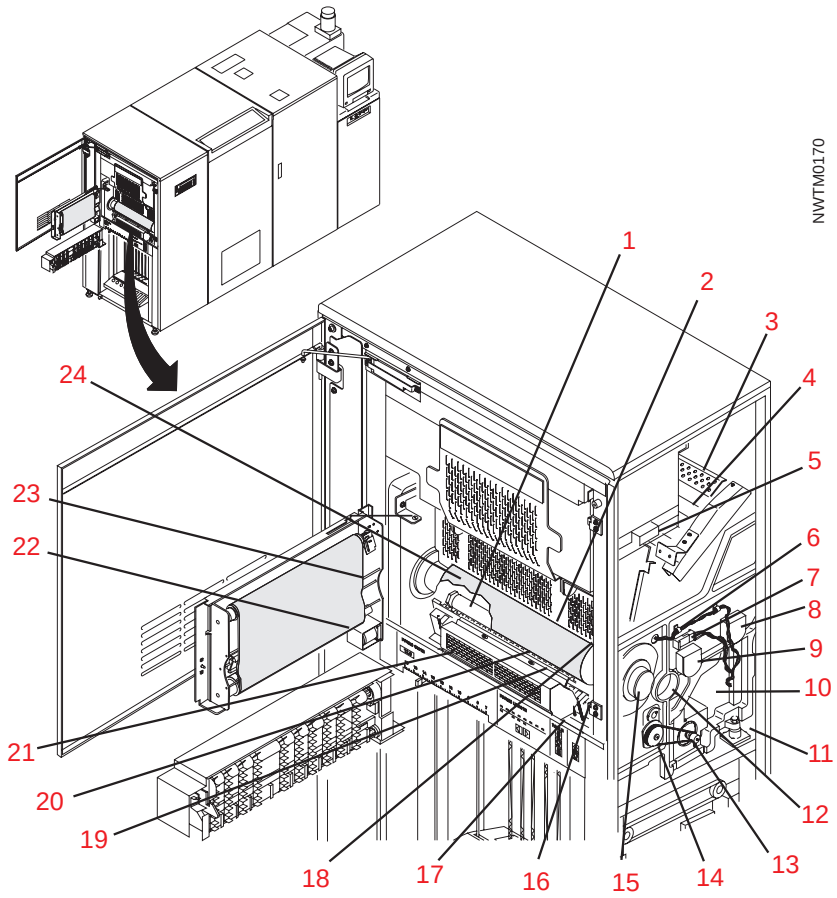
Table 459. Fuser - Front (continued)



Part Name	Callout
M604, Scuff Roll Motor	13
M706, Oiler Belt Motor	22
Oiler Belt	22
PH601, Upper Preheat Platen	4
PH602, Lower Preheat Platen	4
PJ606	9
PJ637	10
PJ640	10
PJ645	6
PJ653	10
PJ666	7
PJ682	6
PJ690	10
PJ723	22
PJ823	10
PJ6003 (if Backup Idler Roll is installed)	8
PJ6014	5

(continued on next page)

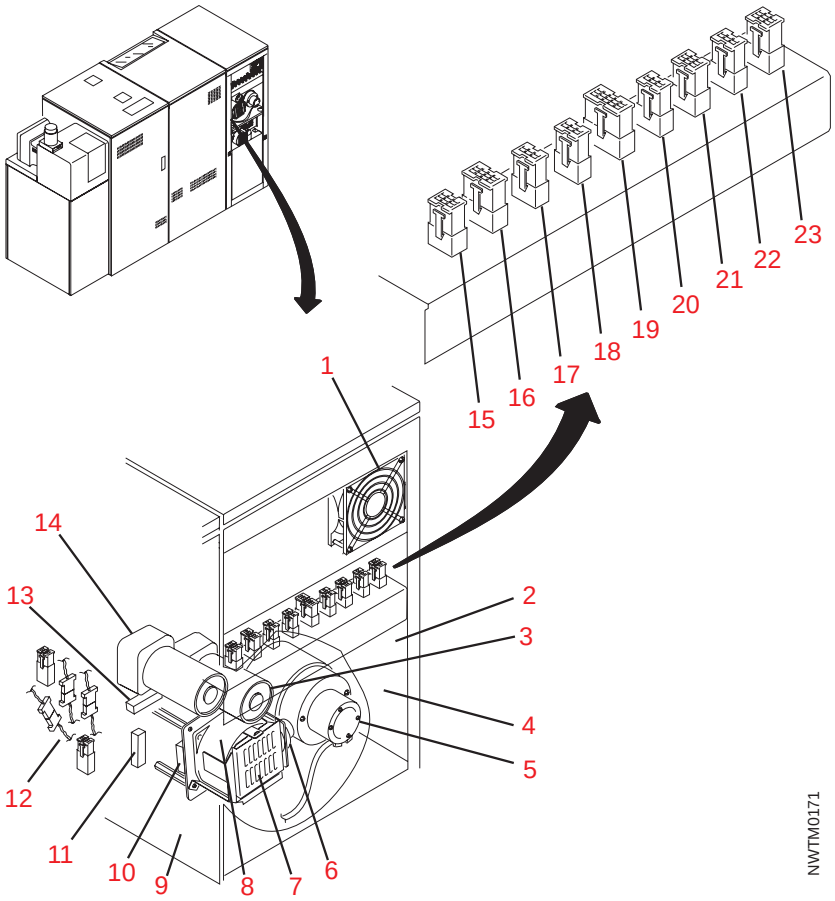
Table 459. Fuser - Front (continued)



Part Name	Callout
PJ6015	18
PJ6016	24
S605, Oiler Gate Open Switch	17
S610, Oiler Belt End Switch	23
S613, Hot Roll Over-Temperature Sensor	2
S617, Fuser Front Wrap Sensor	19
S618, Fuser Rear Wrap Sensor	20
S620, Fuser Rear Wrap Sensor (if Backup Idler Roll is installed)	20
S621, Hot Roll Thermistor	18
S622, Hot Roll Thermistor	24
S623, Hot Roll Thermistor	24
Scuff Pressure Roller Assembly	16
Scuff Roll	14

Fuser - Rear

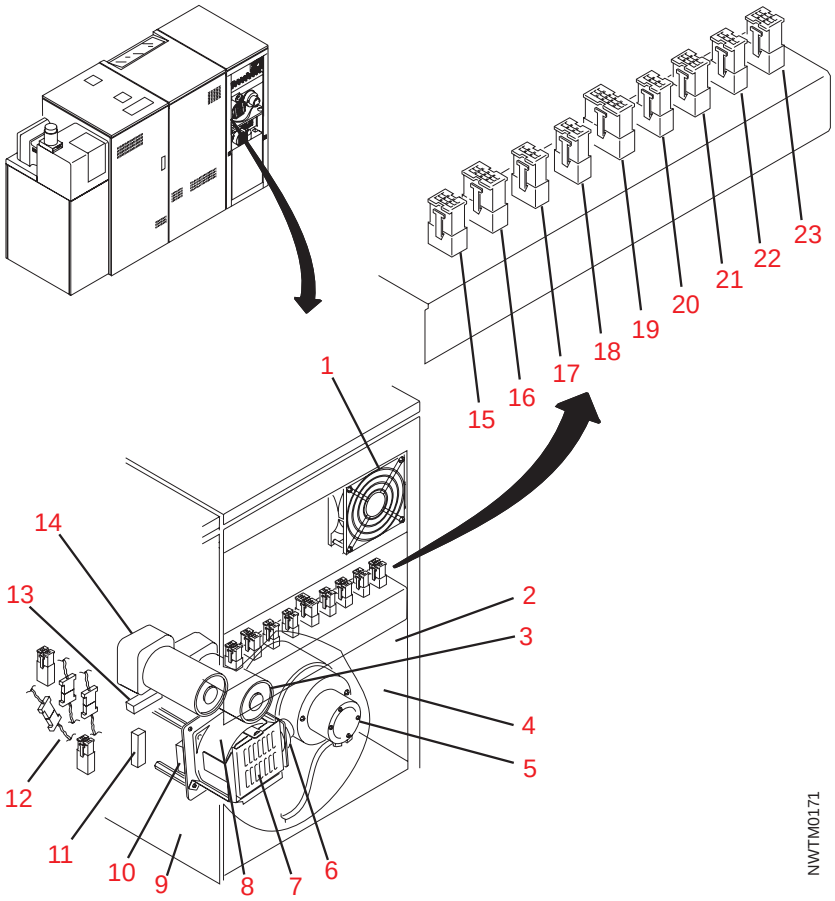
Table 460. Fuser - Rear



Part Name	Callout
B602, Hot Roll Motor Blower	7
B605, Upper Rear Fuser Fan	1
C603, Capacitor	13
C608, Capacitor	10
C613, Capacitor (when Backup Idler Roll is installed)	11
M603, Backup Roll Motor	3
M607, Hot Roll Motor	5
M609, Backup Roll Idler Motor (when Backup Idler Roll is installed)	14
PJ617	12
PJ618	12
PJ620	20
PJ632	9

(continued on next page)

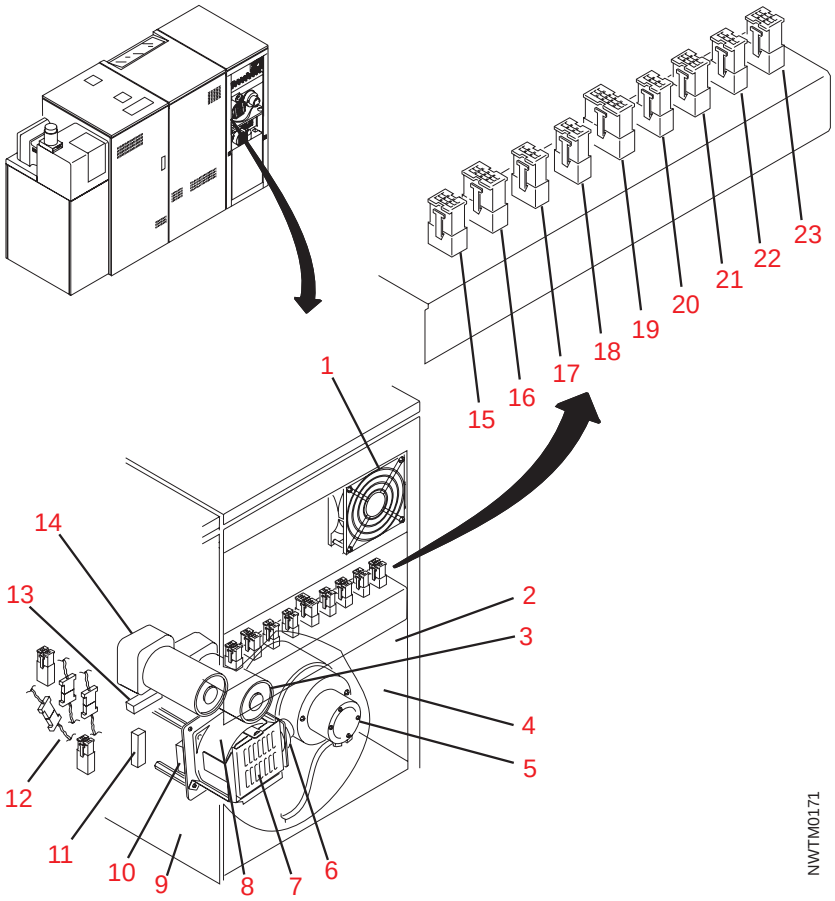
Table 460. Fuser - Rear (continued)



Part Name	Callout
PJ643	4
PJ646	8
PJ649	8
PJ650	2
PJ650A	2
PJ652	6
PJ654	12
PJ655	12
PJ657	6
PJ661	21
PJ662	22
PJ664	23

(continued on next page)

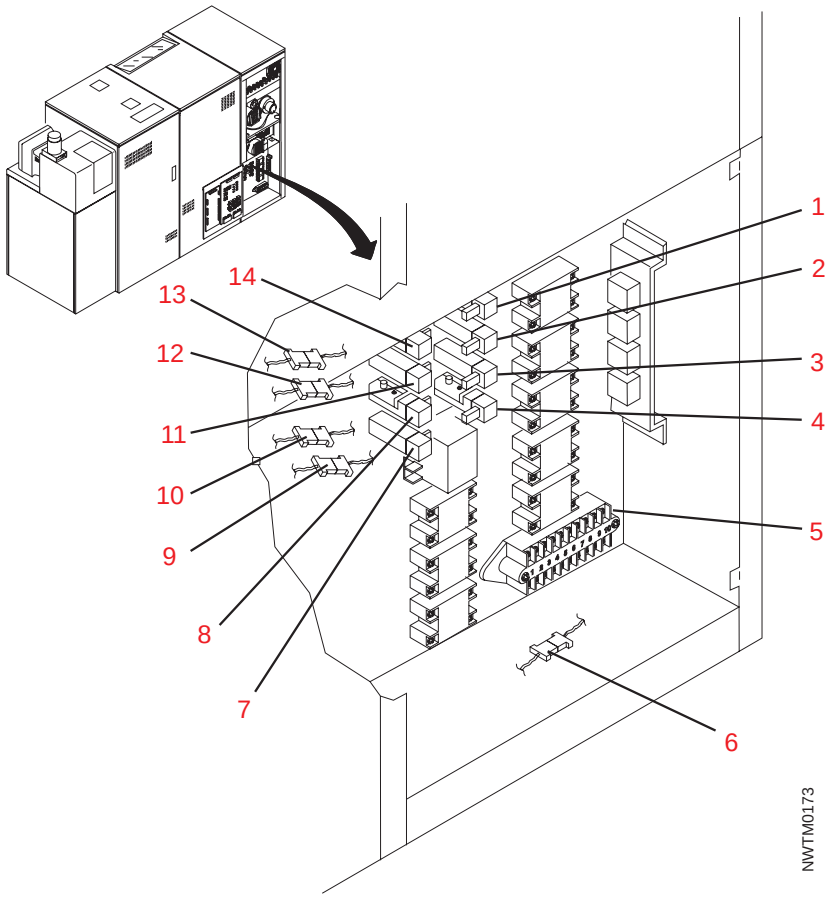
Table 460. Fuser - Rear (continued)



Part Name	Callout
PJ665	2
PJ667	19
PJ668	18
PJ674	15
PJ676	2
PJ677	9
PJ684	17
PJ685	16
PJ686	12
PJ745	9
PJ6001 (when Backup Idler Roll is installed)	9
PJ6002	9

Fuser Control Box (1)

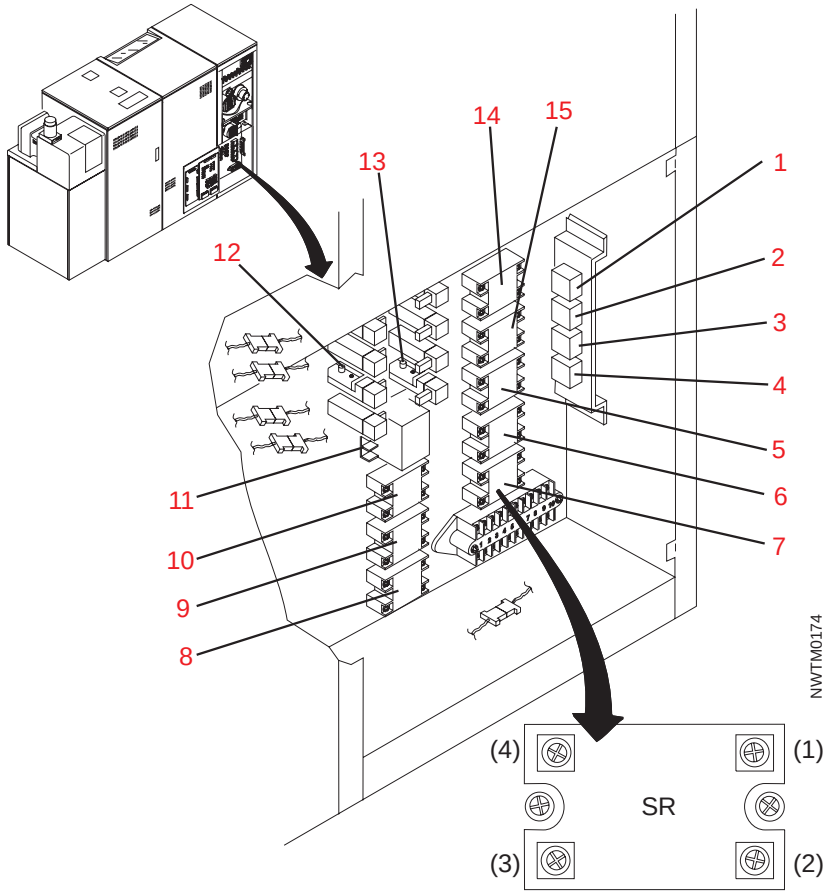
Table 461. Fuser Control Box (1)



Part Name	Callout
PJ626	6
PJ627	10
PJ628	9
PJ629	12
PJ630	13
R601 Relay	8
R602 Relay	11
R603 Relay	14
R604 Relay	3
R605 Relay	2
R606 Relay	1
R613 Relay	7
R614 Relay	4
TB601, Terminal Block	5

Fuser Control Box (2)

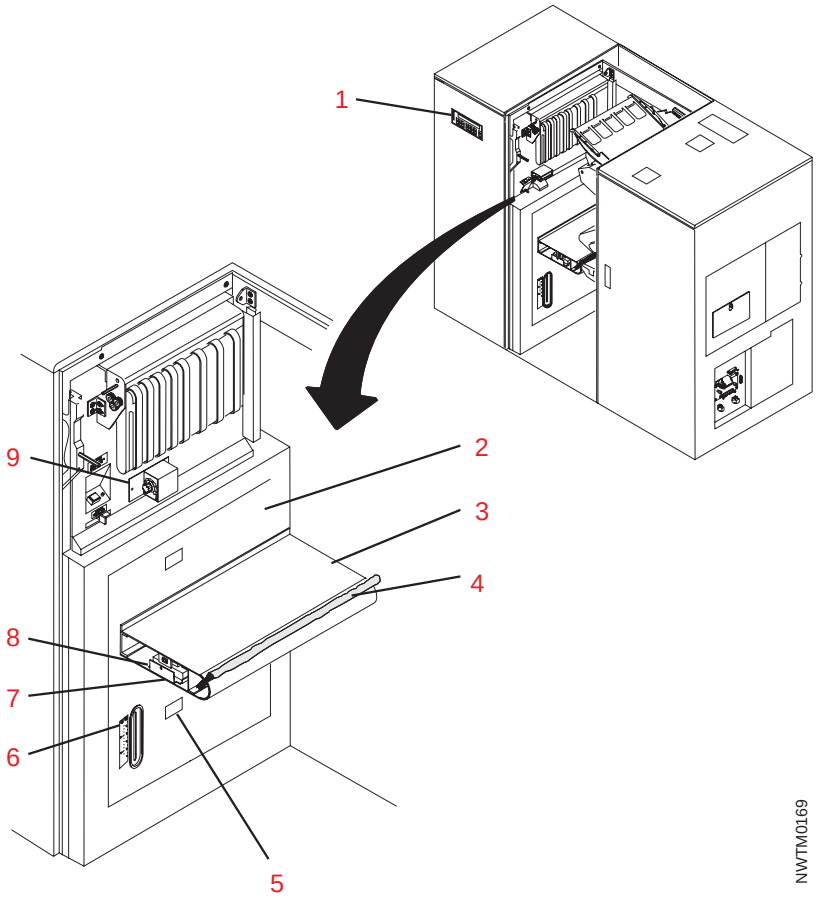
Table 462. Fuser Control Box (2)



Part Name	Callout
D601	11
K601	11
PJ619	1
PJ621	2
PJ622	3
PJ623	4
SR601 Relay	14
SR602 Relay	15
SR603 Relay	5
SR604 Relay	6
SR605 Relay	10
SR606 Relay	9
SR607 Relay	8
SR608 Relay	7
S601 Soft Start Thermal Sensor	12
S602 Soft Start Thermal Sensor	13

Input Area

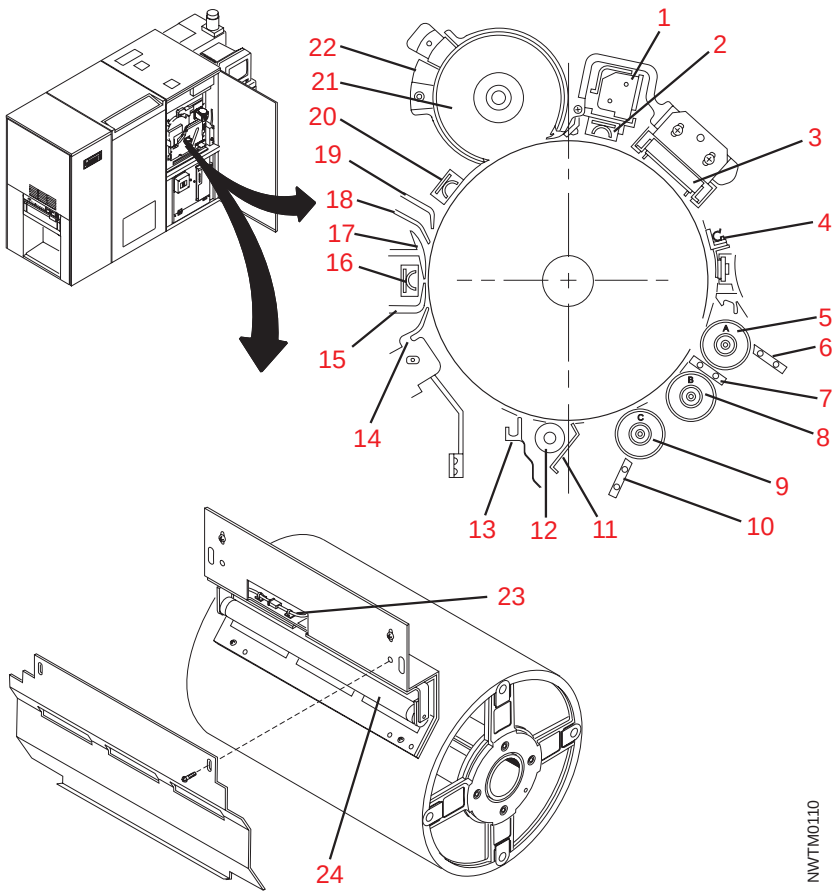
Table 463. Input Area



Part Name	Callout
Buffer Card	1
Chad Brush, Input Guide	4
Input Guide	3
Input Bin Left Side Cover	2
MP021, Maintenance Panel	8
Panel, Operator	1
PJ170	5
PJ448	7
PJ6004	19
PJE01	19
PJE02	19
PJE03	19
PL103, EOF LED	14
Preheat Control	18
Stacker Height Knob	15
Temperature Control (TC) In Connector	18
Temperature Control (TC) Out Connector	18

PC Drum and Charging Components

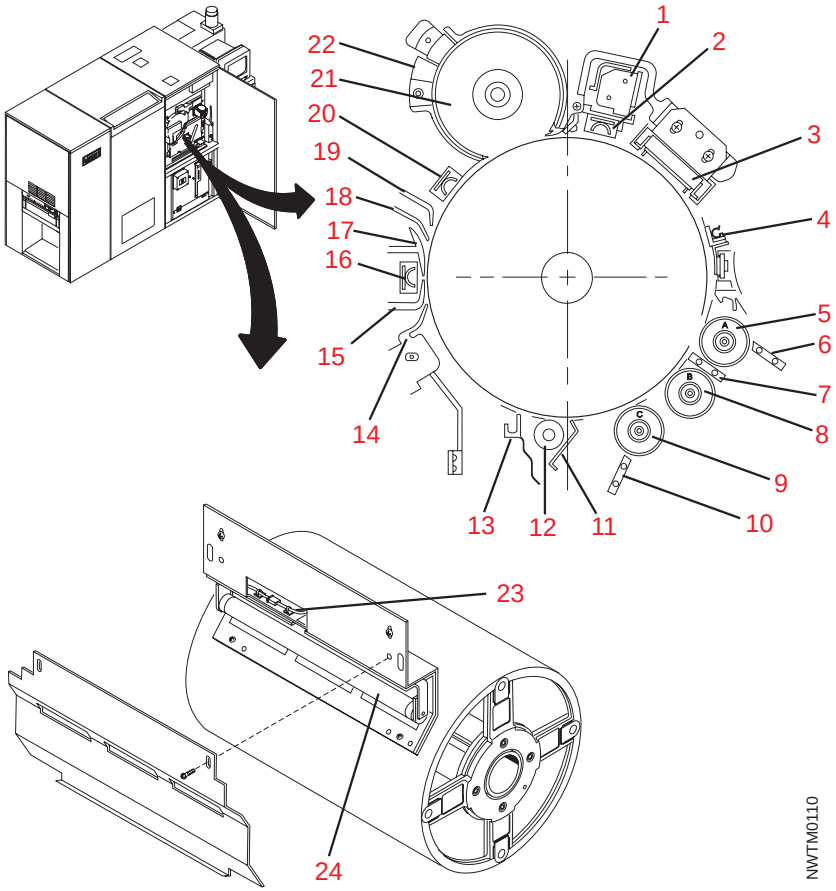
Table 464. PC and Charging Components



Part Name	Callout
Blade, Doctor	7
Blade, Scraper, A	6
Blade, Scraper, C	10
Charge Corona	3
Cleaner Brush	21
Cover, Erase Lamp	19
Developer Vacuum Seal	13
Guide, Upper Forms	18
Holder, Electrostatic Voltmeter	4
Housing, Cleaner	22
Mag Brush, A	5
Mag Brush, B	8
Mag Brush, C	9
PJ147	23
Plate, Deflector	14
Seal, Lower	11

(continued on next page)

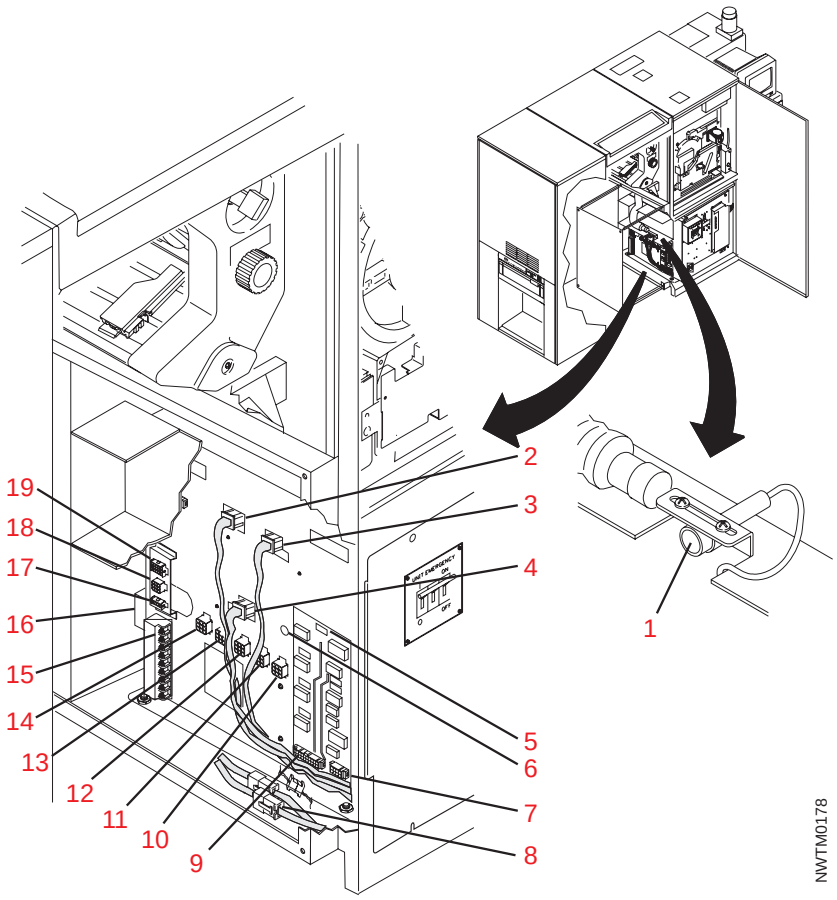
Table 464. PC and Charging Components (continued)



Part Name	Callout
PL101, Secondary Erase Lamp	1
PL102, Primary Erase Lamp	24
Precharge Corona	2
Preclean Corona	20
Q101, Primary Erase Lamp Sensor	23
Q102, Secondary Erase Lamp Sensor	1
Retractor, Lower	15
Retractor, Upper	17
Scavenger Roll	12
Transfer Corona	16

Power Supply - Printer AC

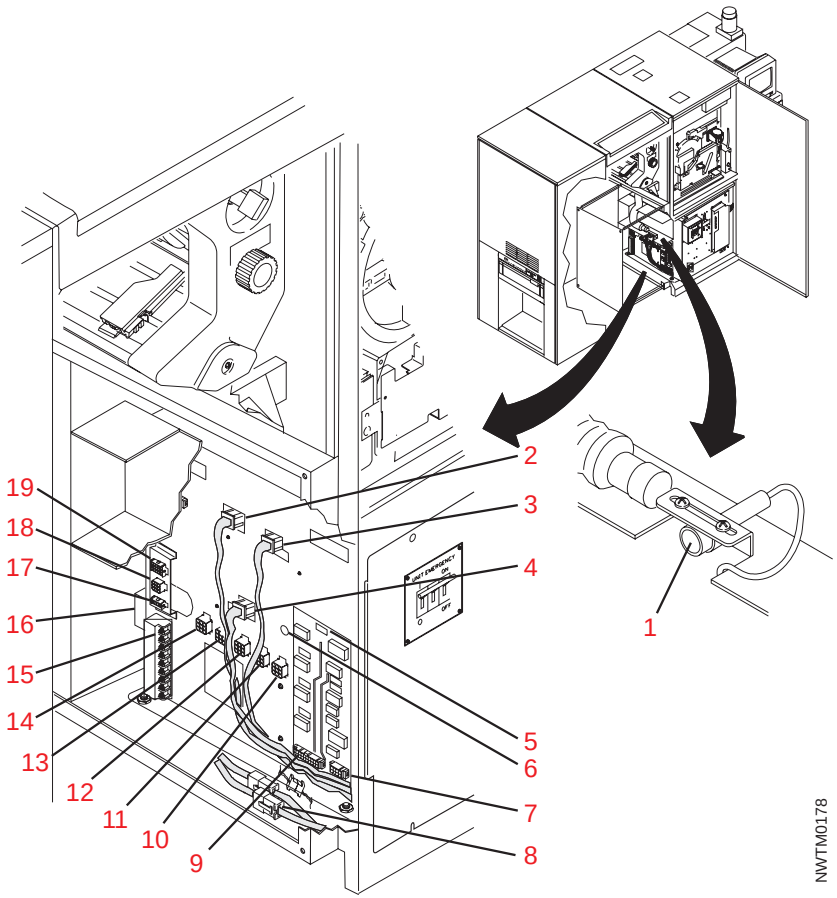
Table 465. Printer AC Power Supply



Part Name	Callout
PJ119	1
PJ172	8
PJ501	5
PJ502	7
PJ503	9
PJ505	3
PJ507	2
PJ508	4
PJ520	14
PJ521	13
PJ522	12
PJ523	11
PJ524	10
PJ532	19
PJ533	18
PJ534	17
Potentiometer, 140 V Adjust	6

(continued on next page)

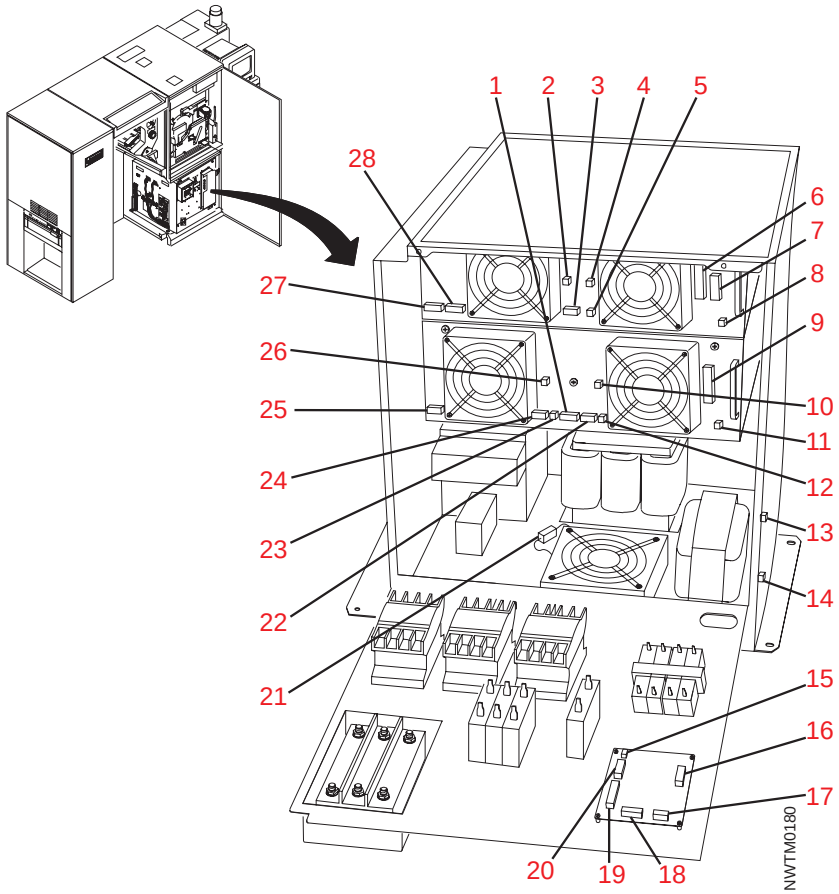
Table 465. Printer AC Power Supply (continued)



Part Name	Callout
Q103, EOF Sensor	1
RB101, Relay Board	5
TB501, Terminal Block	16
TB502, Terminal Block	15

Power Supply Connectors - 200 Volt

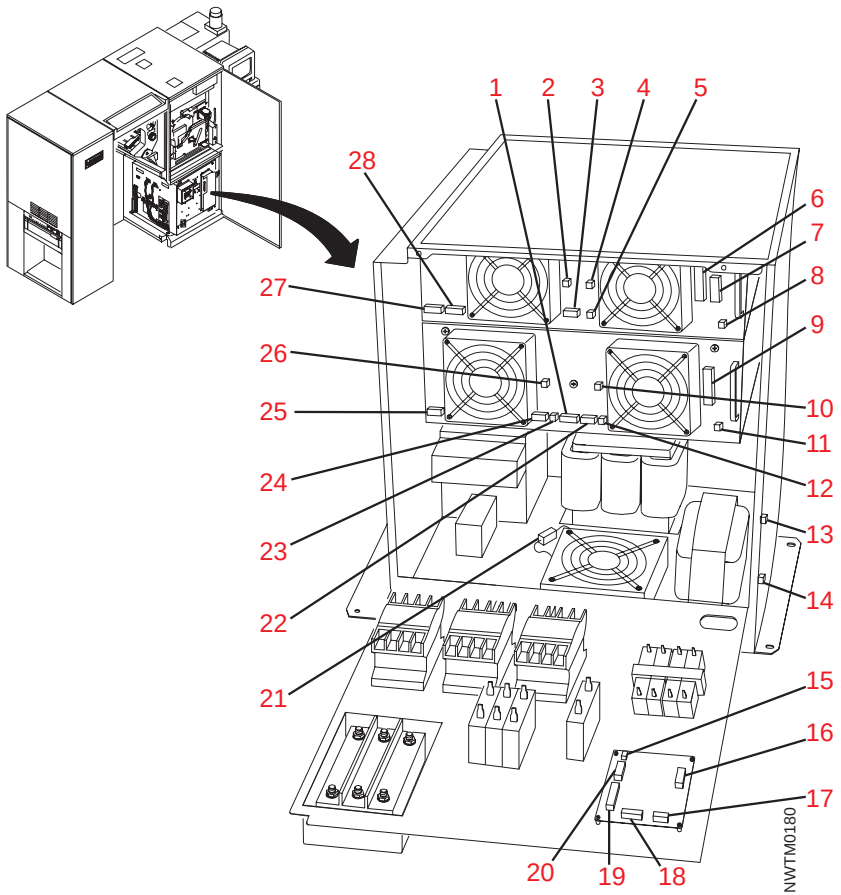
Table 466. 200 Volt Power Supply Connectors



Part Name	Callout
PJ504	13
PJ525	15
PJ526	16
PJ527	18
PJ528	17
PJ529	20
PJ530	19
PJ531	14
PJ551	7
PJ552	6
PJ553	9
PJ554	8
PJ555	11
PJ559	21
PJ561	3
PJ562	1

(continued on next page)

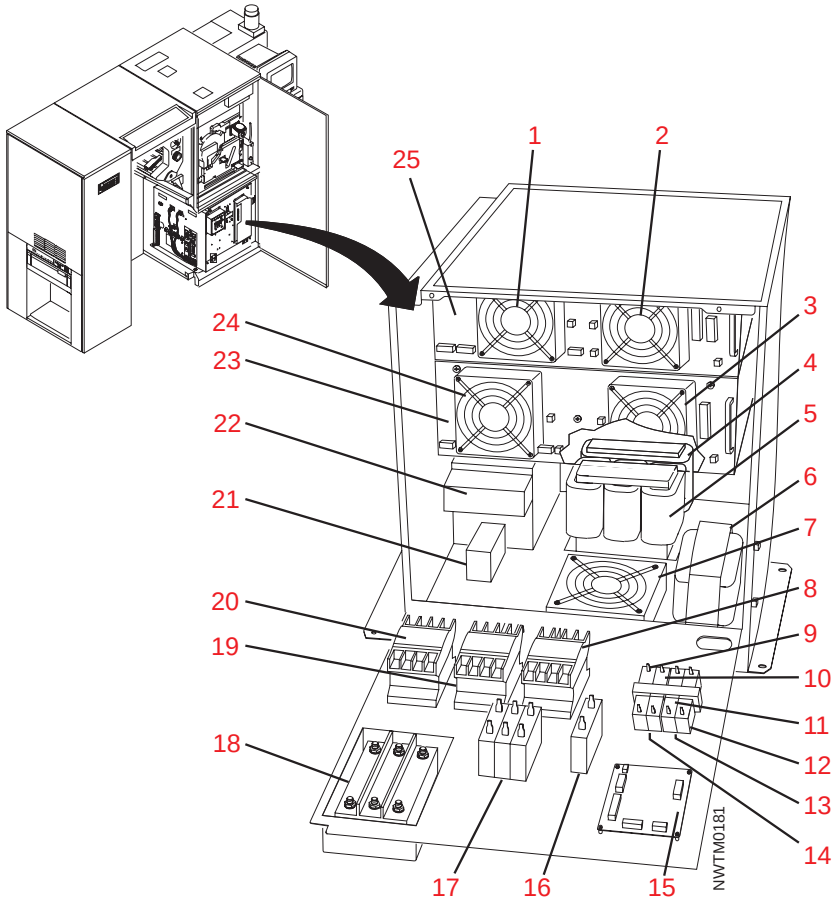
Table 466. 200 Volt Power Supply Connectors (continued)



Part Name	Callout
PJ563	5
PJ564	12
PJ571	23
PJ572	2
PJ573	4
PJ574	26
PJ575	10
PJ584	24
PJ585	22
PJ591	25
PJ593	27
PJ594	28

Power Supply Components - 200 Volt

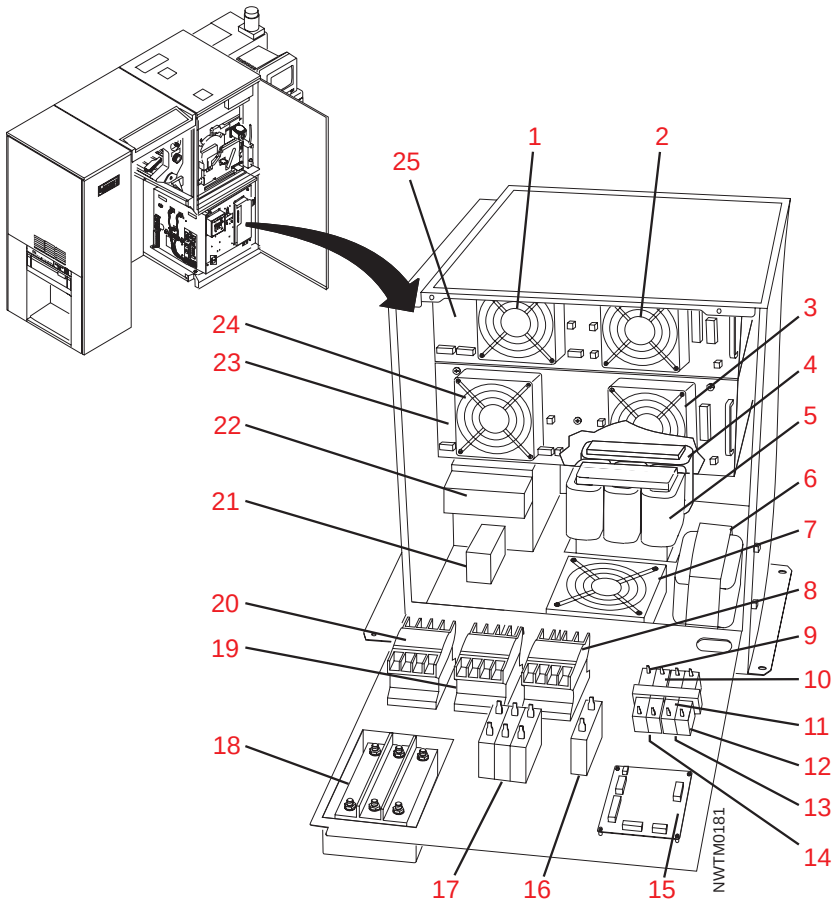
Table 467. 200 Volt Power Supply Components



Part Name	Callout
B501, AC Power Supply Cooling Fan	7
B502, DC 2 Power Supply Cooling Fan	1
B503, DC 2 Power Supply Cooling Fan	2
B504, DC 1 Power Supply Cooling Fan	24
B505, DC 1 Power Supply Cooling Fan	3
CB501 Circuit Breaker	18
CB503 Circuit Breaker	17
CB504 Circuit Breaker	16
DC 1 Power Supply	23
DC 2 Power Supply	25
K501, Relay	8
K502, Relay	20
K503, Relay	19
K505, Relay	21
NF501	22
R501, Resistor	12

(continued on next page)

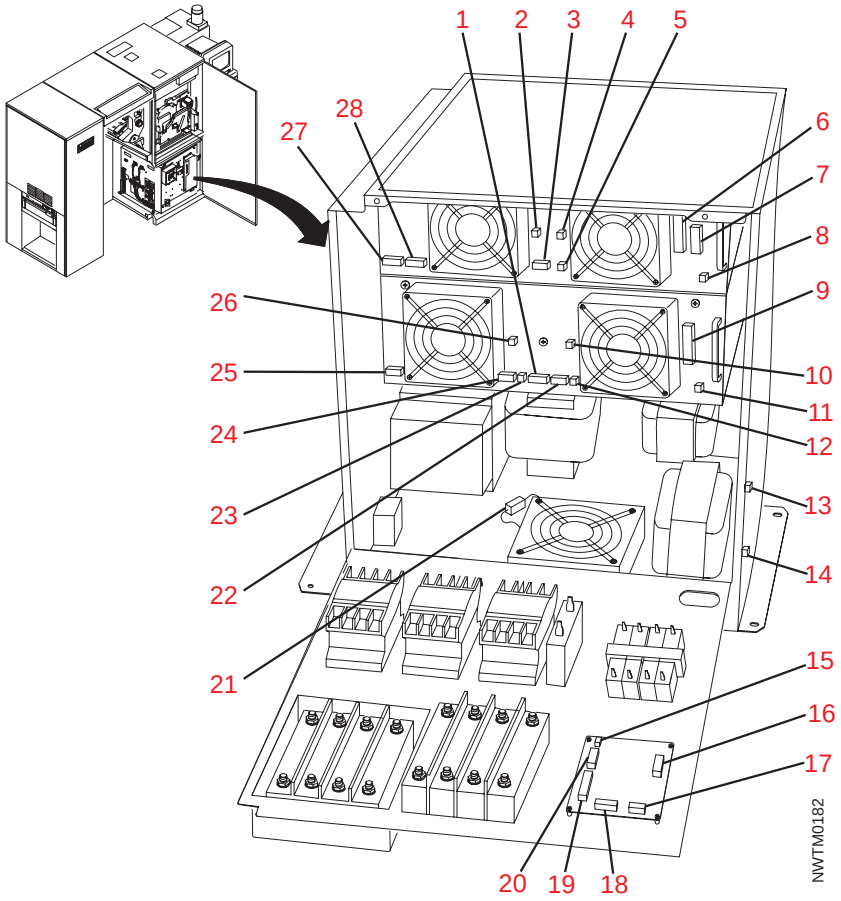
Table 467. 200 Volt Power Supply Components (continued)



Part Name	Callout
R502, Resistor	11
R503, Resistor	10
R507, Resistor	9
SR081, AC Power Supply Card	15
TH501, Thermal Switch	13
TH502, Thermal Switch	14
T501, Transformer	5
T502, Transformer	4
T503, Transformer	6

Power Supply Connectors - 400 Volt

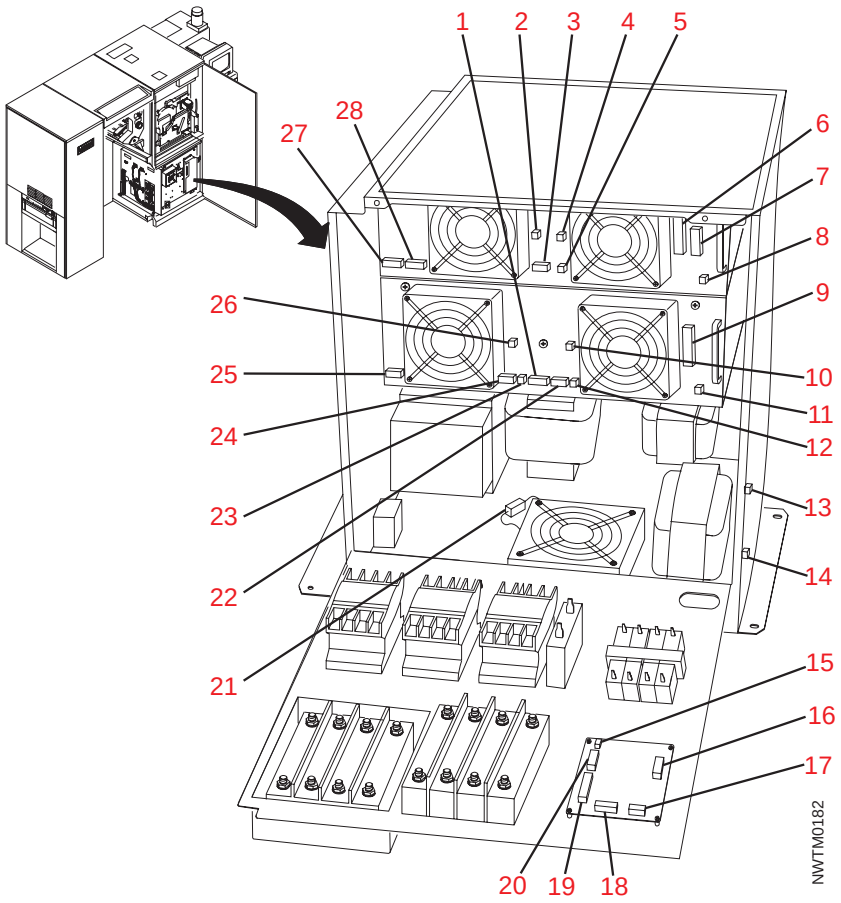
Table 468. 400 Volt Power Supply Connectors



Part Name	Callout
PJ504	13
PJ525	15
PJ526	16
PJ527	18
PJ528	17
PJ529	20
PJ530	19
PJ531	14
PJ551	7
PJ552	6
PJ553	9
PJ554	8
PJ555	11
PJ559	21
PJ561	3
PJ562	1

(continued on next page)

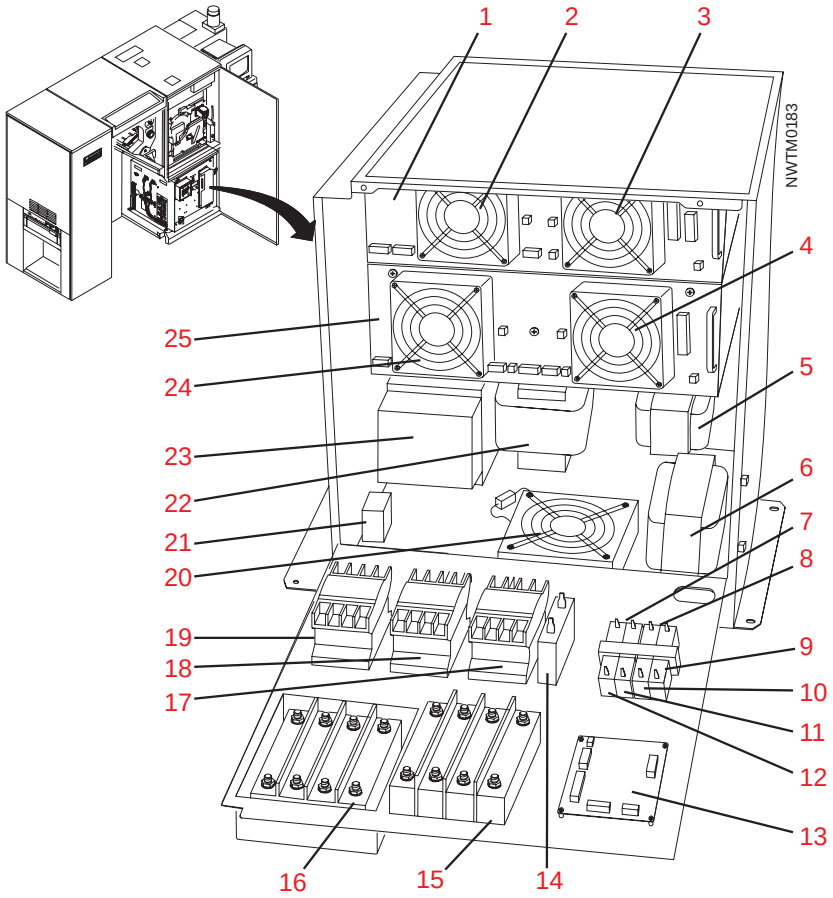
Table 468. 400 Volt Power Supply Connectors (continued)



Part Name	Callout
PJ563	5
PJ564	12
PJ571	23
PJ572	2
PJ573	4
PJ574	26
PJ575	10
PJ584	24
PJ585	22
PJ591	25
PJ593	27
PJ594	28

Power Supply Components - 400 Volt

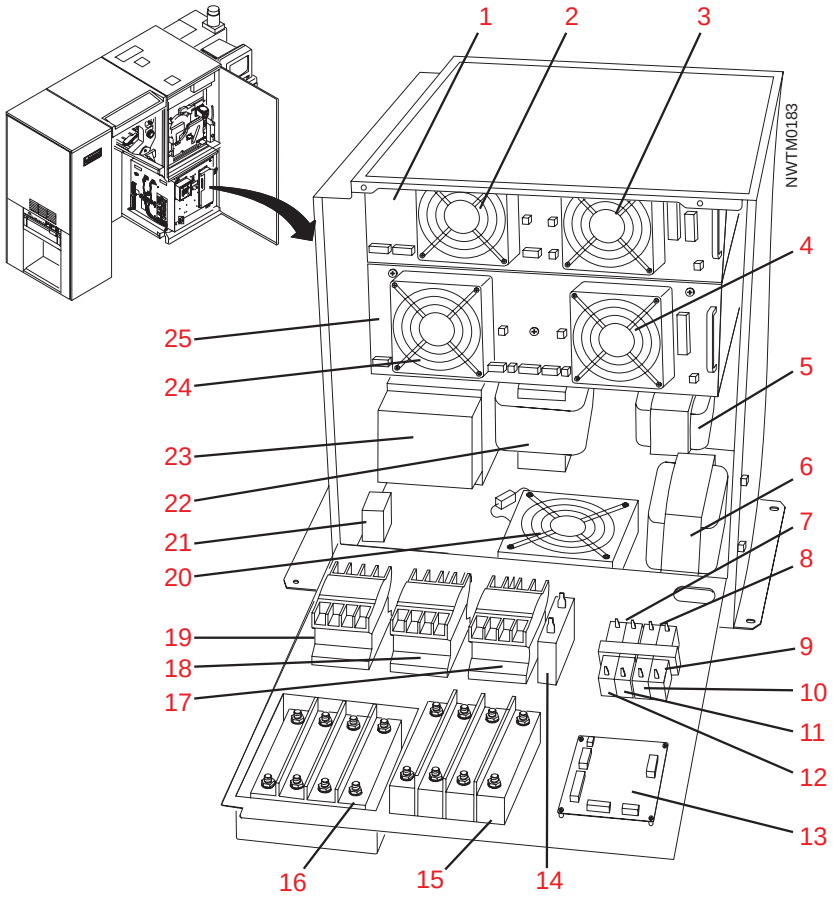
Table 469. 400 Volt Power Supply Components



Part Name	Callout
B501, AC Power Supply Cooling Fan	20
B502, DC 2 Power Supply Cooling Fan	2
B503, DC 2 Power Supply Cooling Fan	3
B504, DC 1 Power Supply Cooling Fan	24
B505, DC 1 Power Supply Cooling Fan	4
CB501 Circuit Breaker	16
CB503 Circuit Breaker	15
CB504 Circuit Breaker	14
DC 1 Power Supply	25
DC 2 Power Supply	1
K501, Relay	17
K502, Relay	19
K503, Relay	18
K505, Relay	21
NF501	23
R501, Resistor	9

(continued on next page)

Table 469. 400 Volt Power Supply Components (continued)



Part Name	Callout
R502, Resistor	10
R503, Resistor	11
R507, Resistor	12
SR081, AC Power Supply Card	13
TH501, Thermal Switch	8
TH502, Thermal Switch	7
T501, Transformer	22
T502, Transformer	5
T503, Transformer	6

Printhead Links

Table 470. Printhead Links (Single-Beam)

Part Name	Locations Link	Parts Link	Removals & Adjustments Link
Single Beam Printhead			
AM201, AO Modulator	2102	3263	2660
AM202, AOM Driver	2102	3271	2661
Aperture	2102	3265	2688
BD121, Beam Detect Card	2102	3269	2663
Beam Detect Mirror	2102	3265	2688
B201, Front Printhead Fan	2102	3271	2668
B202, Printhead Pressurizing Fan	2102	3267	2687
CYL 1, Cylindrical Lens	2102	3265	2665
C201, Capacitor	2102		
F-Theta Lens	2102	3267	2667
Interrupt Mirror	2102	3269	2688
Laser	2102	3269	2669
L1, Lens	2102	3265	2680
L2, Lens	2102	3263	2682
M1, Mirror 1	2102		2688
M2, Mirror 2	2102	3265	2688
M201, Mirror Motor	2102	3263	2684
MD141, Mirror Motor Driver Board	2055	3203	2685

Table 470. Printhead Links (Single-Beam) (continued)

Part Name	Locations Link	Parts Link	Removals & Adjustments Link
Return Mirror	2102	3267	2715
VI111, Printhead Interface Card	2102	3269	2686
Printhead Checks and Adjustments • Zero Beam Alignment - 2690 • Beam Pattern Check - 2696 • Aperture Adjustment - 2699 • M2 Mirror Check - 2700 • Beam Power Check - 2703 • Interrupt Mirror Check - 2711 • Beam Detect Mirror Check - 2713			2688
Print Sample Adjustments • Print Width - 2716 • Print Skew- 2719 • Registration - 2721 • PQE Stroke Width Adjustment - 2734			2715

Table 471. Printhead Links - Two-Beam 240 DPI

Part Name	Locations Link	Parts Link	Removals & Adjustments Link
Two Beam 240 Printhead			
AM201, AO Modulator	2106	3287	2753
AM202 and AM203, AOM Drivers	2106	3283	2755
Aperture	2106	3275	2787
BD132, Beam Detect Card	2106	3279	2759
Beam Detect Mirror	2106	3275	2787
B201, Front Printhead Fan	2106	3281	2765
B202, Printhead Pressurizing Fan	2106	3279	2784
CYL 1, Cylindrical Lens	2106	3277	2761
C201, Capacitor	2106		
C202, Capacitor	2106		
Dove Prism	2106	3275	
F-Theta Lens	2106	3277	2763
Filter, Laser Safety	2106		2743
Laser	2106	3279	2767
L1, Lens	2106	3277	2777
L2, Lens	2106	3287	2779
M1, Mirror 1	2106	3281	2787
M2, Mirror 2	2106	3275	2787
M201, Mirror Motor	2106	3275	2781
MD141, Mirror Motor Driver Board	2055	3203	2782

Table 471. Printhead Links - Two-Beam 240 DPI (continued)

Part Name	Locations Link	Parts Link	Removals & Adjustments Link
Return Mirror	2106	3277	2815
Shutter, Laser	2106	3279	2744
VI141, Printhead Interface Card	2106	3279	2783
Wollaston Prism	2106	3277	2785
Printhead Checks and Adjustments • Zero Beam Alignment - 2789 • Beam Pattern Check - 2796 • Aperture Adjustment - 2799 • M2 Mirror Check - 2800 • Beam Power Check - 2803 • Beam Detect Mirror Check - 2812			2787
Print Sample Adjustments • Print Width - 2816 • Print Skew- 2819 • Registration - 2821 • AOM Skew Adjustment - 2834 • PQE Stroke Width Adjustment - 2840			2815

Table 472. Printhead Links - Two-Beam 240/300 DPI

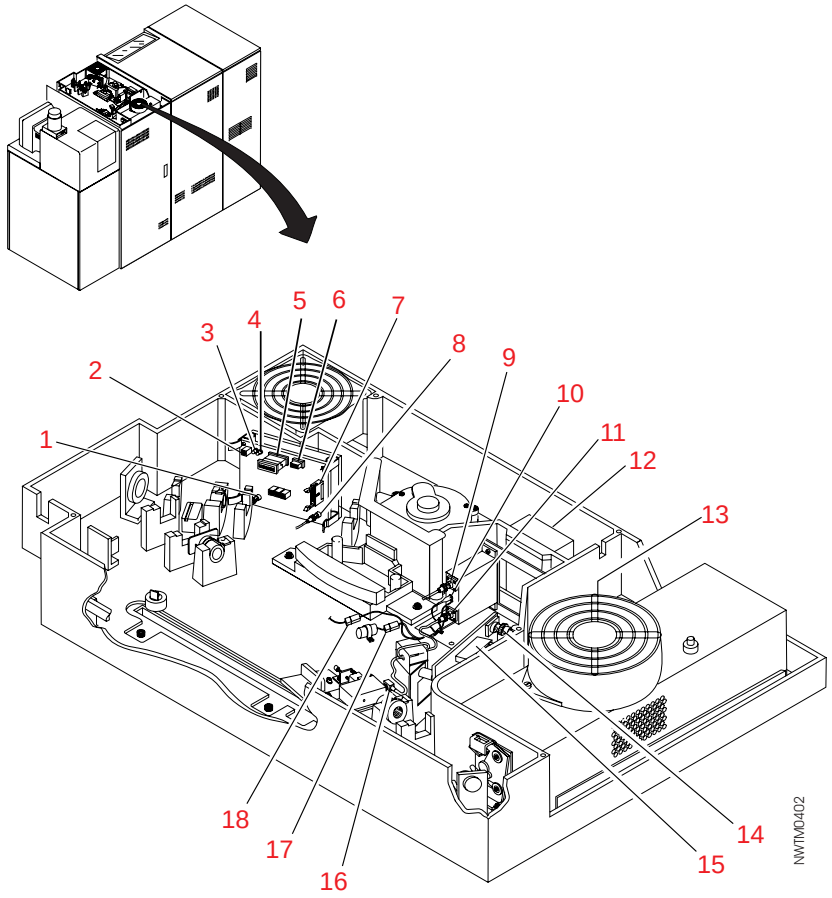
Part Name	Locations Link	Parts Link	Removals & Adjustments Link
Two Beam 240/300 Printhead			
AM201, AO Modulator	2110	3301	2861
AM202 and AM203, AOM Drivers	2110	3297	2863
Aperture	2110	3289	2899
BD131, Beam Detect Card	2110	3293	2867
Beam Detect Mirror	2110	3291	2899
B201, Front Printhead Fan	2110	3295	2873
B202, Printhead Pressurizing Fan	2110	3293	2892
CYL 1, Cylindrical Lens	2110	3291	2869
C201, Capacitor	2110		
C202, Capacitor	2110		
Dove Prism	2110	3289	
F-Theta Lens	2110	3291	2871
Filter, Laser Safety	2110		2850
Laser	2110	3293	2875
L1, Lens	2110	3291	2885
L2, Lens	2110	3301	2887
M1, Mirror 1	2110	3295	2899
M2, Mirror 2	2110	3289	2899
M201, Mirror Motor	2110	3289	2889
MD192, Mirror Motor Driver Board	2055	3203	2890

Table 472. Printhead Links - Two-Beam 240/300 DPI (continued)

Part Name	Locations Link	Parts Link	Removals & Adjustments Link
M202, Resolution Lens Motor	2110	3301	2893
Resolution Switching Lens	2110	3303	
Return Mirror	2110	3291	2926
S202, Resolution Lens Sensor	2110	3301	2895
Shutter, Laser	2110	3293	2852
VI141, Printhead Interface Card	2110	3293	2891
Wollaston Prism	2110	3291	2897
Printhead Checks and Adjustments • Zero Beam Alignment - 2901 • Beam Pattern Check - 2908 • Aperture Adjustment - 2911 • M2 Mirror Check - 2912 • Beam Power Check - 2914 • Beam Detect Mirror Check - 2923			2899
Print Sample Adjustments • Print Width - 2927 • Print Skew- 2930 • Registration - 2932 • AOM Skew Adjustment - 2945 • PQE Stroke Width Adjustment - 2949			2926

Printhead Connectors (Single-Beam)

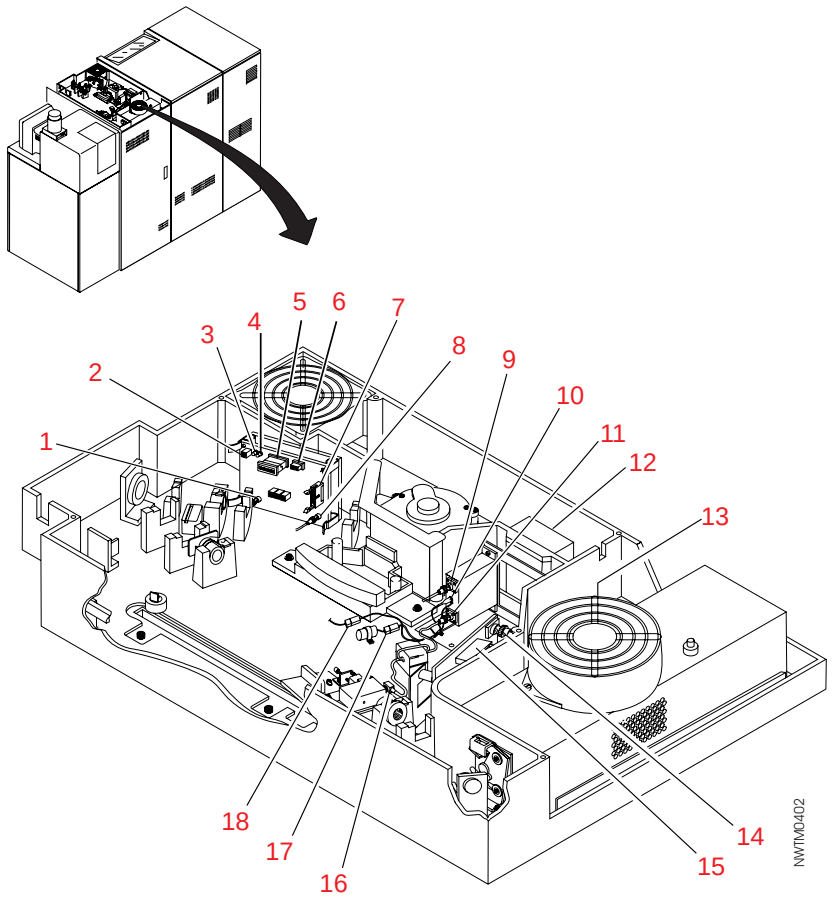
Table 473. Printhead Connectors (Single-Beam)



Part Name	Callout
R5, Switch	2
CR2, LED	3
CR1, LED	4
PJ206	8
PJ207	1
PJ208	5
PJ209 (not used)	6
PJ210	7
PJ211	14
PJ212	15

(continued on next page)

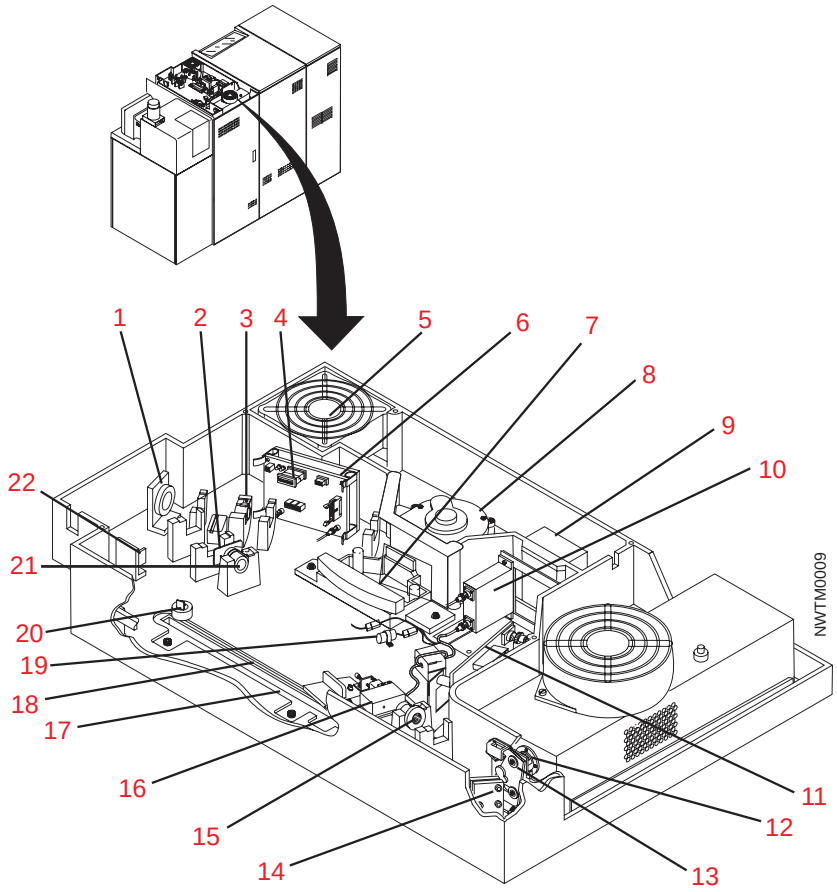
Table 473. Printhead Connectors (Single-Beam) (continued)



Part Name	Callout
PJ213	11
PJ214	9
+24 VD input (AM202)	10
PJ215	16
PJ216	18
PJ217	13
PJ219	13
PJ220	17
PJ222	12
PJ223	13

Printhead Components (Single-Beam)

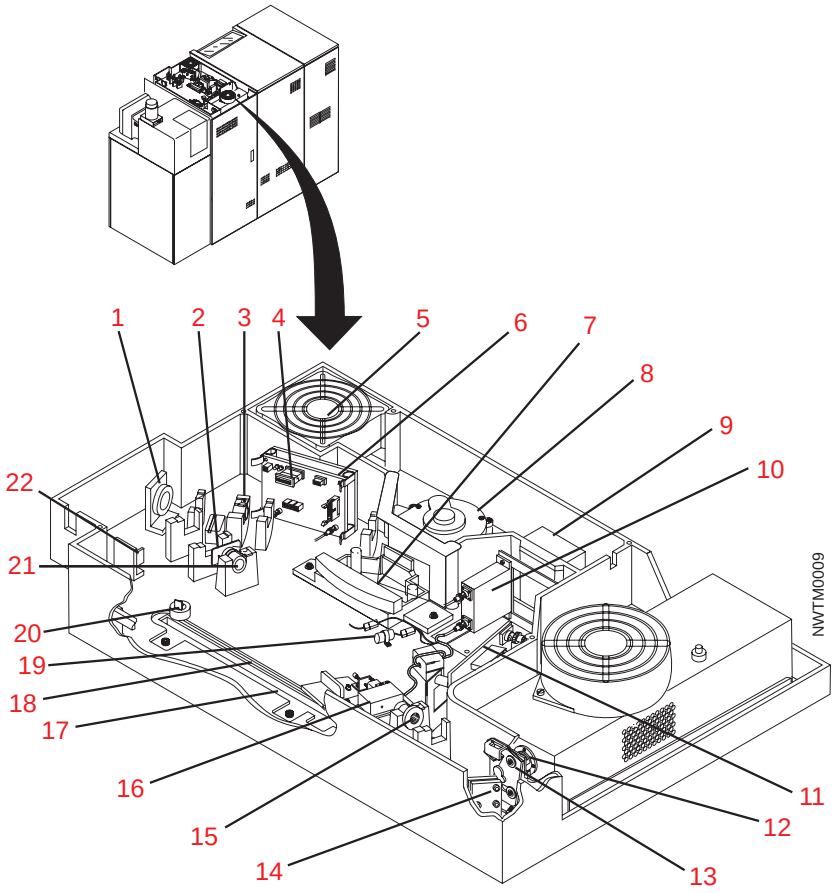
Table 474. Printhead Components (Single-Beam)



Part Name	Callout
Aperture	2
AM201, AO Modulator	16
AM202, AOM Driver	10
BD121, Beam Detect Card	11
Beam Detect Mirror	20
B201, Front Printhead Fan	5
B202, Printhead Pressurizing Fan	9
Cylinder Lens, CYL 1	3
C201, Capacitor	19
Exit Window	18
F-Theta Lens	7

(continued on next page)

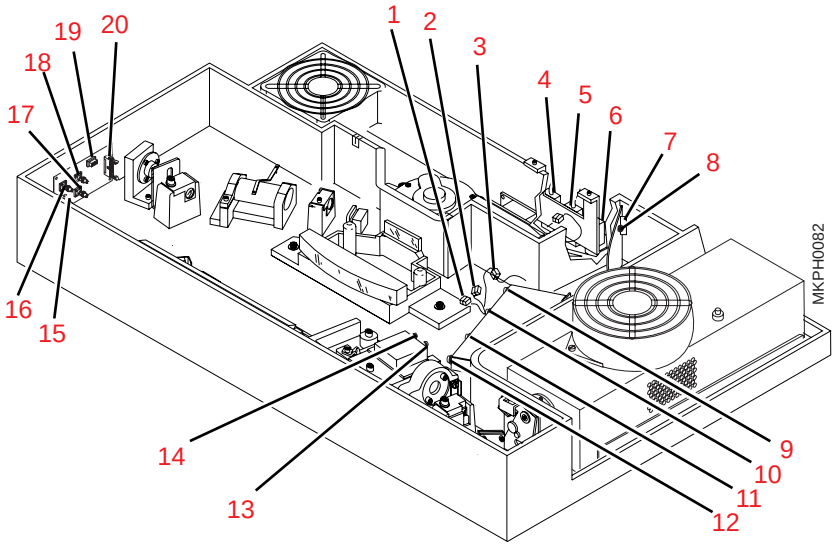
Table 474. Printhead Components (Single-Beam) (continued)



Part Name	Callout
Filter, Laser Safety	13
Interrupt Mirror	22
Laser	12
L1, Lens	21
L2, Lens	15
M1, Mirror 1	14
M2, Mirror 2	1
M201, Mirror Motor	8
Return Mirror	17
Shutter, Laser	12
VI111, Printhead Interface Card	6

Printhead Connectors (Two-Beam 240)

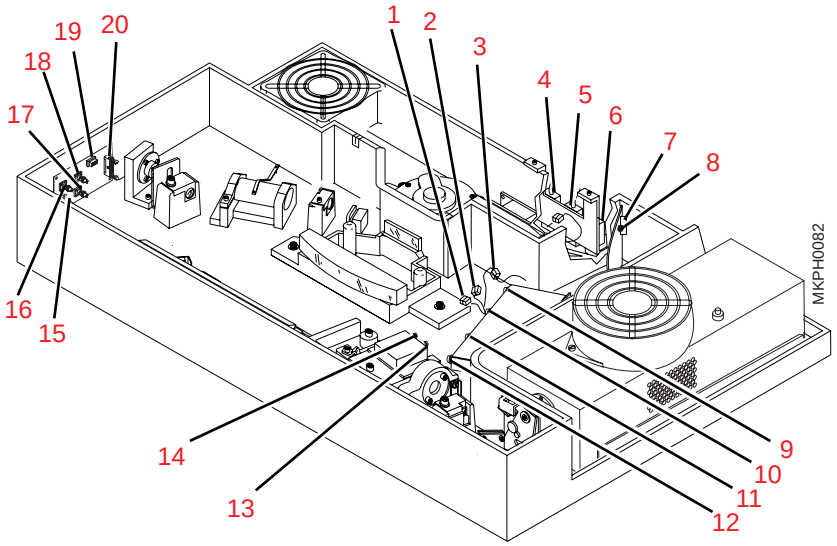
Table 475. Printhead Connectors (Two-Beam 240 DPI)



Part Name	Callout
CR1, LED	18
PJ206	17
PJ207	15
PJ208	19
PJ210	20
PJ211	8
PJ212	7
PJ213	9
PJ214	10
PJ215	14
J216	2
P216	2
J216A	2

(continued on next page)

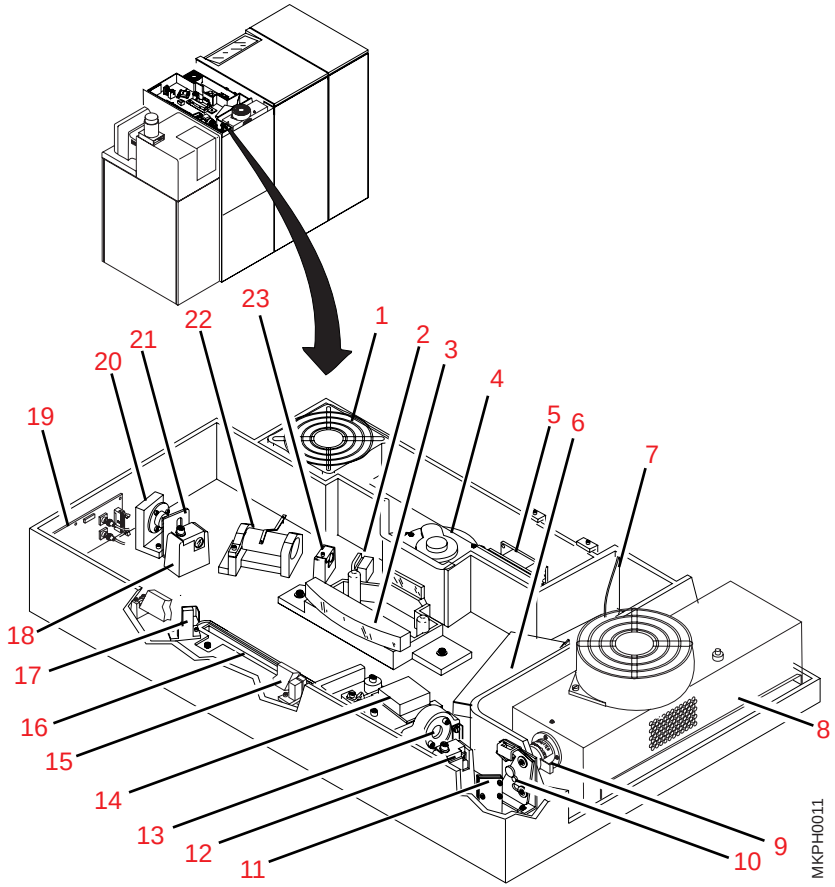
Table 475. Printhead Connectors (Two-Beam 240 DPI) (continued)



Part Name	Callout
P216A	2
PJ217	6
PJ217A	6
PJ219	4
PJ220	3
PJ223	5
PJ223A	5
PJ236	18
PJ237	16
PJ238	11
PJ239	12
PJ240	13
PJ241	1

Printhead Components (Two-Beam 240 DPI)

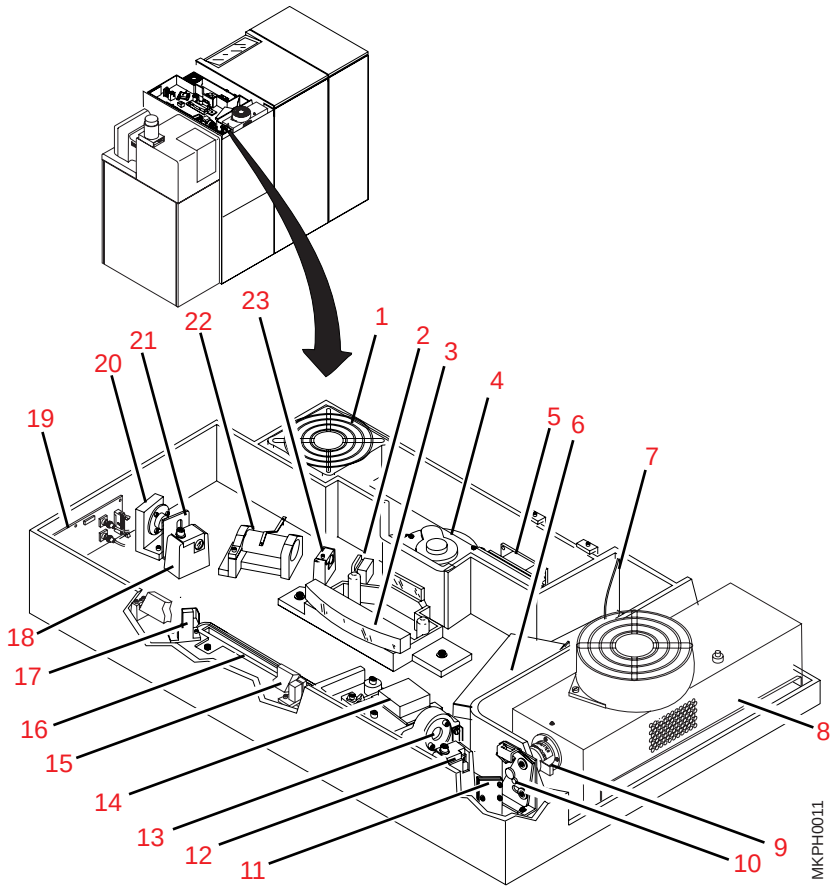
Table 476. Printhead Components (Two-Beam 240 DPI)



Part Name	Callout
AM202 and AM203, AOM Drivers	6
AM201, AO Modulator	14
Aperture	21
BD132, Beam Detect Card	7
Beam Detect Mirror	17
B201, Front Printhead Fan	1
B202, Printhead Pressurizing Fan	5
CYL 1, Cylinder Lens	23
C201, Capacitor	9
C202, Capacitor	9
Dove Prism	22
Exit Window	16
F-Theta Lens	3

(continued on next page)

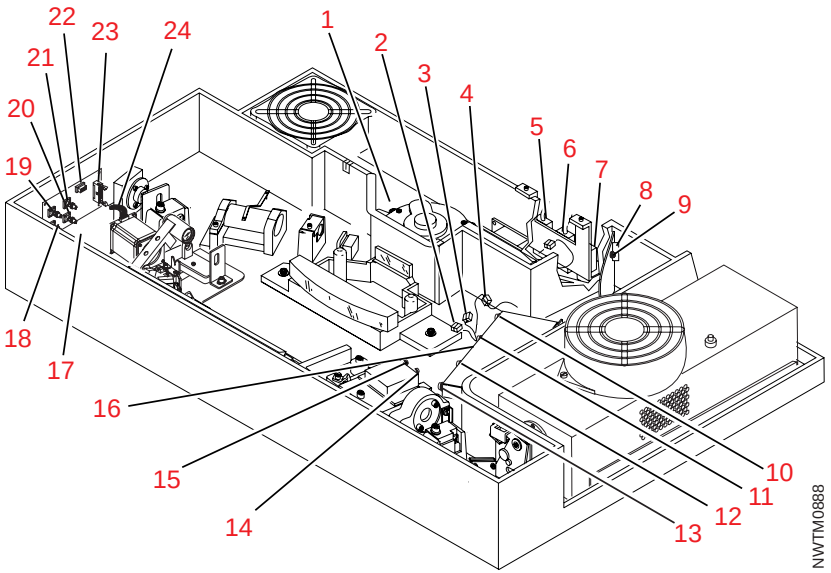
Table 476. Printhead Components (Two-Beam 240 DPI) (continued)



Part Name	Callout
Filter, Laser Safety	10
Laser	8
L1, Lens	18
L2, Lens	13
M1, Mirror 1	11
M2, Mirror 2	20
M201, Mirror Motor	4
Power Tool Pedestal	2
Return Mirror	15
Shutter, Laser	9
VI141, Printhead Interface Card	19
Wollaston Prism	12

Printhead Connectors (Two-Beam 240/300 DPI)

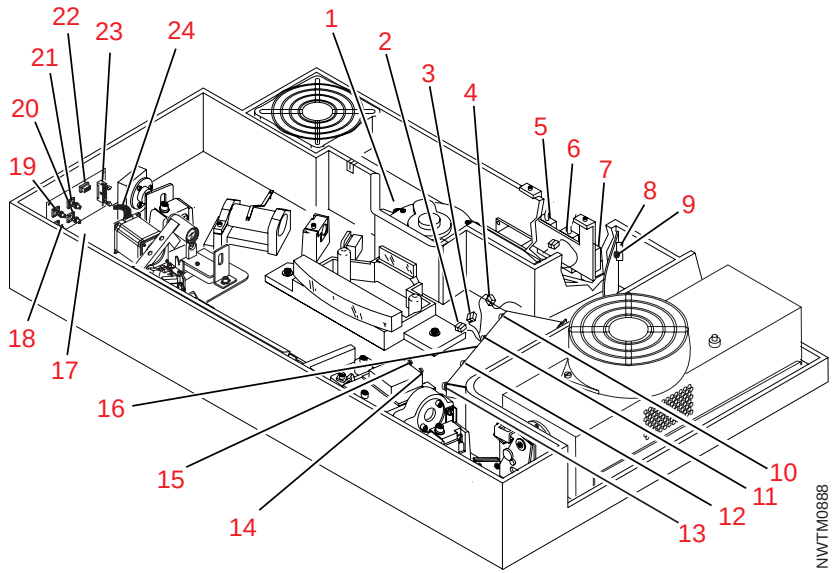
Table 477. Printhead Connectors (Two-Beam 240/300 DPI)



Part Name	Callout
PJ206	20
PJ207	18
J208	22
P208	1
PJ210	23
PJ211	9
PJ212	8
PJ213	10
PJ214	11
PJ215	15
J216	3
P216	3

(continued on next page)

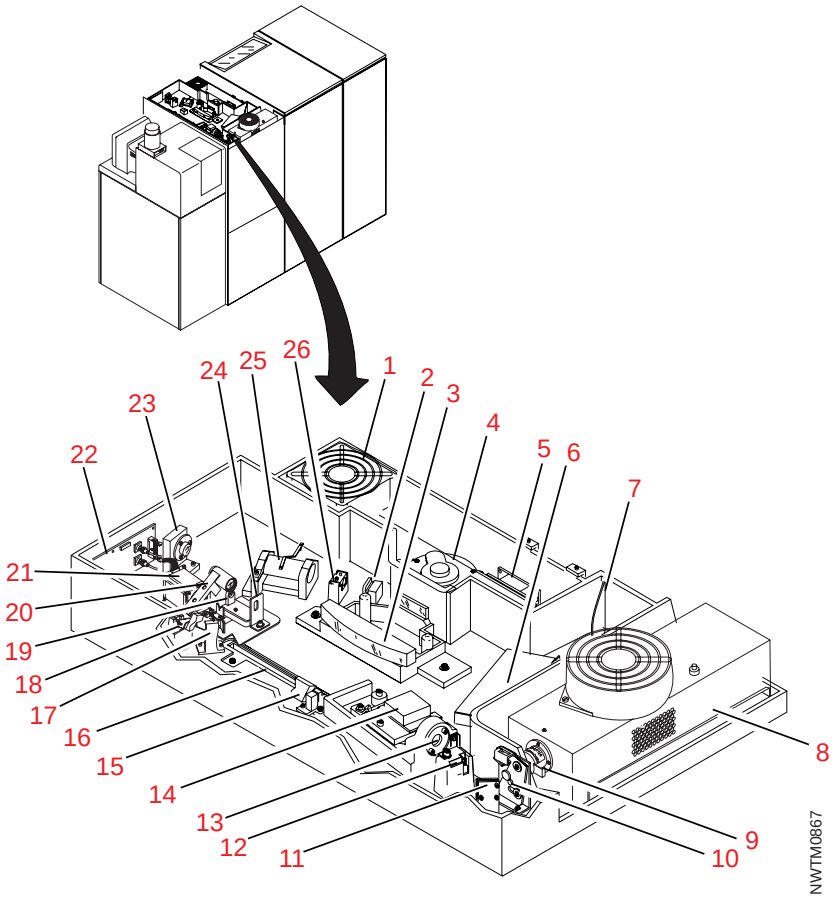
Table 477. Printhead Connectors (Two-Beam 240/300 DPI) (continued)



Part Name	Callout
J216A	3
P216A	3
PJ217	7
PJ217A	7
PJ219	5
PJ220	4
PJ223	6
PJ223A	6
PJ236	21
PJ237	19
PJ238	12
PJ239	13
PJ240	14
PJ241	2
PJ242	16
PJ258	17
PJ259	24
PJ260	17

Printhead Components (Two-Beam 240/300 DPI)

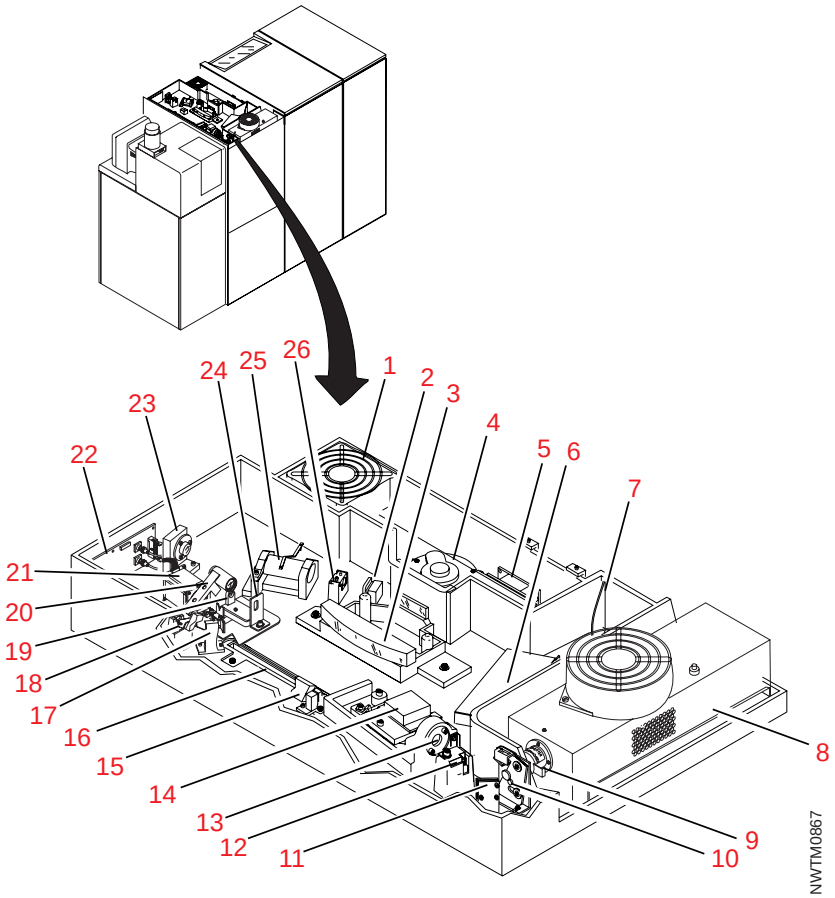
Table 478. Printhead Components (Two-Beam 240/300 DPI)



Part Name	Callout
CR1/CR2 LED	22
AM202 and AM203, AOM Drivers	6
AM201, AO Modulator	14
Aperture	24
BD131, Beam Detect Card	7
Beam Detect Mirror	17
B201, Front Printhead Fan	1
B202, Printhead Pressurizing Fan	5
CYL 1, Cylinder Lens	26
C201, Capacitor	9
C202, Capacitor	9
Dove Prism	25
Exit Window	16
F-Theta Lens	3
Filter, Laser Safety	10
Laser	8
L1, Lens	19

(continued on next page)

Table 478. Printhead Components (Two-Beam 240/300 DPI) (continued)



Part Name	Callout
L2, Lens	13
M1, Mirror 1	11
M2, Mirror 2	23
M201, Mirror Motor	4
M202, Resolution Lens Motor	21
Power Tool Pedestal	2
Resolution Switching Lens	20
Return Mirror	15
S202, Resolution Lens Sensor	18
Shutter, Laser	9
VI141, Printhead Interface Card	22
Wollaston Prism	12

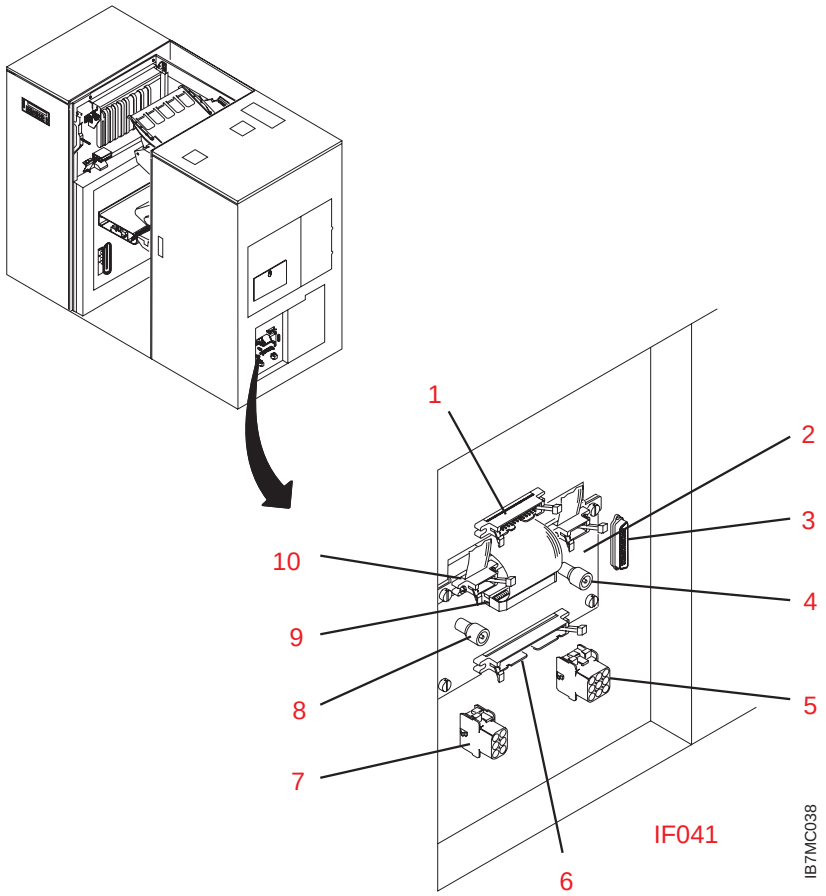
Printer Interface Links

Table 479. Printer Interface links

Printer Interface Card	Where Used	Locations Link	Parts Link
IF041	Single Beam Printhead	2113	3201
IF411	Two Beam 240 Printhead	2114	3201
IF421	Two Beam 240/300 Printhead Four Beam Printhead	2115	3201

Printer Interface - IF041

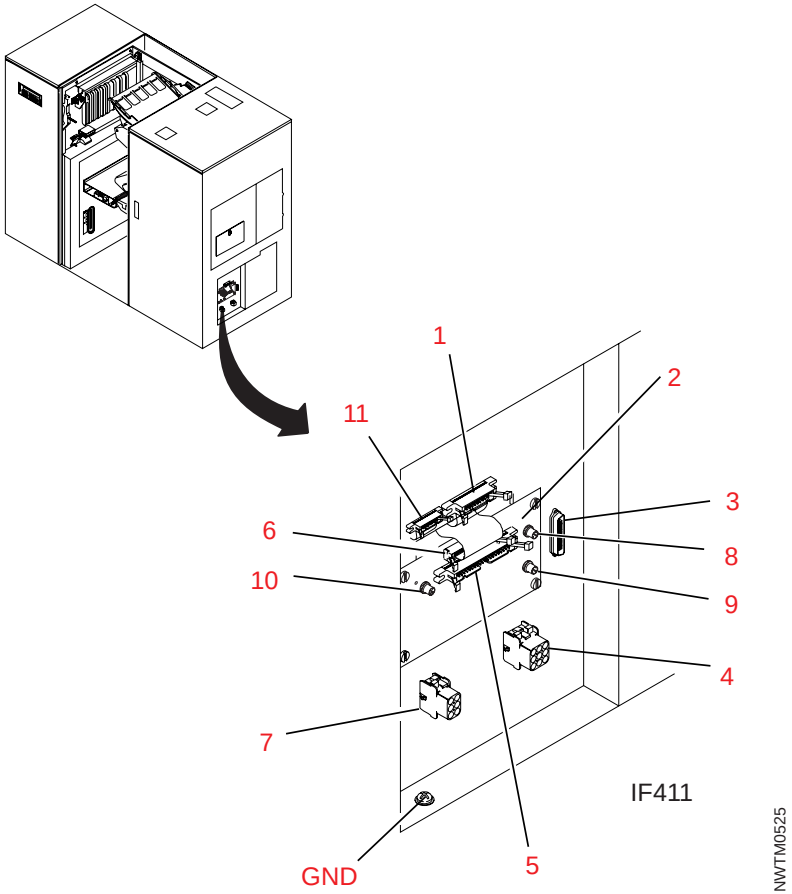
Table 480. Printer Interface (Single Beam Printhead)



Part Name	Callout
IF041, Printer Interface Card (single beam)	2
PJ201	9
PJ202	6
PJ203	8
PJ204	4
PJ205	5
PJ227	7
PJ229	3
PJ232	11
PJ233S2 (if Side 1/Side 2 Verification is installed)	1
PJ1018 (if Enhanced Toner Loading System is installed) (Sometimes labeled PJ251)	10

Printer Interface - IF411

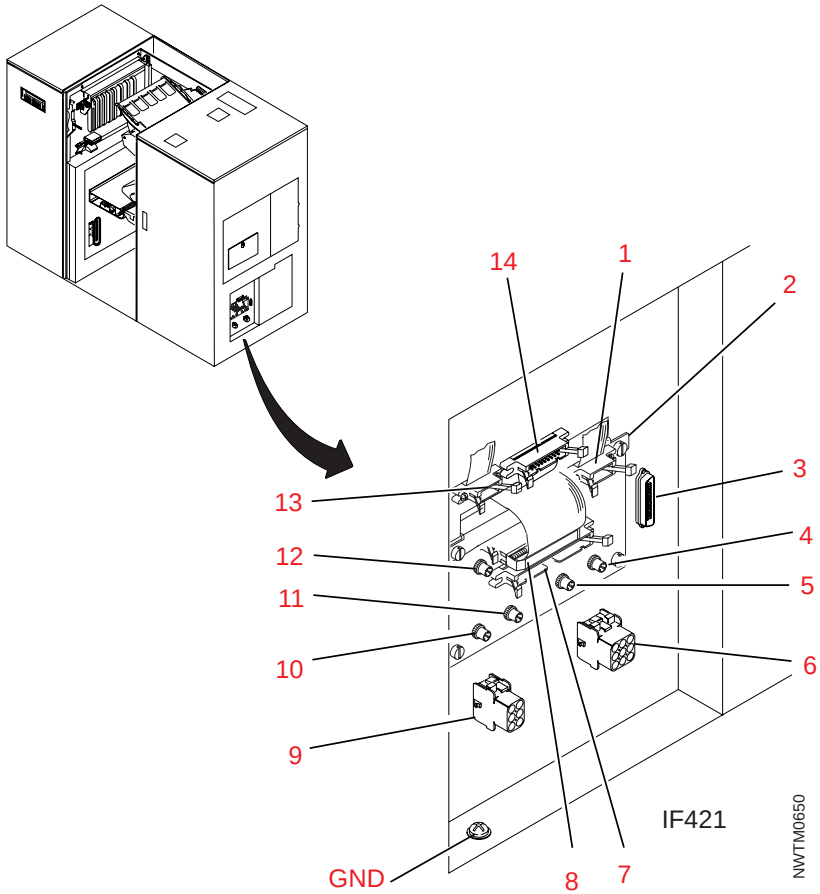
Table 481. Printer Interface IF411



Part Name	Callout
IF411, Printer Interface Card (two-beam 240)	2
PJ201	10
PJ202	7
PJ203	9
PJ204	4
PJ205	6
PJ205A	6
PJ227	8
PJ229	3
PJ232	1
PJ233	5
PJ1018 (if Enhanced Toner Loading System is installed) (Sometimes labeled PJ251)	11

Printer Interface - IF421

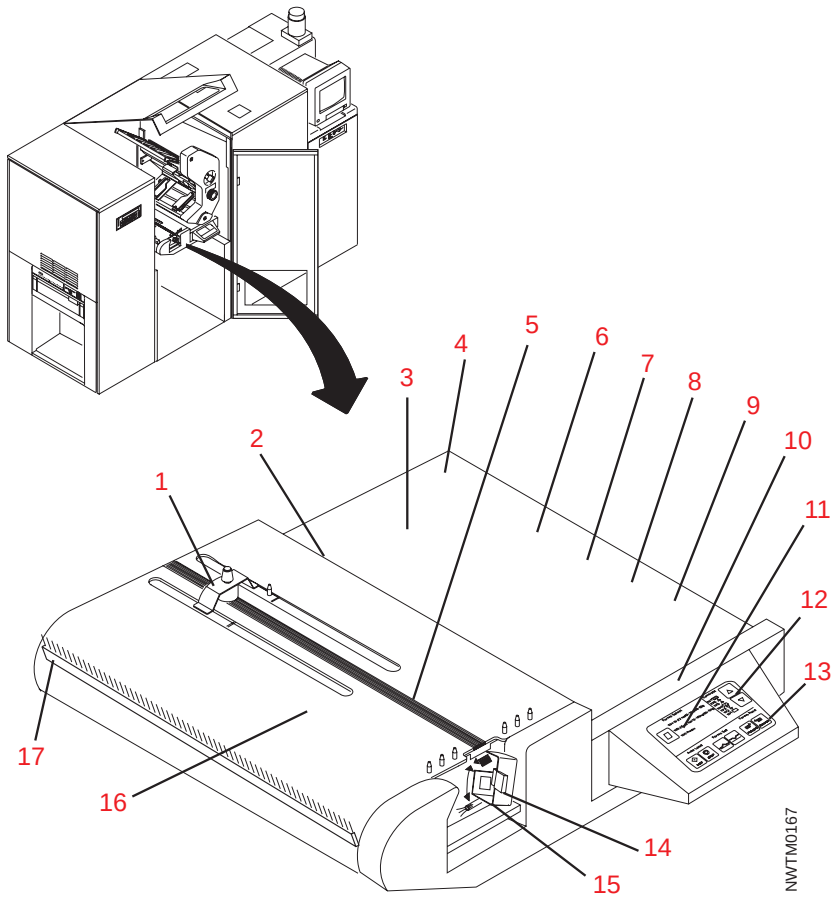
Table 482. Printer Interface - IF421



Part Name	Callout
IF421, Printer Interface Card	2
PJ201	8
PJ202	7
PJ203	12
PJ204	10
PJ205	6
PJ205A	6
PJ227	9
PJ229	3
PJ232	14
PJ233	11
PJ233S2 (if Side 1/Side 2 Verification is installed)	1
PJ234	5
PJ235	4
PJ251 (Sometimes labeled PJ1018)	13

Splicing Station

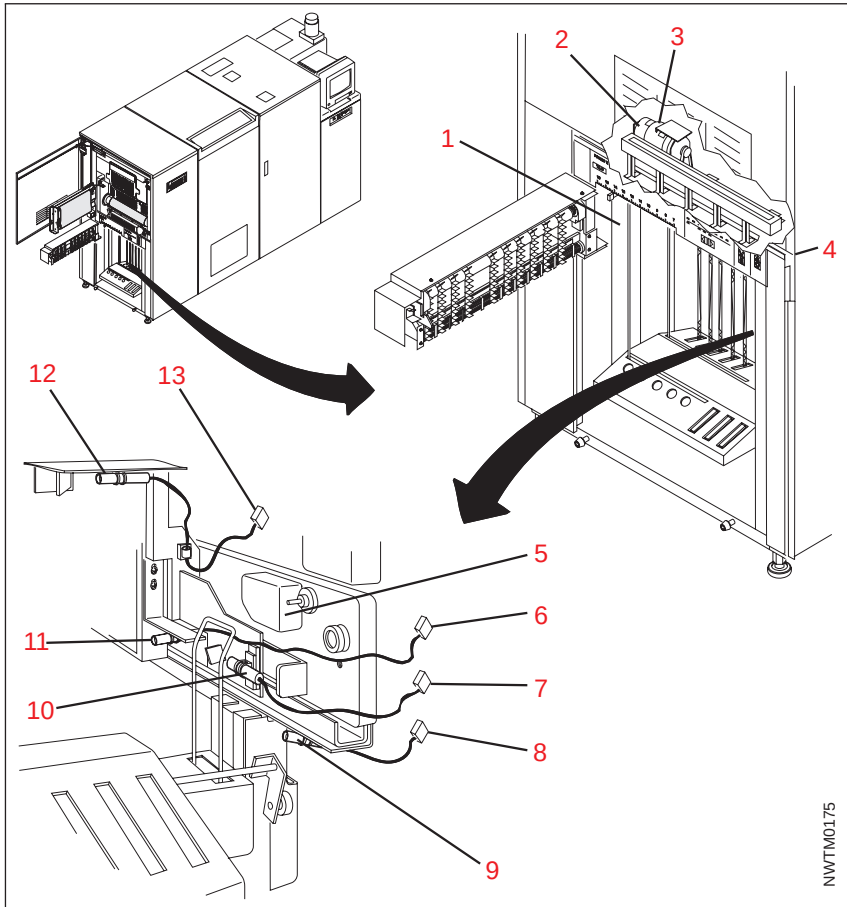
Table 483. Splicing Station



Part Name	Callout
Brush, Chad	17
Contrast Control	12
Forms Select Switch	11
Lever, Splice	14
Pins, Moveable Guide	1
PJ125	10
PJ138	8
PJ141	9
PJ1000	7
PJ1001	4
PJ1002	6
PJ1010	10
Slot, Tape	5
SW721, Printer Control Panel	13
S101, Splice Lever Switch	15
Table, Splicing	16
YS011 Card (access from bottom) (see page 2144)	3

Stacker (1)

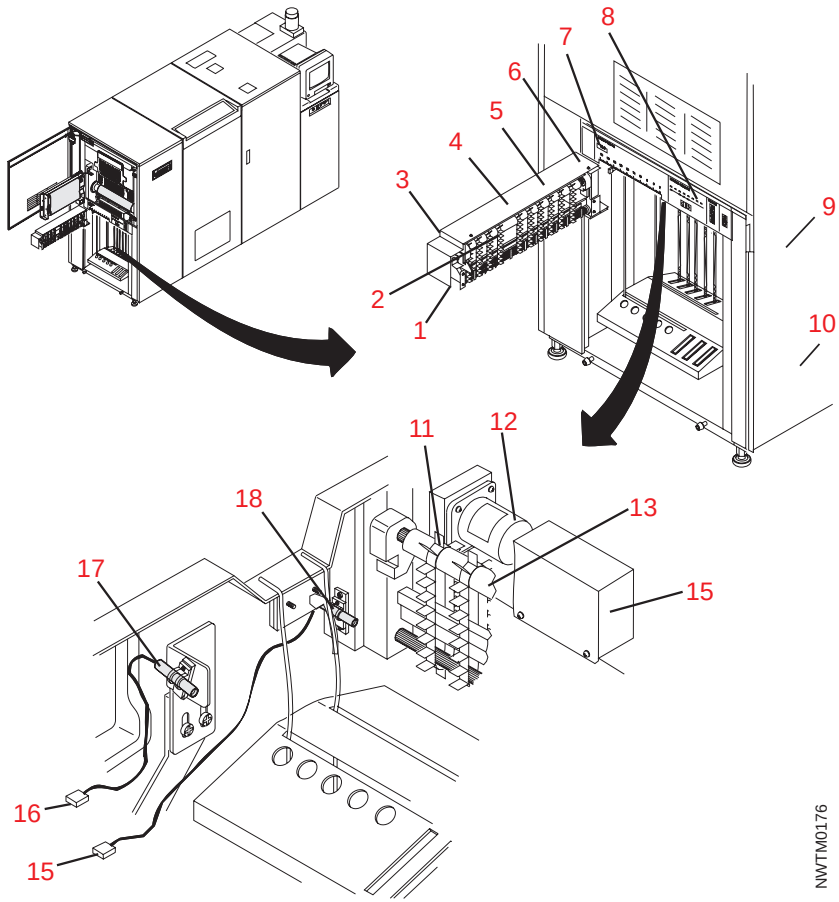
Table 484. Stacker (1)



Part Name	Callout
M704, Pendulum Motor	3
PJ702	7
PJ711	13
PJ730	8
PJ731	6
PJ752	3
PL701, Stacker Jam LED	12
Q701, Stacker Jam Sensor	10
Q702, Right Stacker Height Sensor	11
Q703, Left Stacker Height Sensor	9
S619, Pendulum Position Sensor	2
S712, Stacker Gate Open Switch	5

Stacker (2)

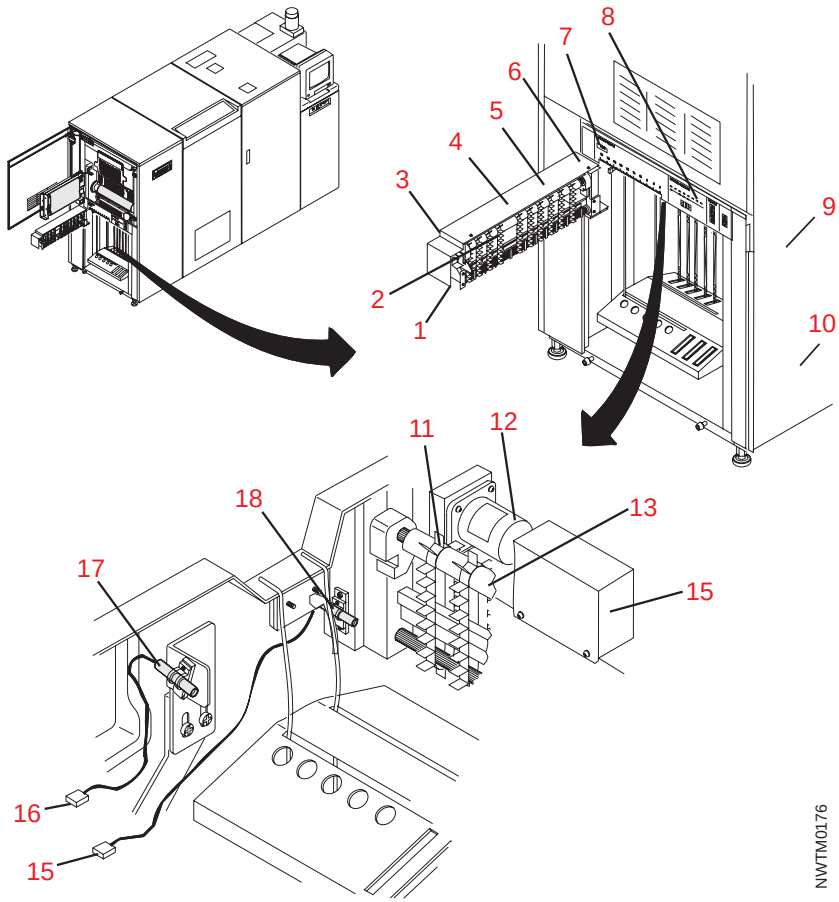
Table 485. Stacker (2)



Part Name	Callout
C702 Capacitor	4
C703 Capacitor	14
LD091, Forms Width Display	7
Left Finger Belts	2
M701, Left Finger Belt Motor	5
M702, Right Finger Belt Motor	12
PJ605	7
PJ715	4
PJ717	13
PJ728	8
PJ732	16
PJ733	15
PJ737	6
PL702, Right Stacker Height LED	18
PL703, Left Stacker Height LED	17
Right Finger Belts	11

(continued on next page)

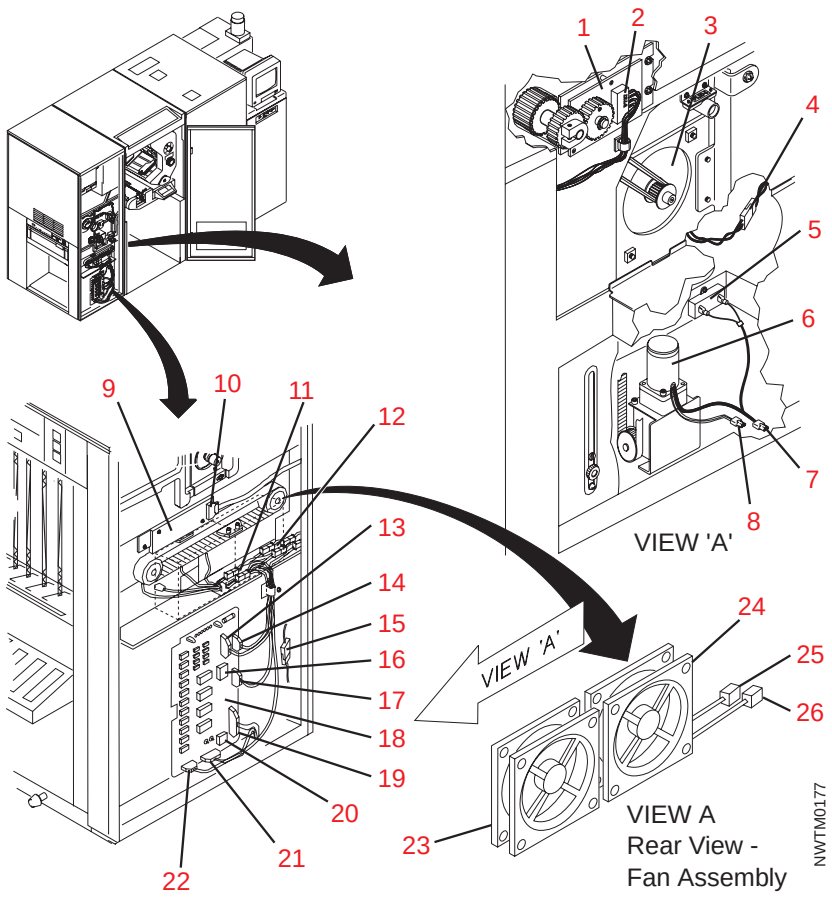
Table 485. Stacker (2) (continued)



Part Name	Callout
Stacker Gate	3
SW511, Stacker Control Panel	8
S701, Stacker Table Lower Limit Switch	10
S704, Stacker Table Upper Limit Switch	9
S713, Stacker Gate Safety Switch 1	1
S714, Stacker Gate Safety Switch 2	6

Stacker Control

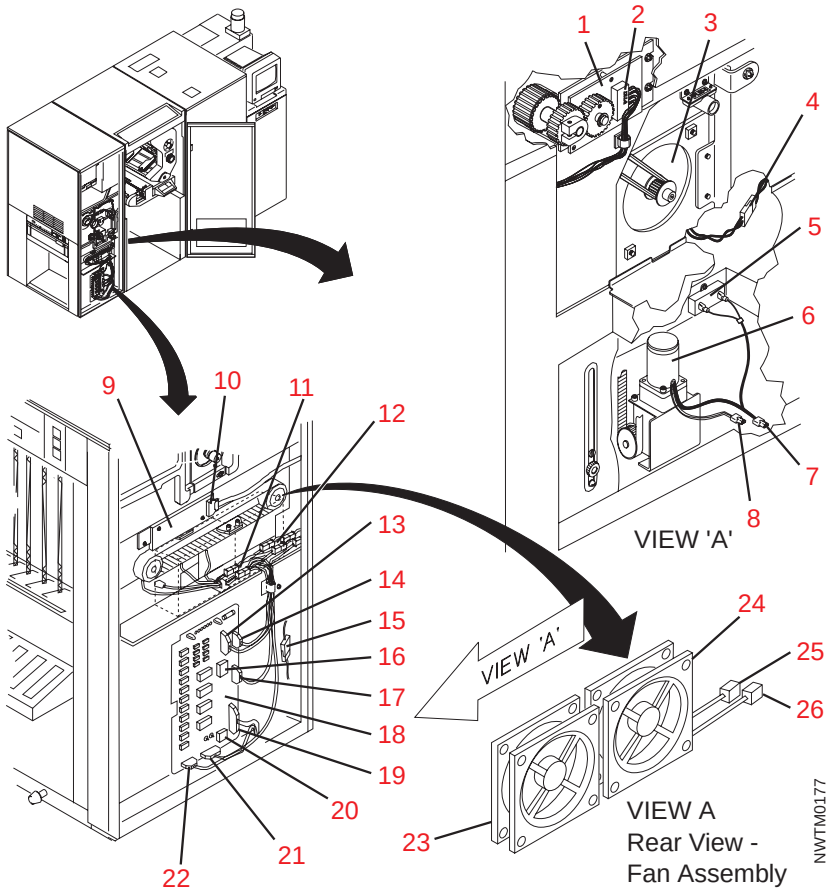
Table 486. Stacker Control



Part Name	Callout
B704, Stacker Cooling Fan	23
B705, Stacker Cooling Fan	24
C803, Capacitor	5
CB2, Circuit Breaker	20
EPROM 0517, SC061	16
FL061, Forms Length Sensor Board	9
FL041, Stacker Length Rotary Board	1
M707, Stacker Length Drive Motor	3
M803, Stacker Table Motor	6
PJ154	13
PJ157	17
PJ183	14
PJ702	12
PJ703	12
PJ705	15
PJ711	11

(continued on next page)

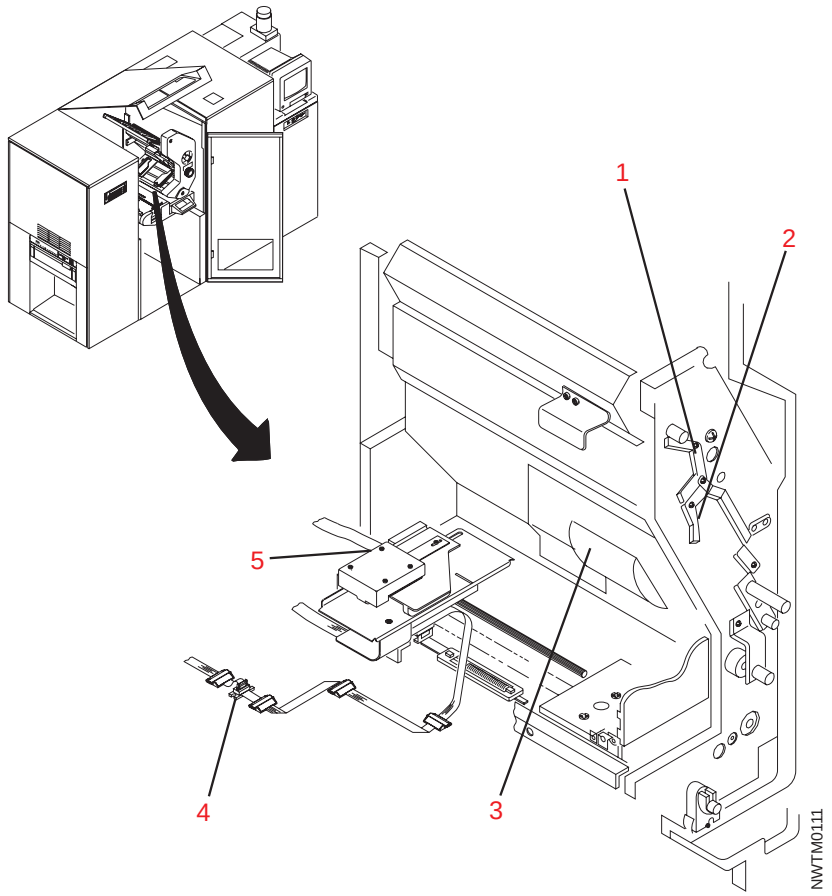
Table 486. Stacker Control (continued)



Part Name	Callout
PJ727	2
PJ730	12
PJ731	12
PJ734	11
PJ742	4
PJ749	19
PJ750	21
PJ750A	21
PJ751	22
PJ755	25
PJ756	26
PJ803	7
PJ804	8
PJ830	10
SCxxx, Stacker Control Card (see page 2140)	18

Transfer Station - Lower

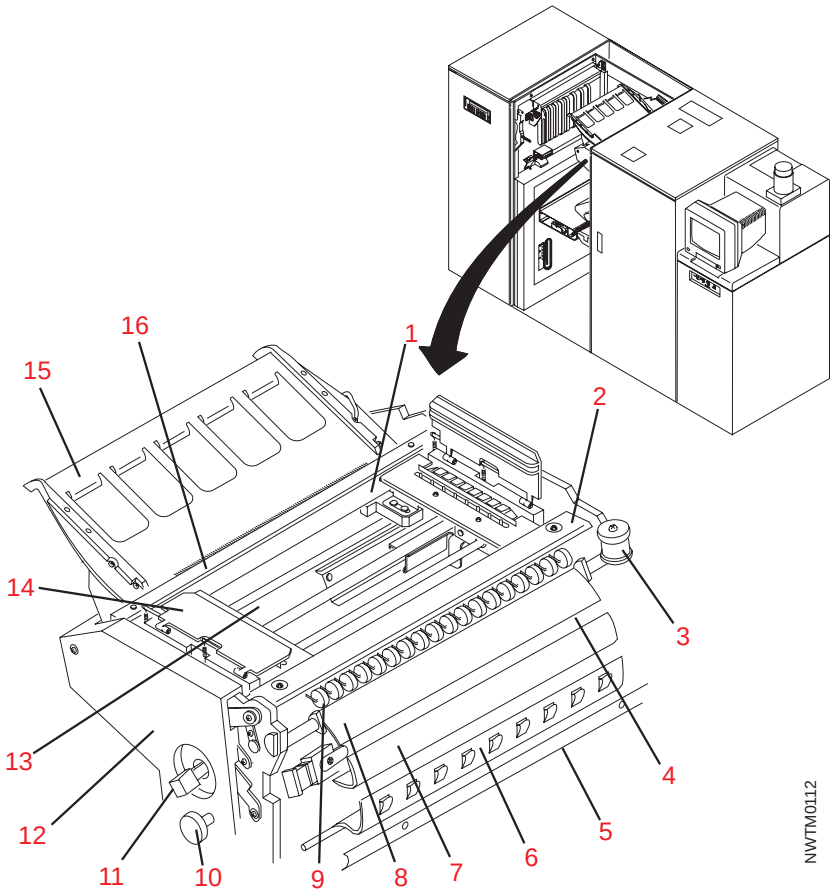
Table 487. Transfer Station - Lower



Part Name	Callout
Auto Load Linkage	1
M304, Retractor Motor	3
PJ322S2, (if Side 1/Side 2 Verification Feature is installed)	4
PJ324S2, (if Side 1/Side 2 Verification Feature is installed)	5
Side 1/Side 2 Verification Sensor Card (if Side 1/Side 2 Verification Feature is installed)	5
S301, Capstan Pinch Roll Open Switch	2

Transfer Station - Upper, Front

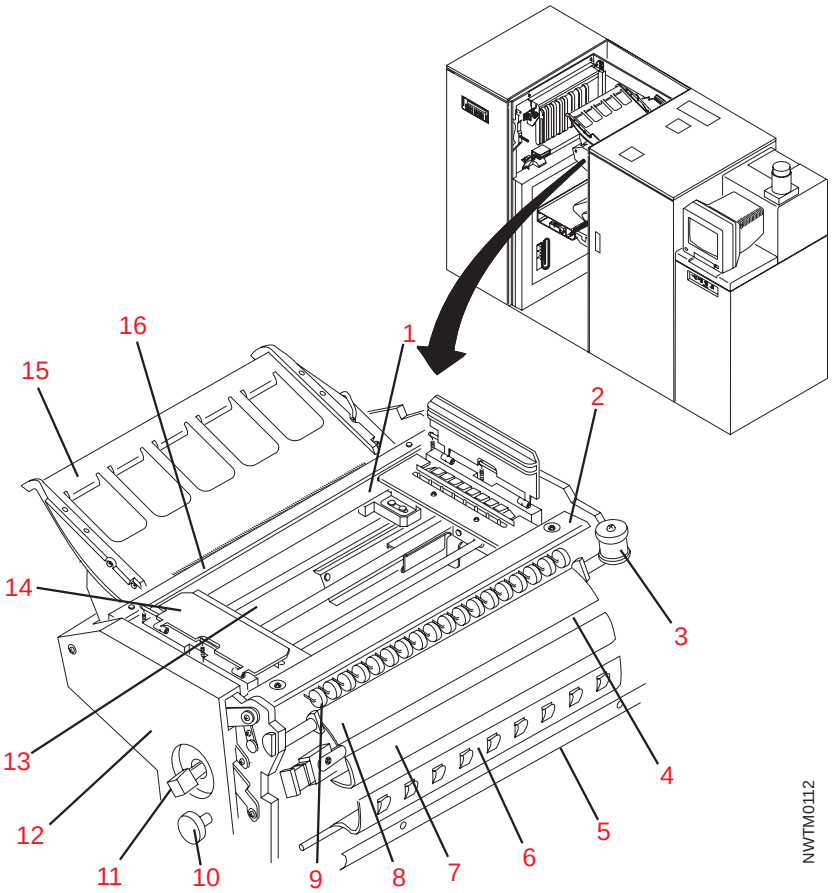
Table 488. Transfer Station - Upper, Front



Part Name	Callout
Capstan Pinch Roll	9
Capstan Pinch Roll Cover	2
Guide, Lower Forms	5
Path Modifier	6
PJ301	16
PJ302	16
PJ303	16
PJ304	16
PJ305	1
PJ306	1
PJ307	1
PJ309	13
PJ313	13
PW091, Forms Width Sensor Board (see page 2139)	1
Q301, Upper Tractor Jam Sensor	14
S301, Capstan Pinch Roll Open Switch	12

(continued on next page)

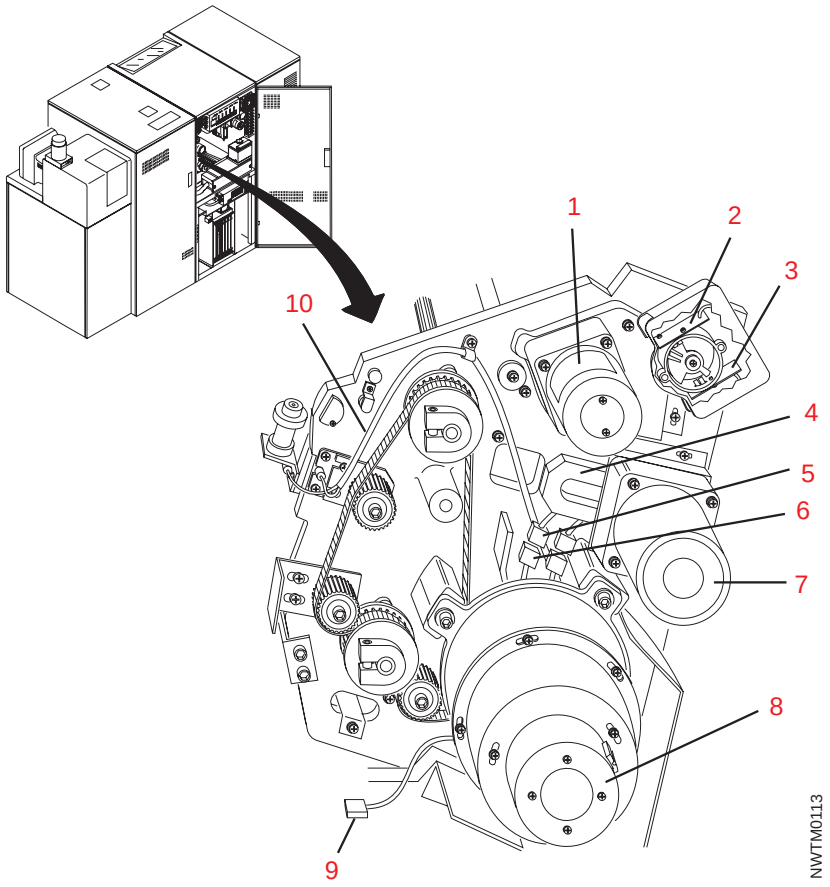
Table 488. Transfer Station - Upper, Front (continued)



Part Name	Callout
Tension Arm	15
Tractor Control Knob	10
Transfer Corona	4
Transfer Corona Shield Reel	3
Transfer Station Open/Close Lever	11
Retractor, Lower	7
Retractor, Upper	8

Transfer Station - Upper, Rear

Table 489. Transfer Station - Upper, Rear

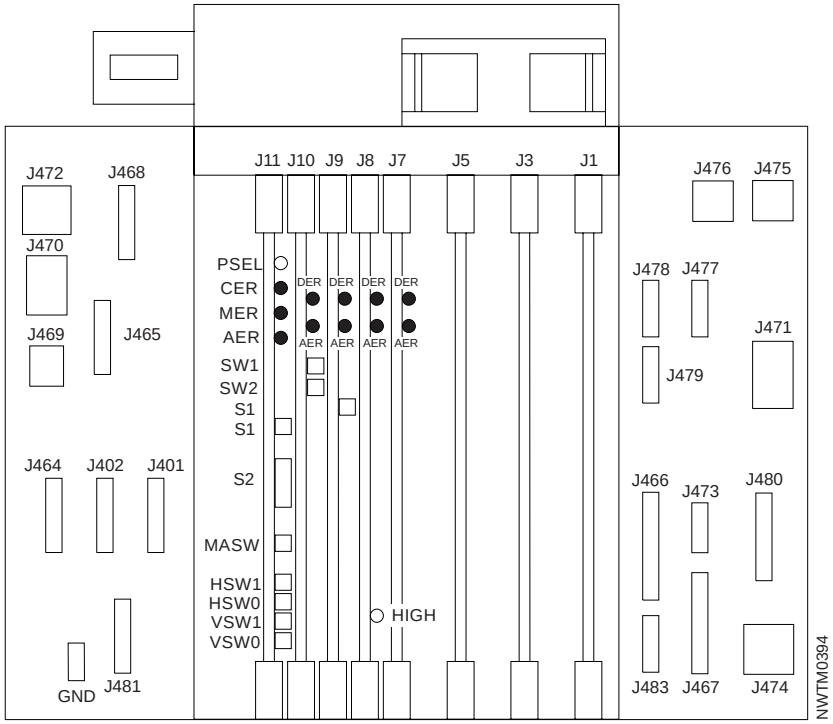


Part Name	Callout
C301, Capacitor	4
EN122, Tension Arm Encoder Board	2
EN123, Tension Arm Encoder Board	3
M301, Capstan Pinch Roll Motor	1
M302, Capstan Roll Motor	7
M303, Tractor Motor	8
PJ310	5
PJ311	6
PJ312	9
Transfer Corona Cable	10

B1 Logic Card Links

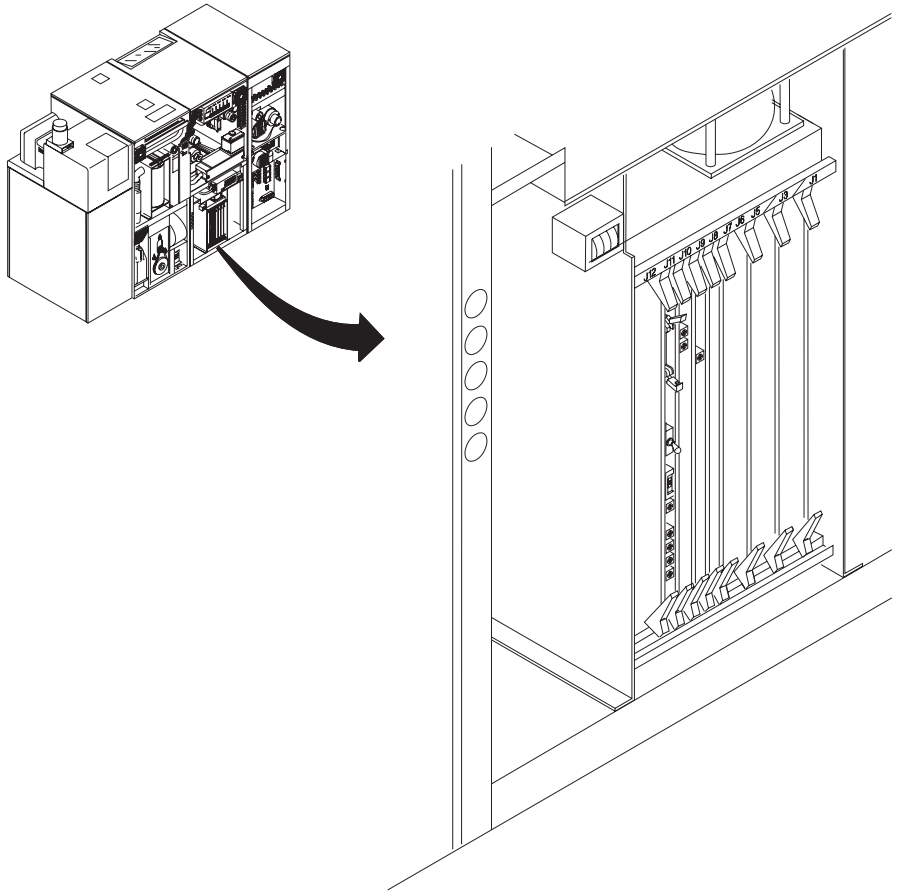
Location	Function	Card	Locations Link	Parts Link	Removals & Adjustments Link
B1J1	Driver (1)	DV021	2128	3493	
B1J3	Drvier (2)	DV022	2128	3493	
B1J5	Driver (3)	DV041	2128	3493	
B1J7	Hot Roll, Drum & Retractor Control	RH011	2128	3493	
B1J8	Fuser & Sensor Control	FU061	2128	3493	
B1J9	Mechanism Sequence Control	MC151	2128	3495	
B1J10	Paper Feed Control	PF041	2128 2129	3495	
B1J11	Interface & Host Control	CP161	2128 2130	3497	

B1 Board Connectors



B1 Logic Cards

Table 490. B1 Logic Cards

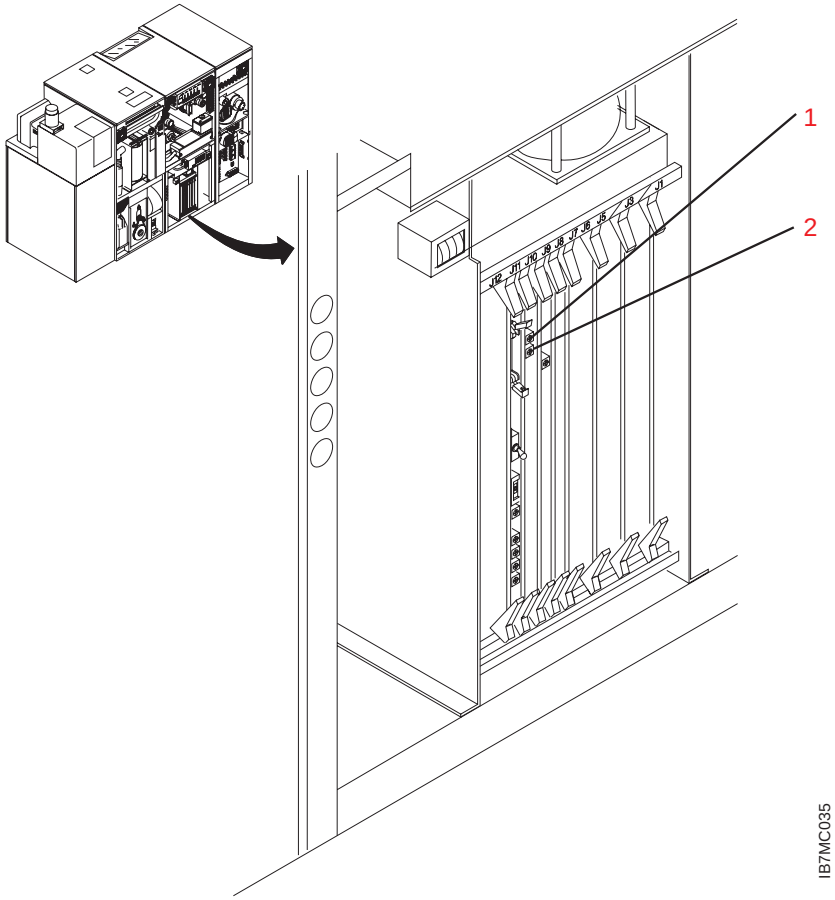


Location	Function	Prefix
B1J1	Driver (1)	DV021
B1J2		
B1J3	Drvier (2)	DV02x
B1J4		
B1J5	Driver (3)	DV0xx
B1J6		
B1J7	Hot Roll, Drum & Retractor Control	RH0xx
B1J8	Fuser & Sensor Control	FU0xx
B1J9	Mechanism Sequence Control	MCxxx
B1J10	Paper Feed Control	PFxxx
B1J11	Interface & Host Control	CPxxx
B1J12		

See B1 Logic Card Links for more details.

B1J10 Card

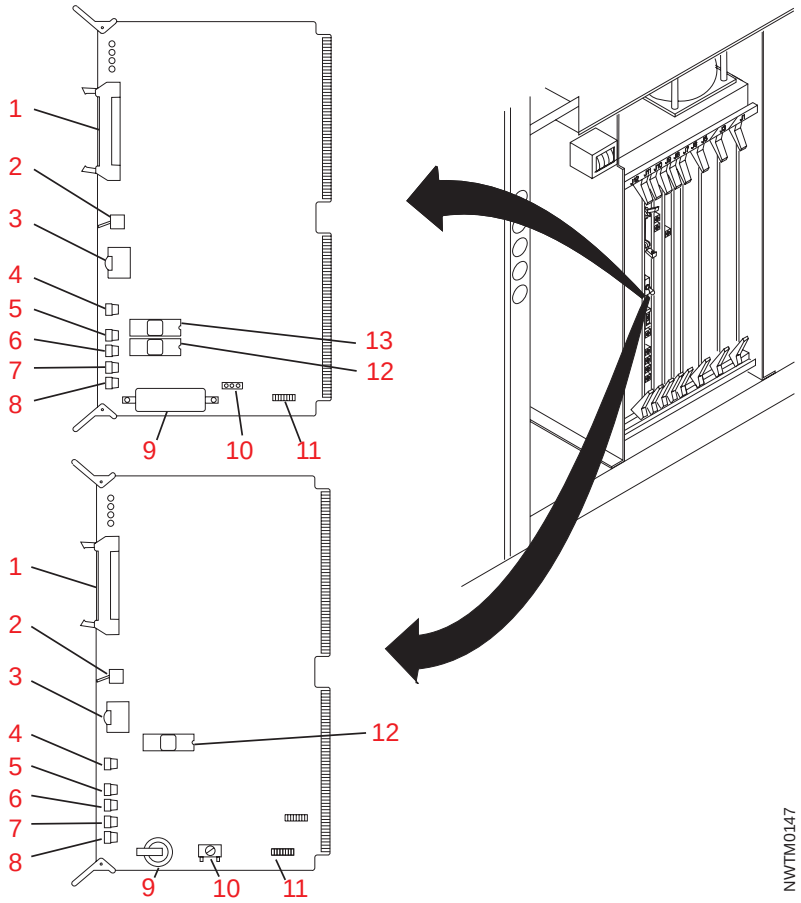
Table 491. B1J10 Switches



Part Name	Callout
B1J10–SW1, Retractor Acceleration	1
B1J10–SW2, Tractor Motor Gain	2

B1J11 Card

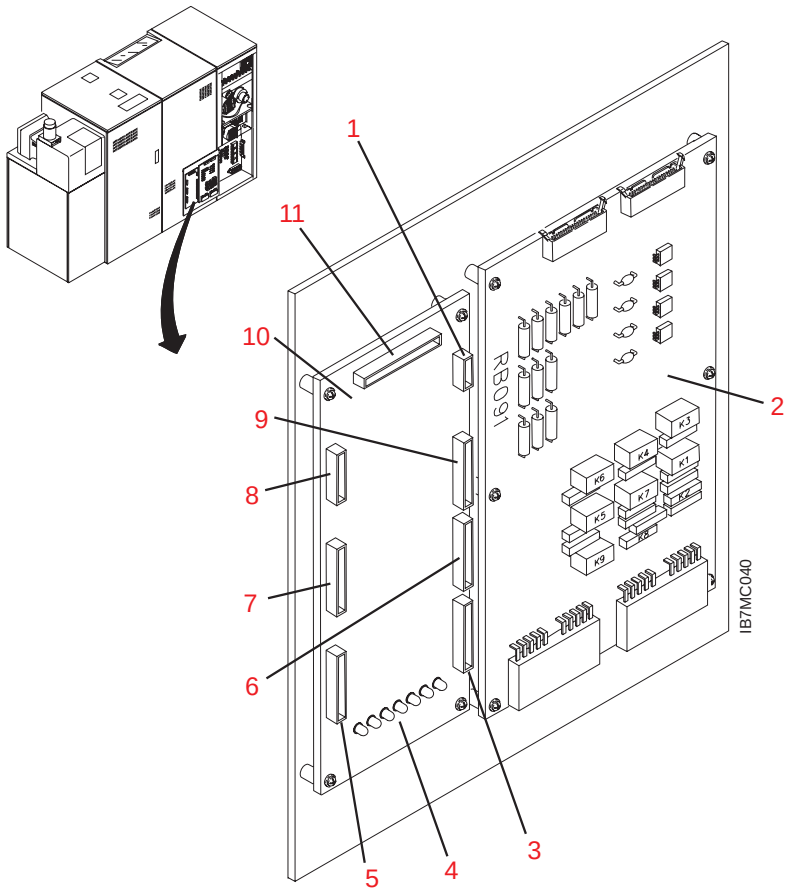
Table 492. B1J11 Card and Components



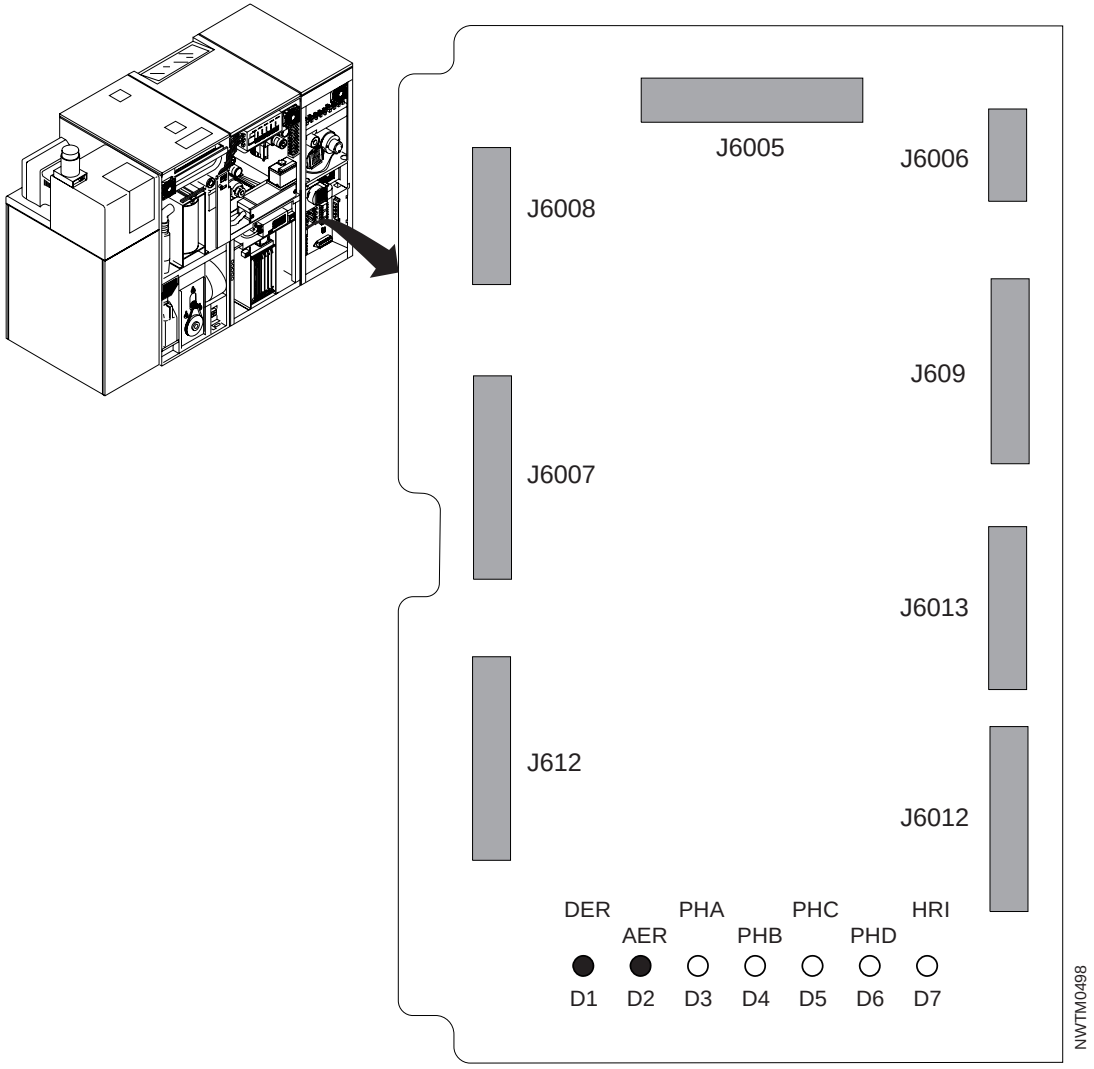
Part Name	Callout
B1J11–Battery	9
B1J11–EPROM	13
B1J11–EPROM	12
B1J11–MASW	4
B1J11–HSW1	5
B1J11–HSW0	6
B1J11–J440 (not used)	1
B1J11–S1, Reset Switch	2
B1J11–S2, Diagnostic Function Switch	3
B1J11–VSW1 (not used)	7
B1J11–VSW0 (not used)	8
B1J11–J1 Battery Enable	10
B1J11–S8, DIP Switch	11

Fuser Control Card – FSxxx

Table 493. FS051/FS053/FS071/FS082/FS083/FS551 Cards

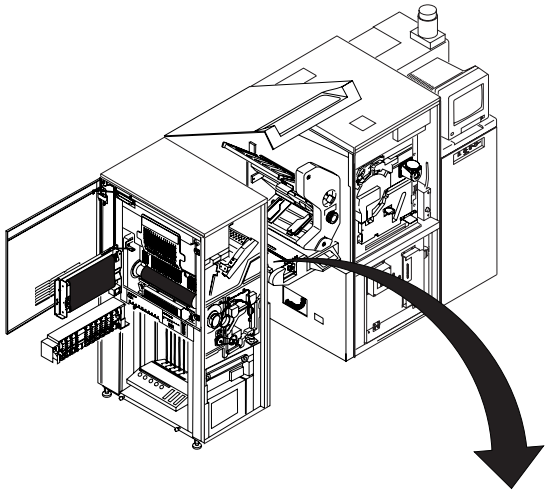


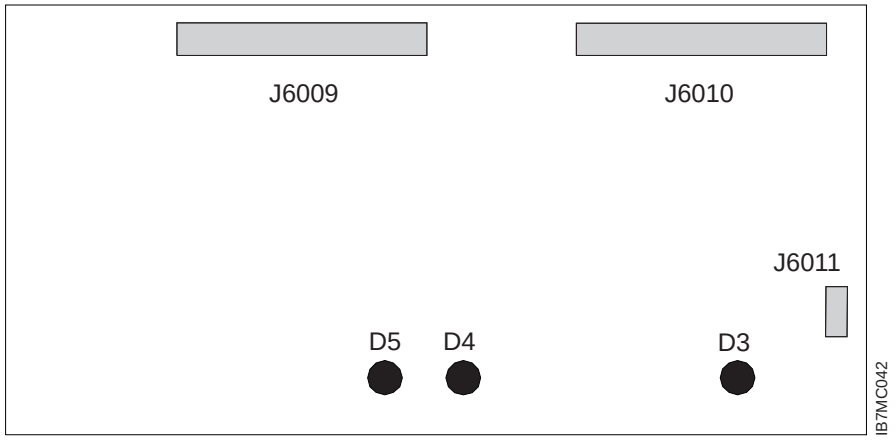
Part Name	Callout
D1–D7 LEDs	4
FSxxx Card	10
PJ609	9
PJ612	5
PJ012TC	5
PJ6005	11
PJ6006, +5 volts and ground	1
PJ6007	7
PJ6008	8
PJ6012	3
PJ6013	9
RB09x Relay Board (see pages 2135 & 2136)	3



FS051/FS053/FS071/FS082/FS083/FS551

Hot Roll Control - HR091

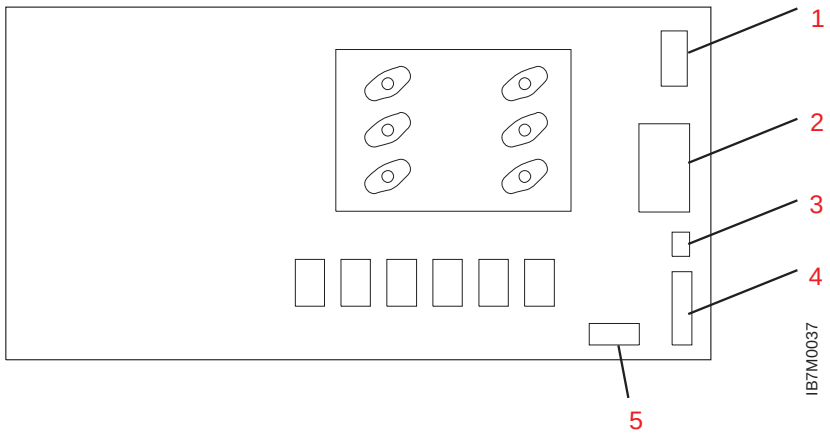




HR091

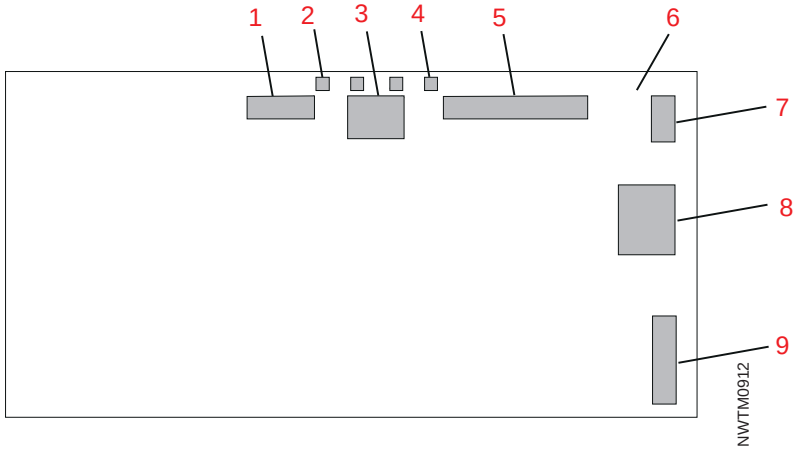
Mirror Motor Driver - MDxxx

Table 494. Mirror Motor Driver MD141



Part Name	Callout
Ground	3
PJ224	2
PJ225	1
PJ226	4
PJ231	5

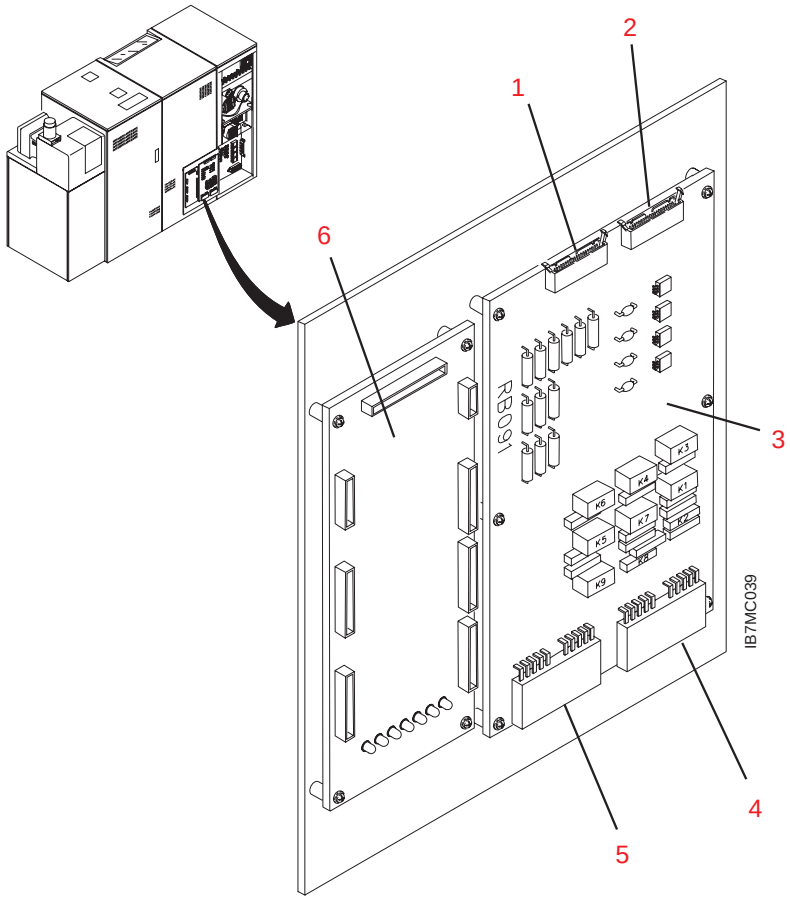
Table 495. Mirror Motor Driver MD192



Part Name	Callout
PJ224	3
PJ225	1
PJ261	8
PJ262	5
PJ263	6
PJ264	7
Test Point 140VM	2
Test Point AG	4

Relay Board - RB091

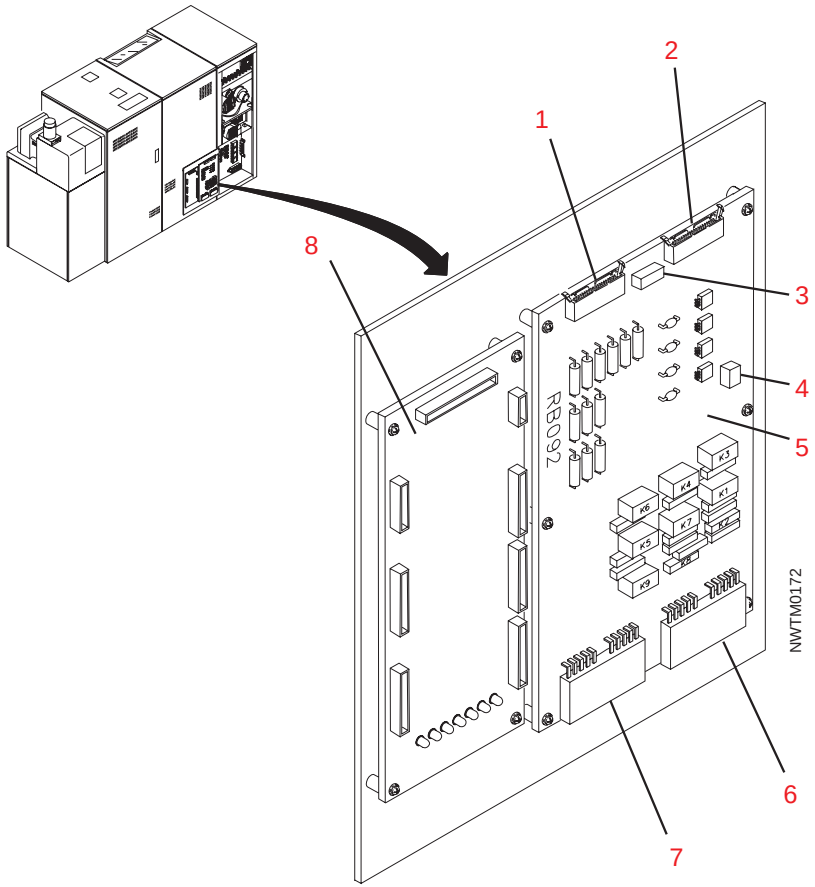
Table 496. Relay Board RB091



Part Name	Callout
FSxxx Card	6
PJ601	5
PJ602	4
PJ603	1
PJ604	2
RB091 Relay Board (Printers without Backup Idler Roll)	3

Relay Board - RB092

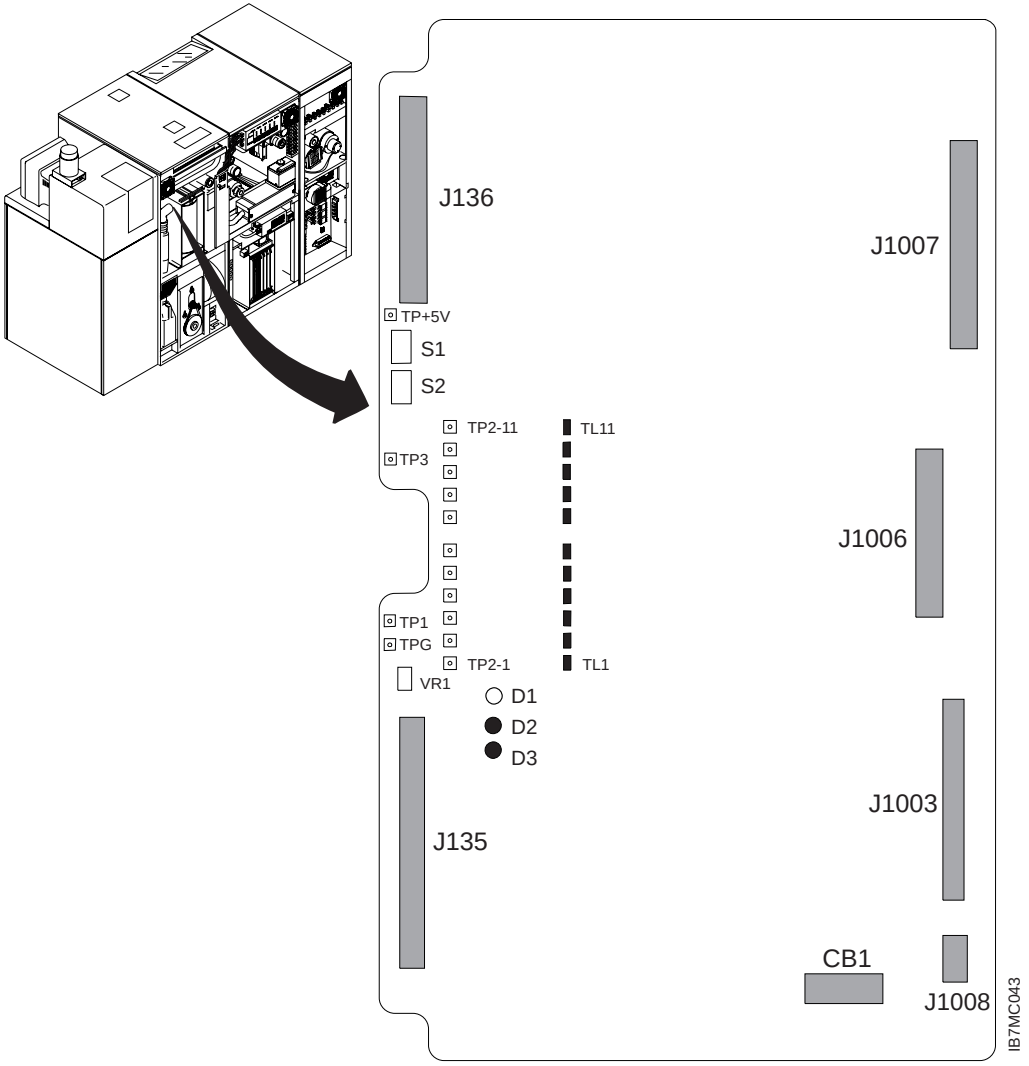
Table 497. Relay Board RB092



Part Name	Callout
FSxxx Card	8
PJ601	7
PJ602	6
PJ603	1
PJ604	2
PJ699	3
PJ6000	4
RB092Relay Board (Printers with Backup Idler Roll)	5

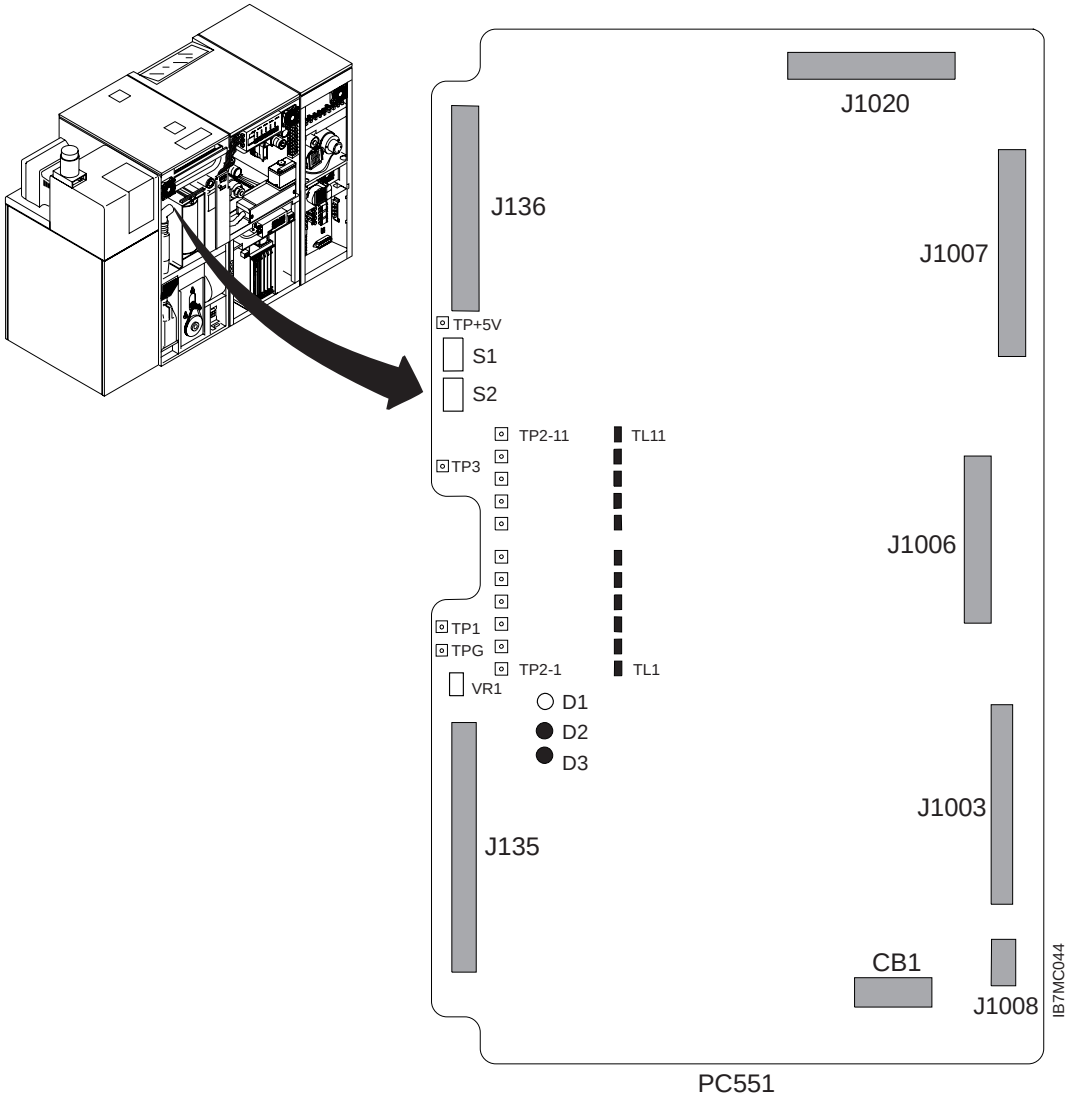
Toner Control Cards - PCxxx

PC211/PC531



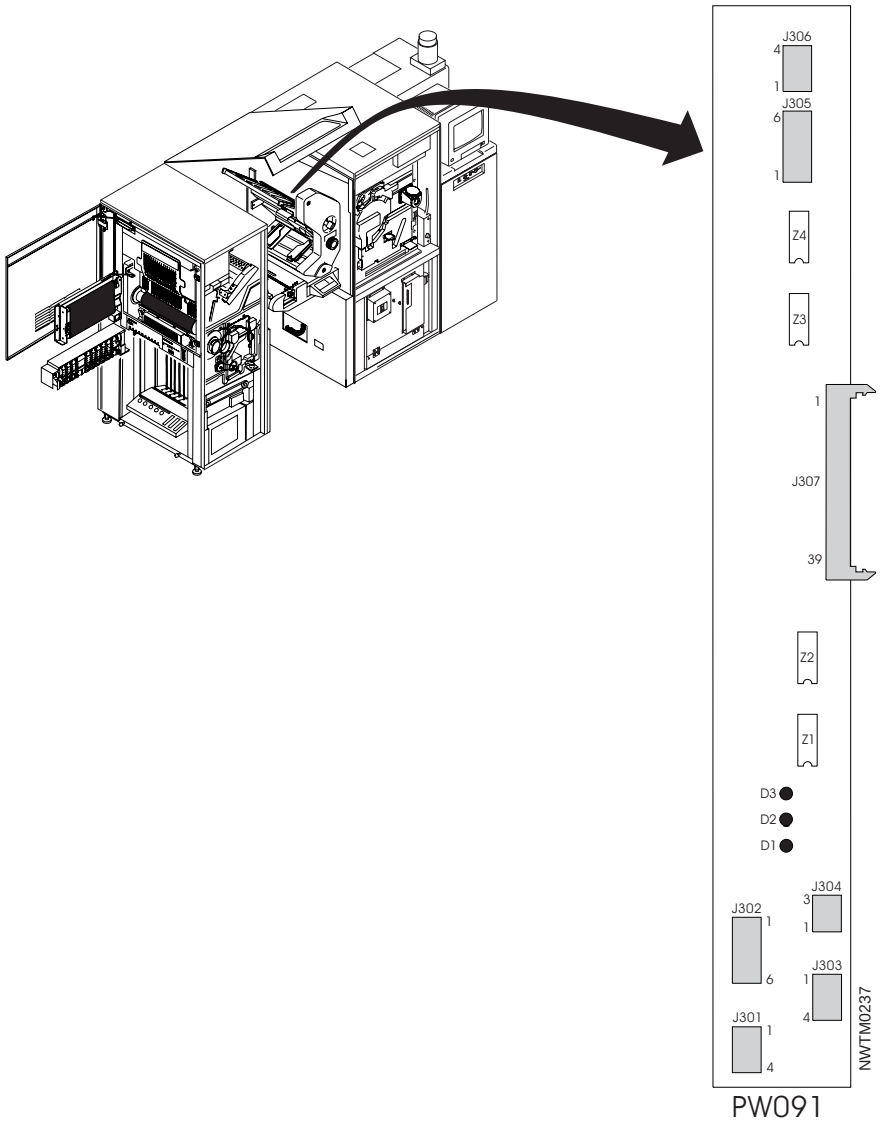
PC211/PC531

PC551


J1020
J136
J1007
TP+5V
S1
S2
TP2-11
TL11
TP3
J1006
TP1
TPG
TP2-1
TL1
VR1
D1
D2
D3
J1003
J135
CB1
J1008
IB7MC044

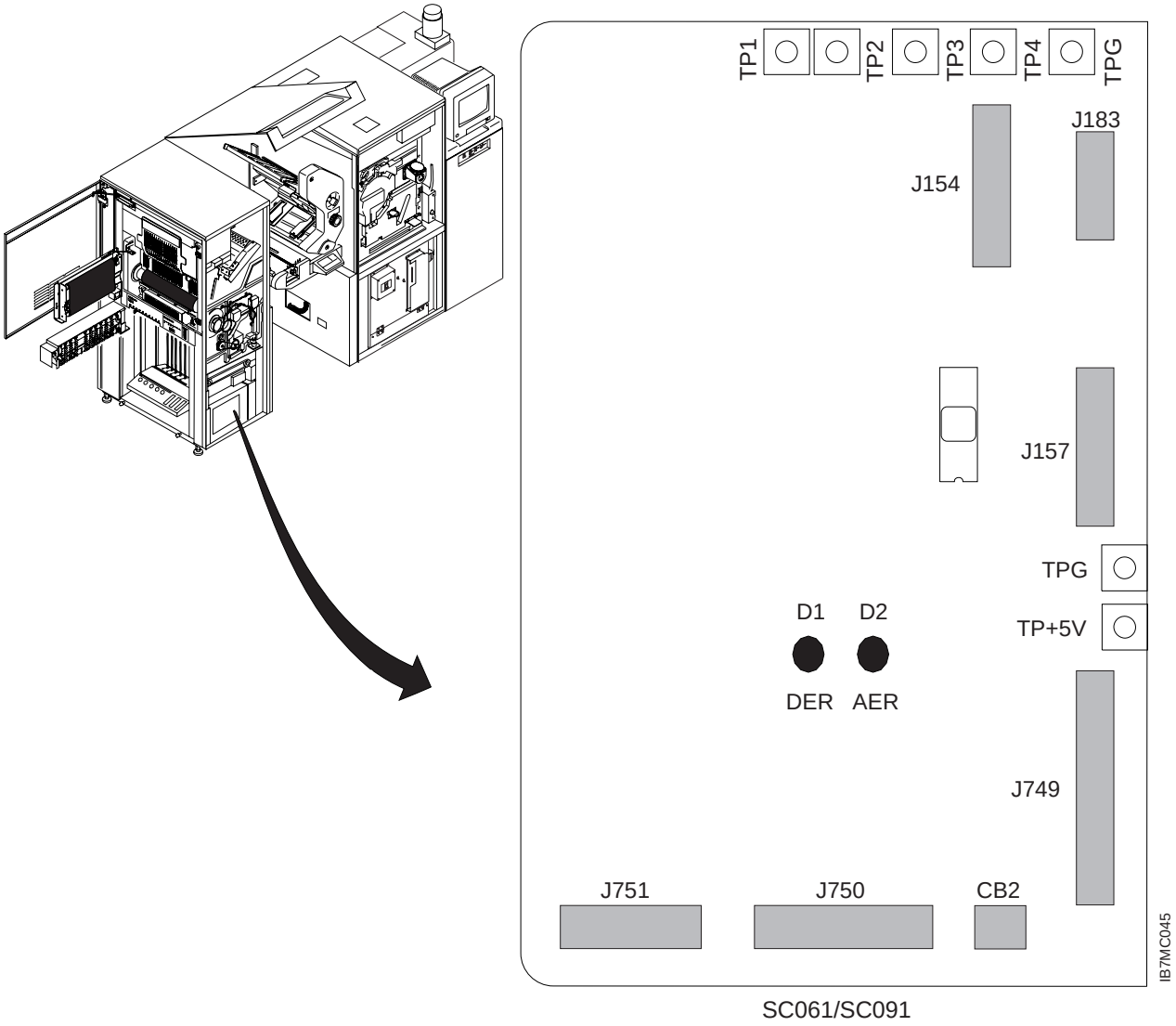
PC551

Forms Width Sensor Board - PW091



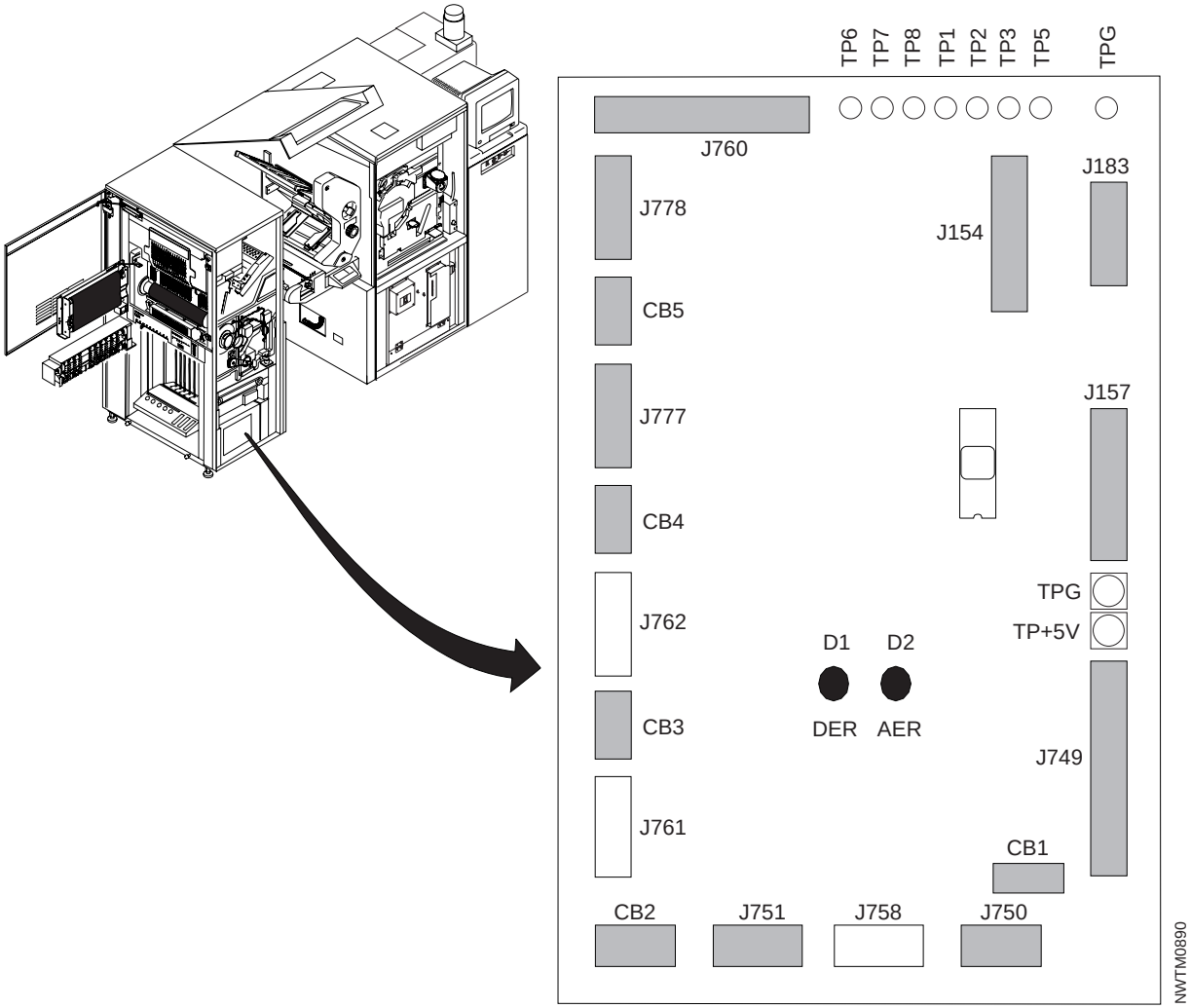
Stacker Control - SCxxx

SC061/SC091



SC061/SC091

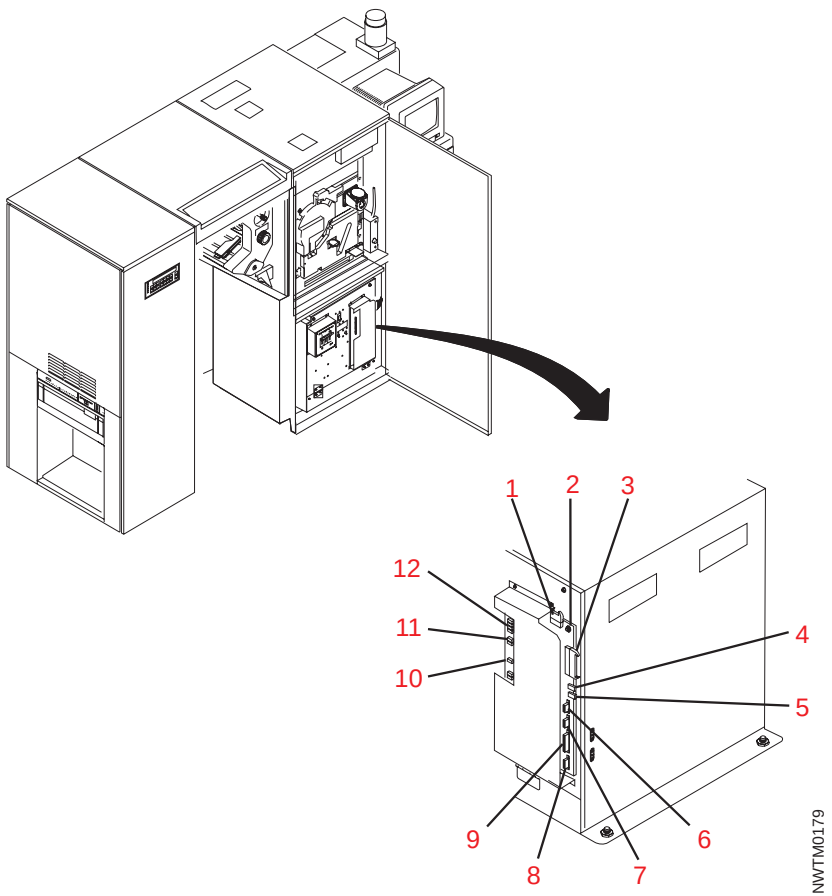
SC101/SC103/SC106/SC108



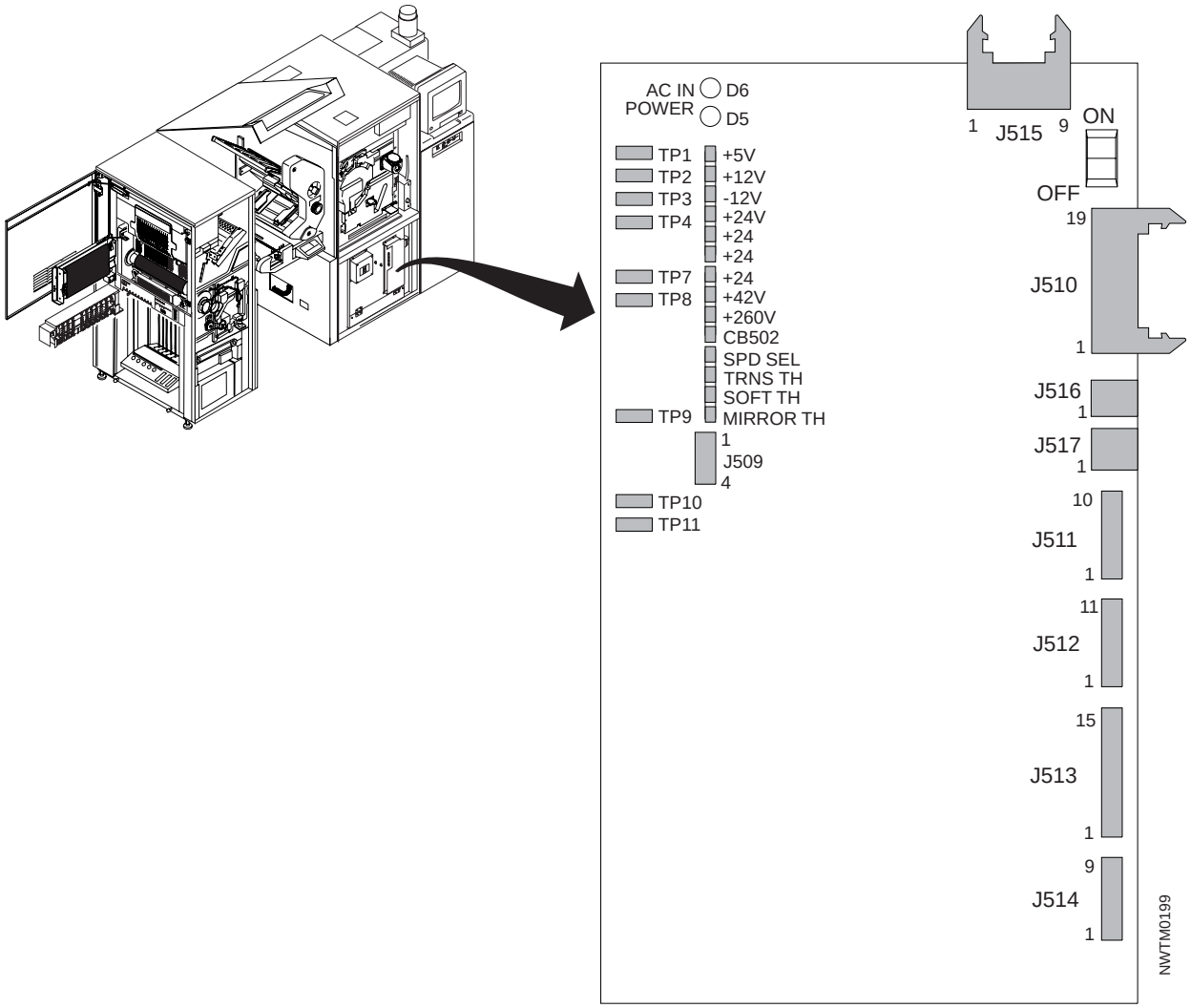
SC101/SC103/SC106/SC108

Sequence Control - SQ081/SQ082

Table 498. SQ081/SQ082 Card

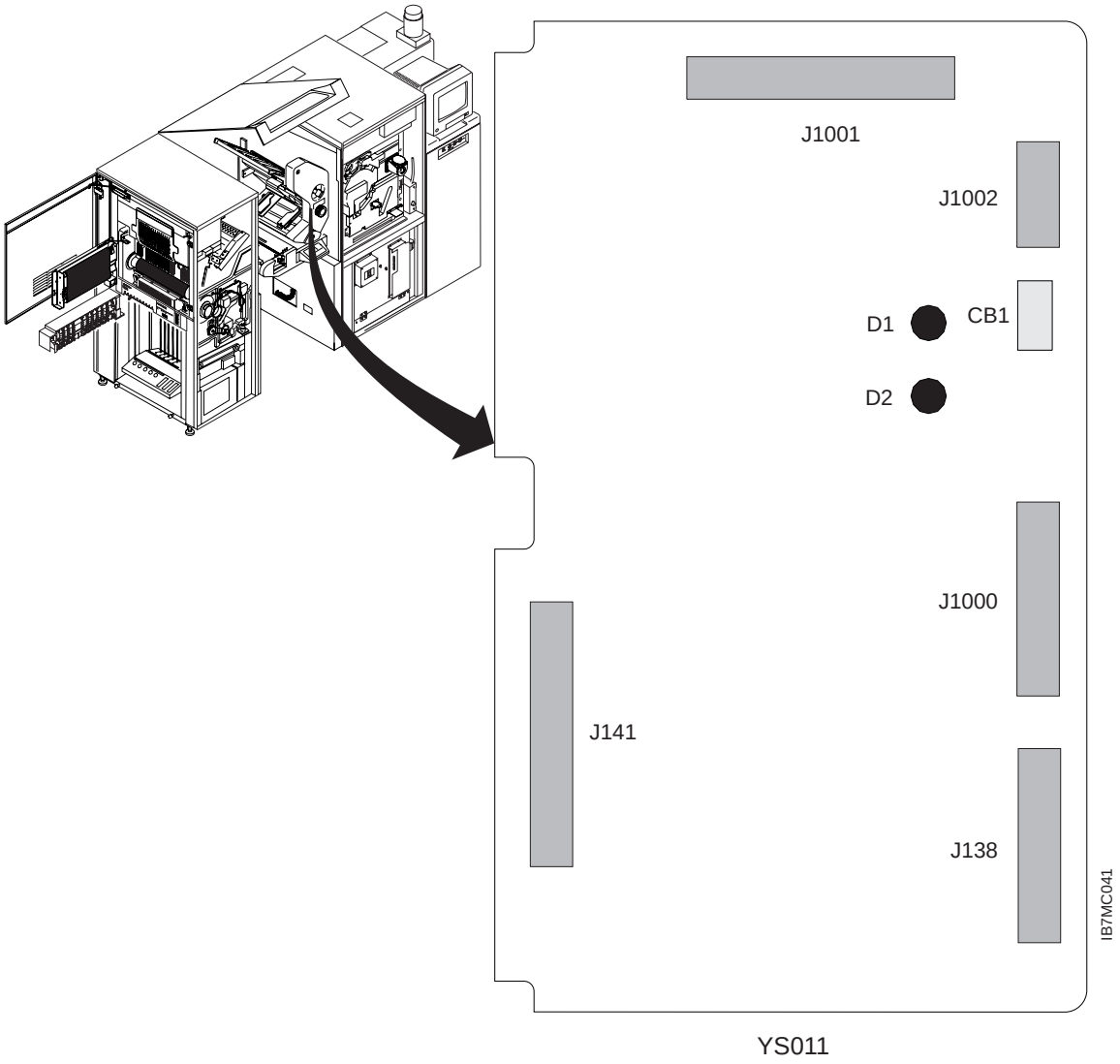


Part Name	Callout
PJ509 (not used)	11
PJ510	3
PJ511	6
PJ512	7
PJ513	9
PJ514	8
PJ515	1
PJ516 (Speed Select)	4
PJ517	5
Printer Local Power Switch	2
SQ081/SQ082 Card	10
Voltage Error Indicators	12


AC IN POWER
D6
D5
TP1
TP2
TP3
TP4
TP7
TP8
TP9
TP10
TP11
+5V
+12V
-12V
+24V
+24
+24
+24
+42V
+260V
CB502
SPD SEL
TRNS TH
SOFT TH
MIRROR TH
1
J509
4
1
J515
9
ON
OFF
19
J510
1
J516
1
J517
1
10
J511
1
11
J512
1
15
J513
1
9
J514
1
NWTM0199

SQ081/SQ082

YS011



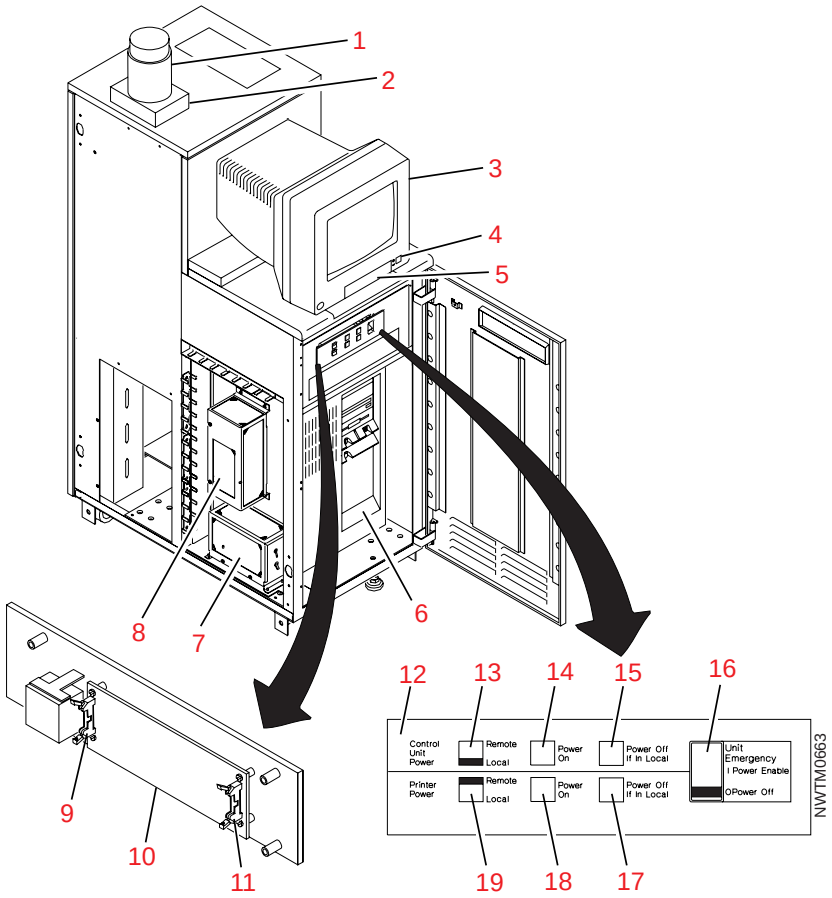
YS011

Control Unit Links

Part Name	Locations Link	Parts Link	Removals & Adjustments Link
Cards			
Mechanism Interface Card - Single Beam	2154	3527	2245
Mechanism Interface Card - Two Beam	2156	3527	2248
PQE Card - Single Beam	2154	3527	2258
PQE Card - Two Beam	2156	3527	2260
Pre/Postprocessing Card	2150	3529	2262
Side1/Side2 Verification Control Card	2153	3533	2264
AC Control Box	2146	3535	2240
DC Power Supply	2146	3535	2241
Display/Touch Screen	2146	3519	2243
Operator Attention Accessory Contacts Fuse	2148	3539	2251
Operator Attention Accessory Contacts Relay	2146	3539 (attention asm)	2251
Operator Attention Alarm Speaker	2146	3539 (attention asm)	2251
Operator Attention Alarm Volume Control potentiometer	2148	3539 (attention asm)	2251
Operator Attention Circuit Board	2146	3539 (attention asm)	2251
Operator Attention Light Bulb	2146	3539 (attention asm)	2251
Power Control Panel	2146	3537 (card) 3535 (asm)	2257
UEPO Switch	2146	3537	2257

Control Unit - Front

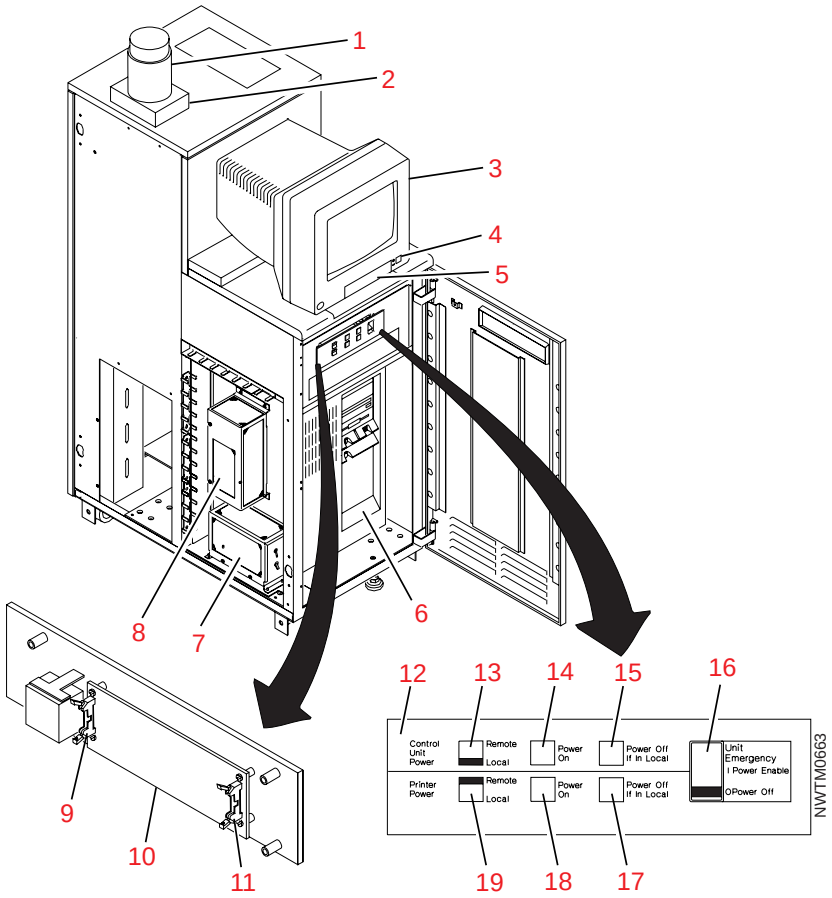
Table 499. Control Unit, Front



Part Name	Callout
AC Control Box	7
Alarm, Operator Attention	2
Card, Power Control Panel	10
Controller	6
DC Power Supply	8
Display/Touch Screen	3
Light, Operator Attention	1
Panel, Display Control	5
Panel, Power Control	12
PJB01	11
PJB02	9
Pushbutton, Display Power On/Off	4
SW32 Switch, CU Remote/Local	13
SW33 Switch, CU Power On	14
SW34 Switch, CU Power Off (if in Local)	15
SW42 Switch, Printer Remote/Local	19

(continued on next page)

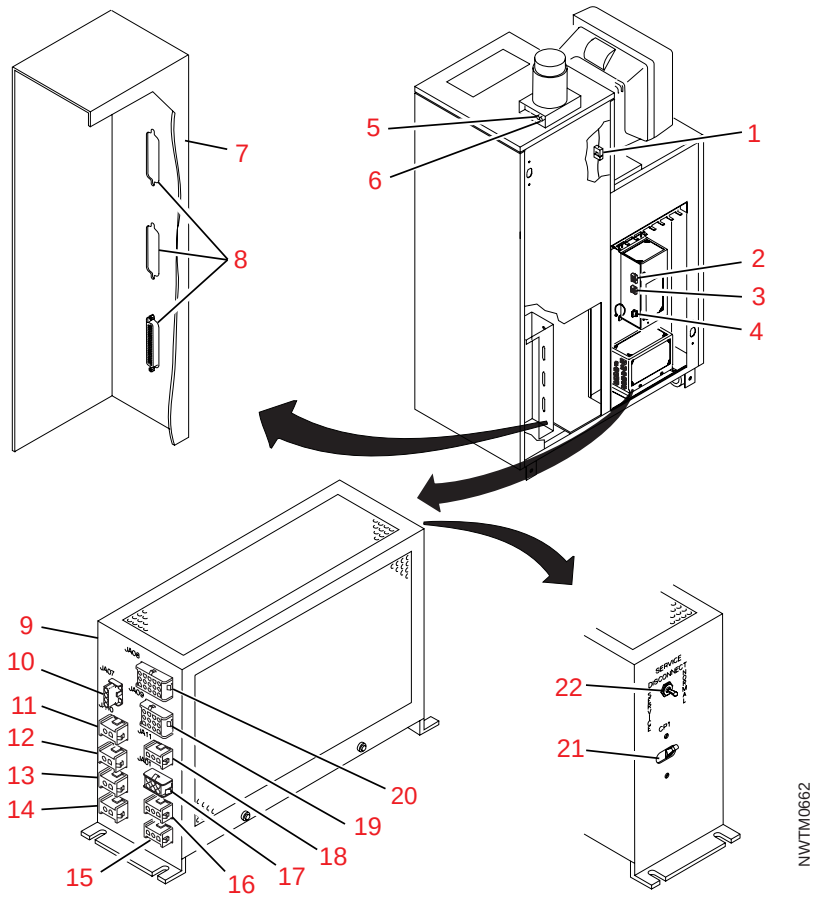
Table 499. Control Unit, Front (continued)



Part Name	Callout
SW43 Switch, Printer Power On	18
SW44 Switch, Printer Power Off (if in Local)	17
UEPO Switch, Unit Emergency Power Enable/Off	16

Control Unit - Rear (1)

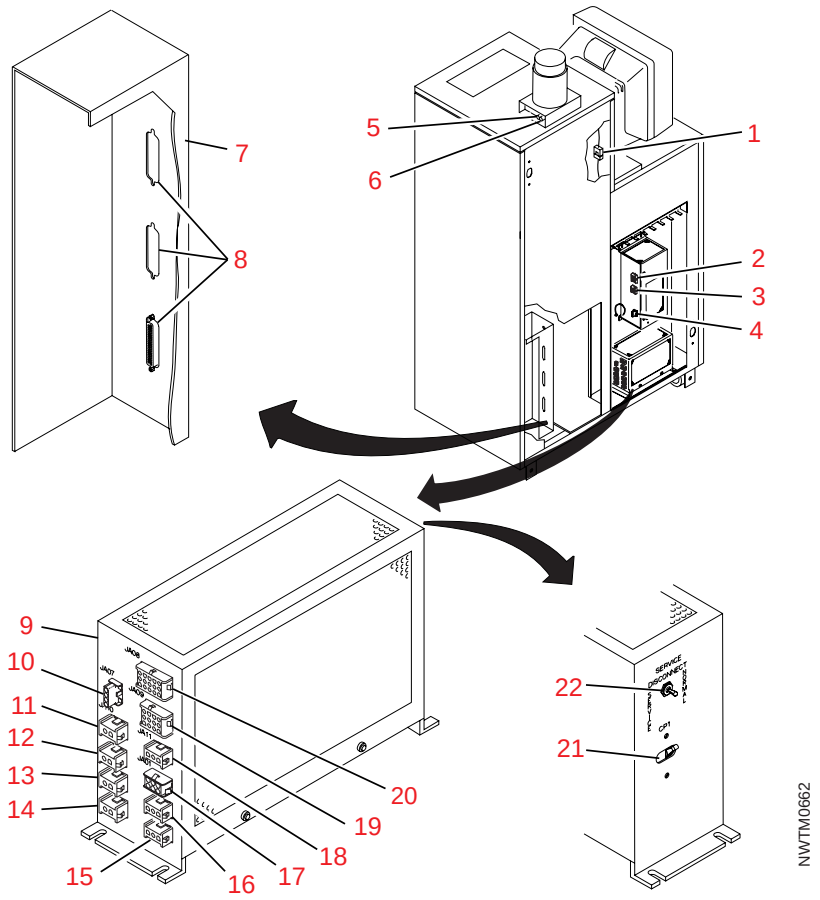
Table 500. Control Unit, Rear (1)



Part Name	Callout
AC Control Box	9
ALJ2	1
ALP2	1
CPI Circuit Protector	21
DC Power Supply	2
Operator Attention Accessory Contacts	6
Operator Alarm Volume Control	5
PJA01	17
PJA02	12
PJA03	13
PJA04	14
PJA05	16
PJA06	15
PJA07	10
PJA08	20
PJA09	19

(continued on next page)

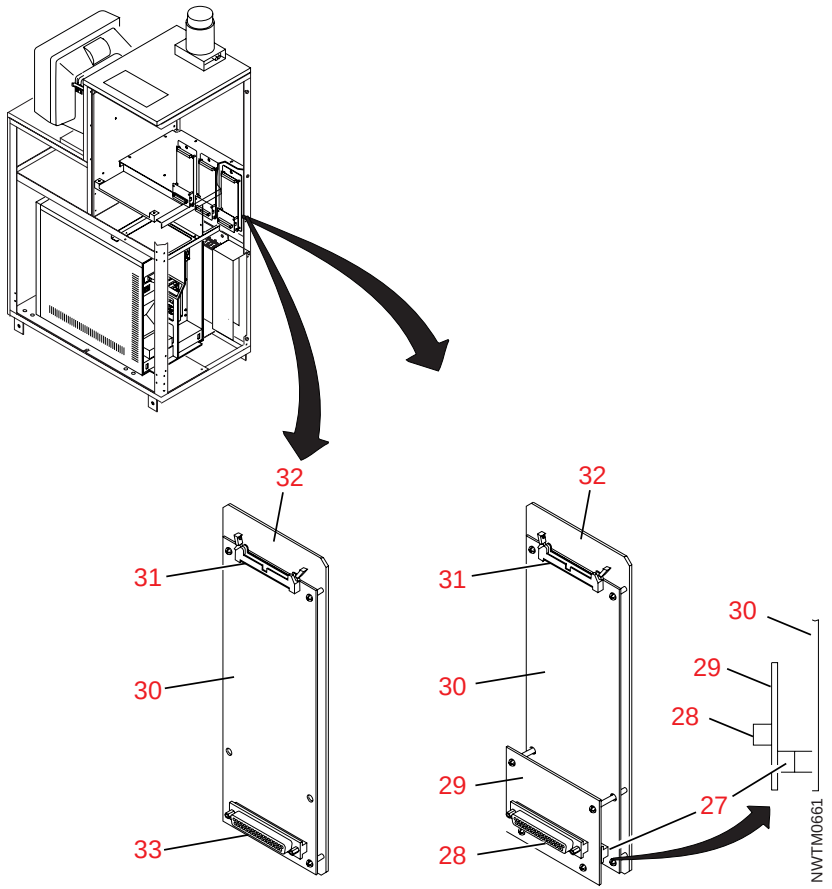
Table 500. Control Unit, Rear (1) (continued)



Part Name	Callout
PJA10	11
PJA11	18
PJH01	4
PJH02	2
PJH03	3
Pre/postprocessing Tailgate	7
Pre/postprocessing Tailgate Connectors	8
S1 Switch, Service Disconnect	22

Control Unit - Rear (2)

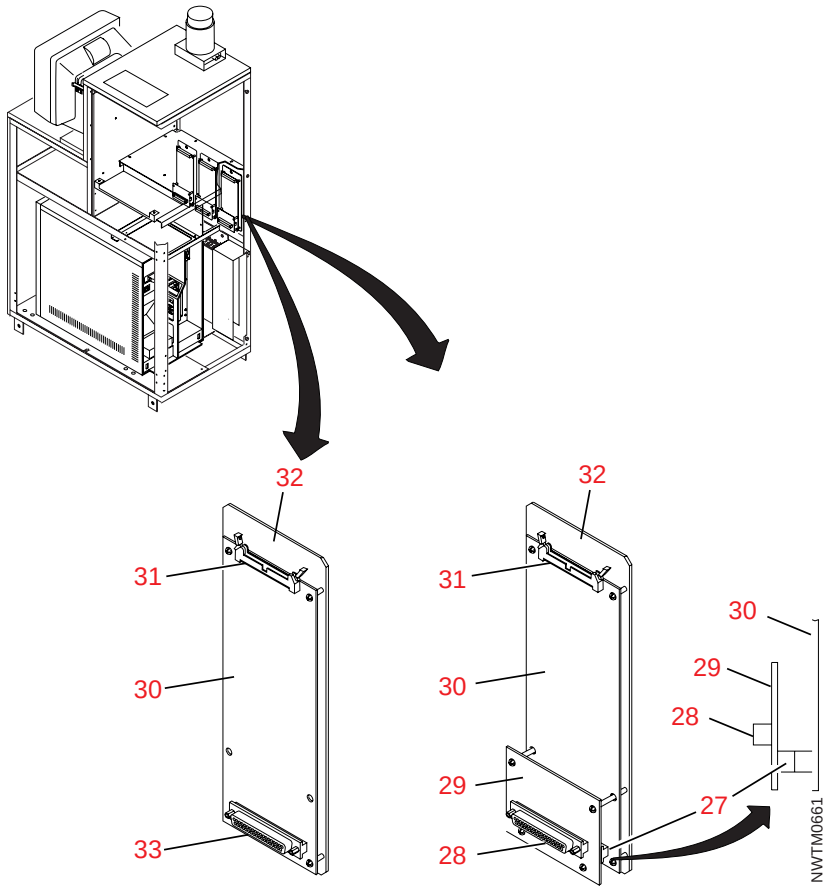
Table 501. Control Unit, Rear (2)



Part Name	Callout
CD1 Connector (CGIC)	31
CD1 Connector (Coupled Interface Card)	28
CD2 Connector (Coupled Interface Card)	27
Common Ground Isolation Card (CGIC, Type 2 pre/post card)	30
CGUC (Type 1 pre/post card)	30
Coupled Interface Card (YUCC) (Coupled with CGIC card to change Type 2 pre/post interface to Type 1)	29
PJF01 (CGIC, labeled CD1-Port 1)	31
PJF02 (CGIC, labeled CD1-Port 2)	31
PJF03 (CGIC, labeled CD1-Port 3)	31
PJF04 (CGIC, may be labeled CD2-Port 1)	33
PJF05 (CGIC, may be labeled CD2-Port 2)	33

(continued on next page)

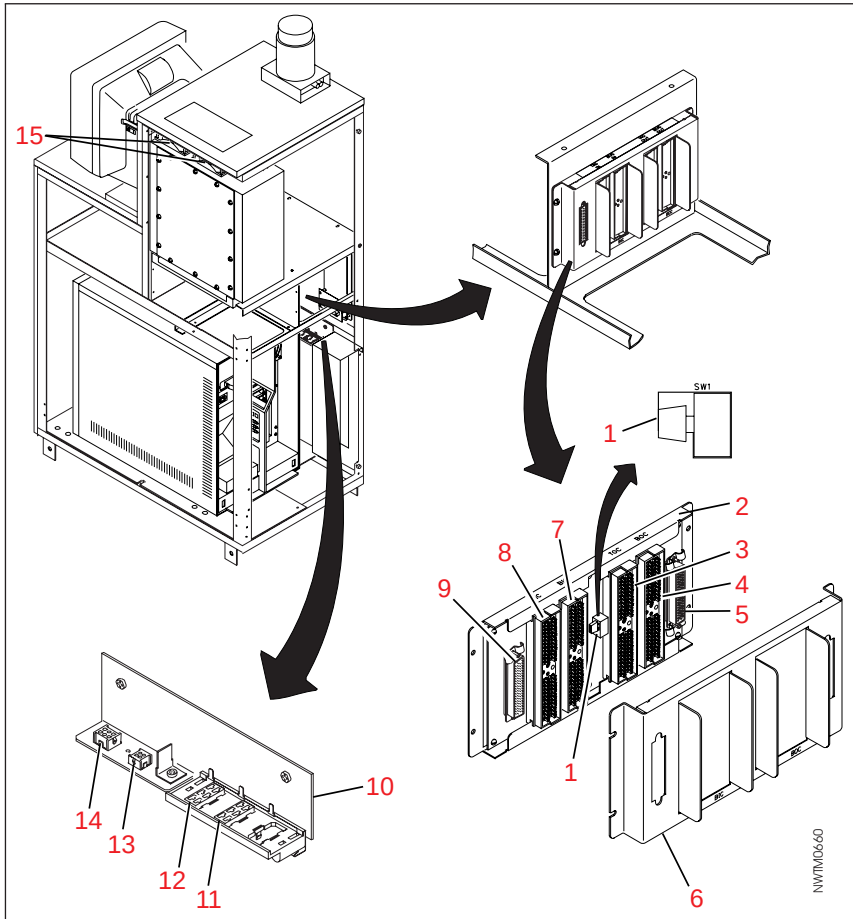
Table 501. Control Unit, Rear (2) (continued)



Part Name	Callout
PJF06 (CGIC, may be labeled CD2-Port 3)	33
PJF04 (Coupled Interface Card, labeled CD1-Port 1)	28
PJF05 (Coupled Interface Card, labeled CD1-Port 2)	28
PJF06 (Coupled Interface Card, labeled CD1-Port 3)	28
Mounting Plate	32

Control Unit - Rear (3)

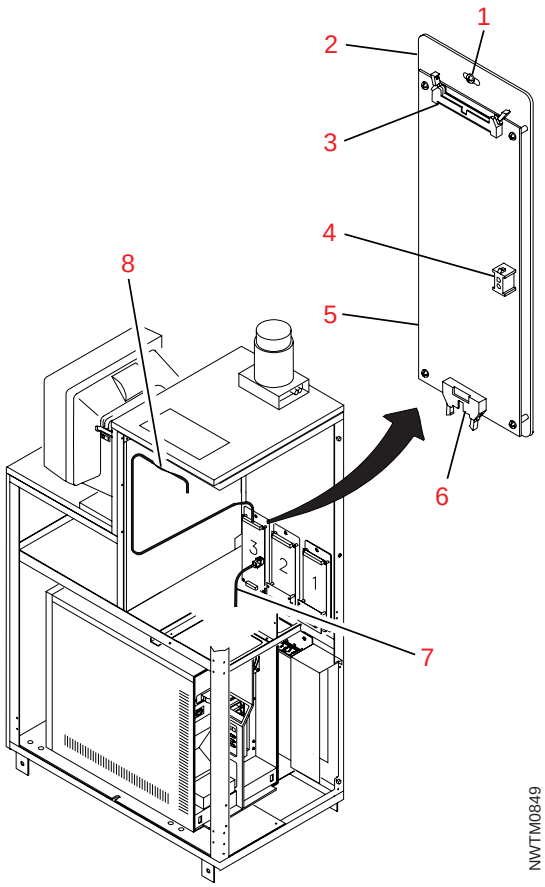
Table 502. Control Unit, Rear



Part Name	Callout
BUS IN Connector (BIC)	7
BUS OUT Connector (BOC)	4
Cover, Channel Tailgate	6
MIC Fans	15
PJ878	15
PJ879	15
PJC01	14
PJC02	12
PJC03	11
PJT01, Service Power Takeoff	13
SW1 Switch, Channel Priority	1
TAG IN Connector (TIC)	8
TAG OUT Connector (TOC)	3
Tailgate, Channel	2
Y Cable Connector	5
Y Cable Connector	9

Side 1/Side 2 Verification Card

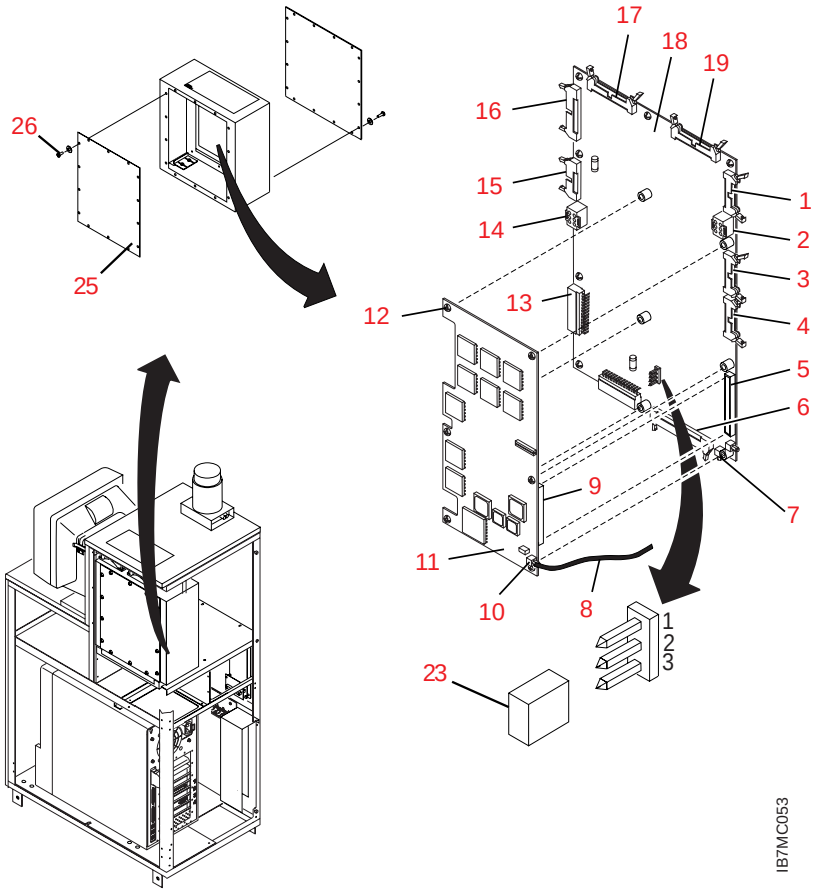
Table 503. Side 1/Side 2 Verification Card



Part Name	Callout
P2S2	6
P3S2	4
PJJ1	3
Mounting Plate	2
Side 1/Side 2 Verification Control Card	5
Screw, Mounting	1

MIC & PQE - Single Beam Printhead

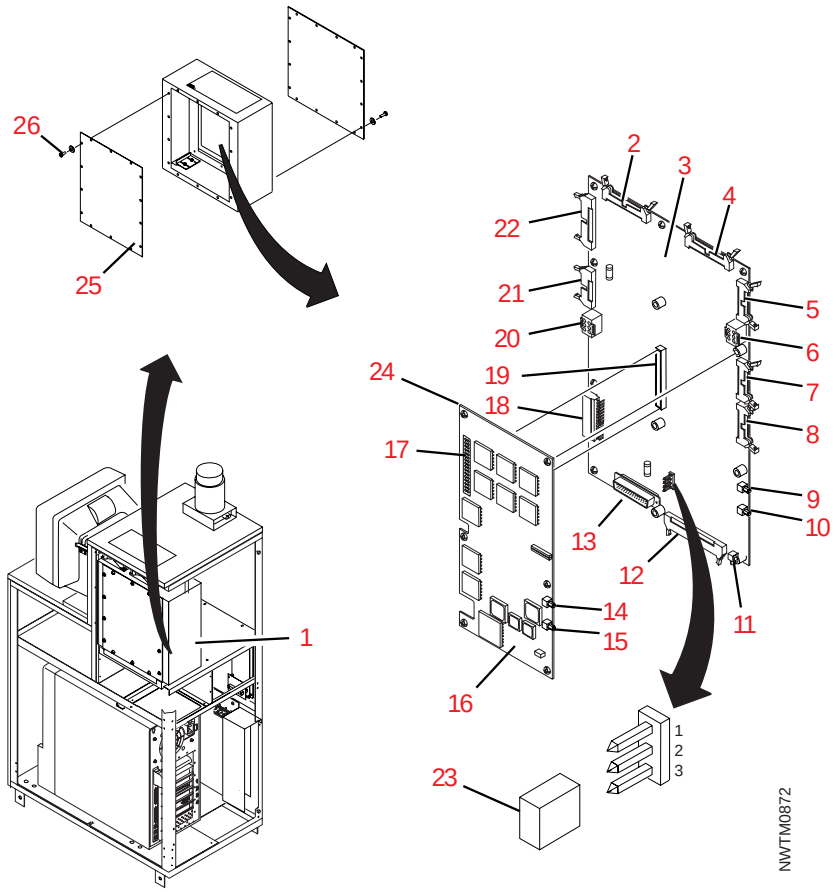
Table 504. MIC & PQE - Single Beam Printhead



Part Name	Callout
PQE Card	11
Mechnaism Interface Card	18
J01	9
PJJ1	1
PJJ2 (not used)	3
PJJ3	4
PJJ4	5
PJJ5	2
PJJ6	6
PJJ7	19
PJJ8	24
PJJ9	17
PJJ10	14
PJJ11	16
PJJ12 (used with Enhanced Toner Loading)	15
PJJ13	13

(continued on next page)

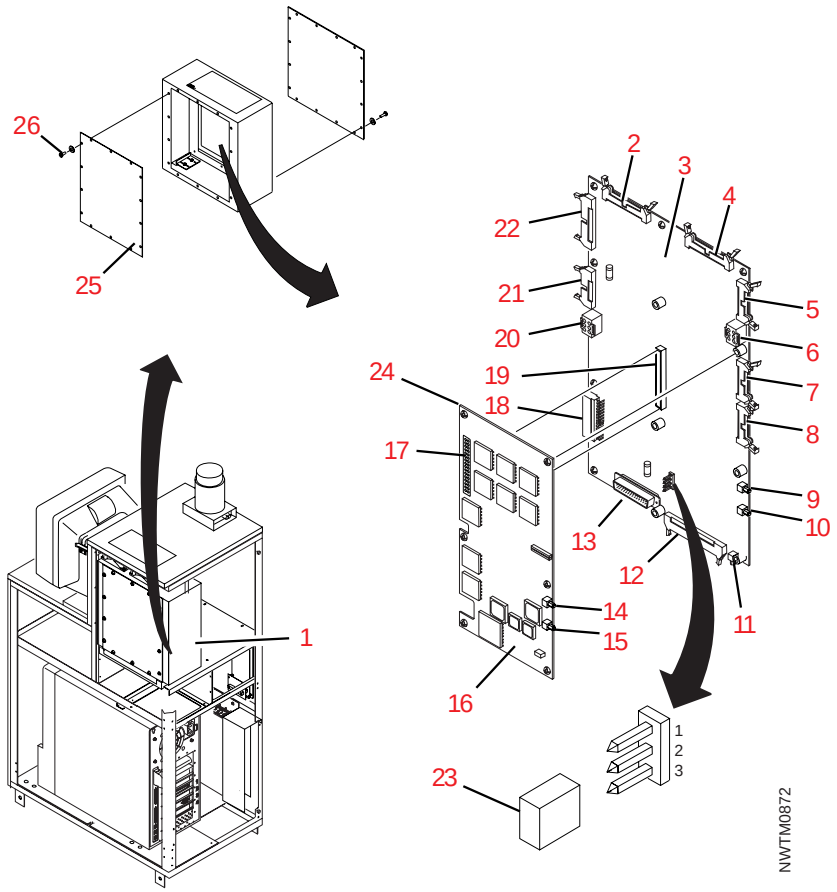
Table 504. MIC & PQE - Single Beam Printhead (continued)



Part Name	Callout
PJU7	7
VD1 Connector (Video Data) PQE Card	10
Mounting Screw	12
MIC PQE Enclosure	25

MIC & PQE - Two Beam Printhead

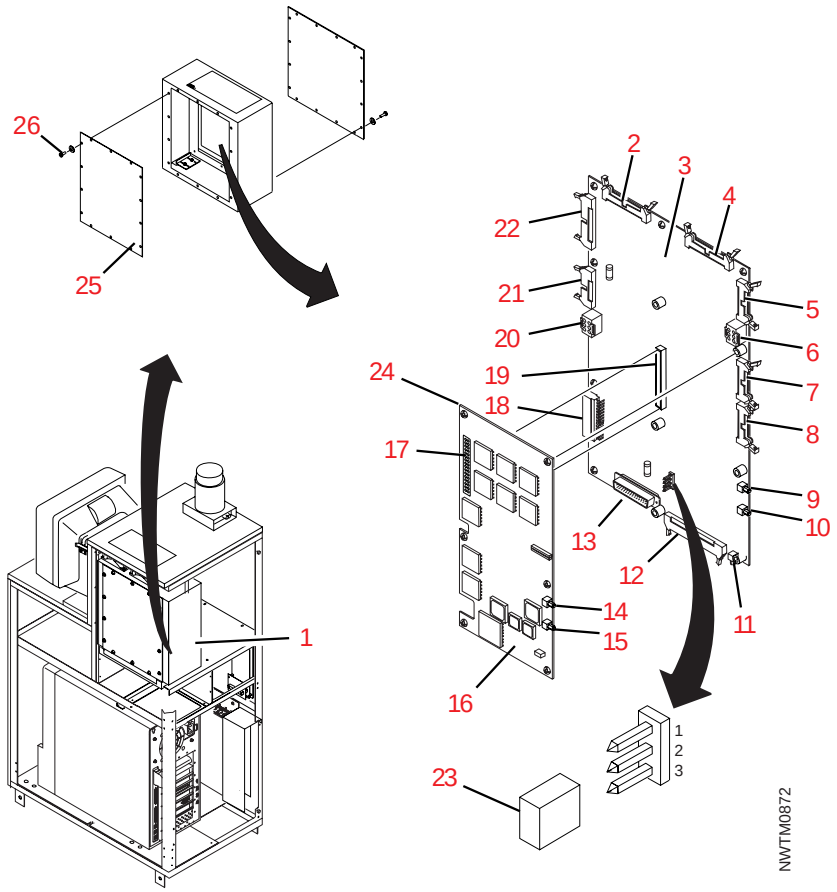
Table 505. MIC & PQE - Two Beam Printhead



Part Name	Callout
PQE Card	16
Mechnaism Interface Card	3
J01	17
PJJ1	5
PJJ2 (not used)	7
PJJ3	8
PJJ4	19
PJJ5	6
PJJ6	12
PJJ7	4
PJJ8	13
PJJ9	2
PJJ10	20
PJJ11	22
PJJ12 (used with Enhanced Toner Loading)	21
PJJ13	18

(continued on next page)

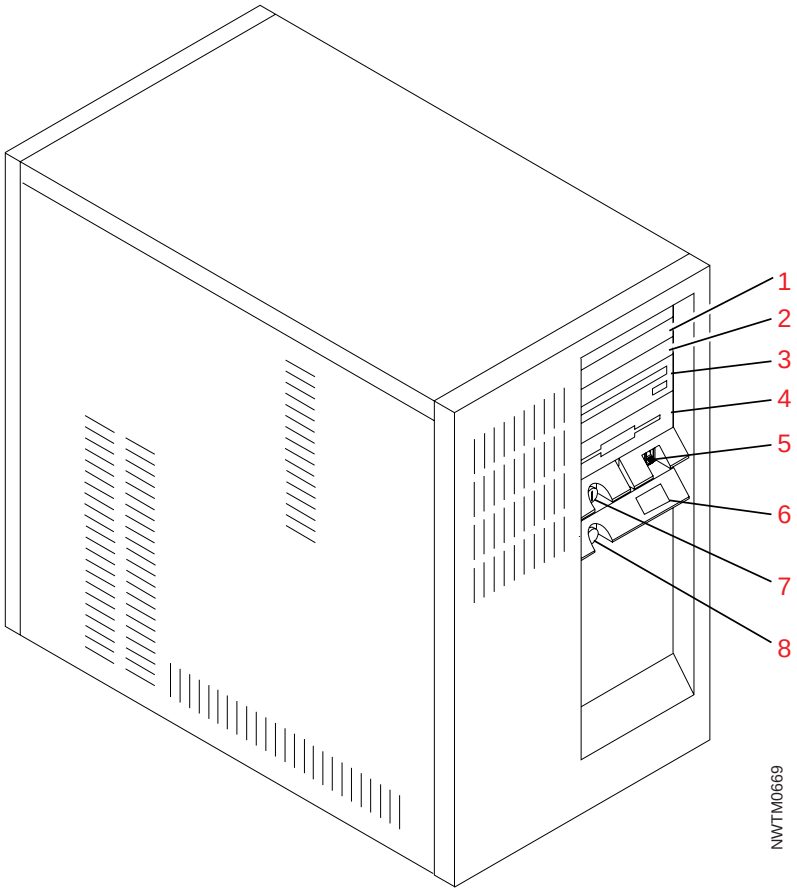
Table 505. MIC & PQE - Two Beam Printhead (continued)



Part Name	Callout
VD1 Connector (Video Data) MIC (not used)	10
VD2 Connector (Video Data) MIC (not used)	9
BD1 Connector (Beam Detect)	11
VD1 Connector (Video Data) PQE Card	15
VD2 Connector (Video Data) PQE Card	14

7013 Model 595 - Front View

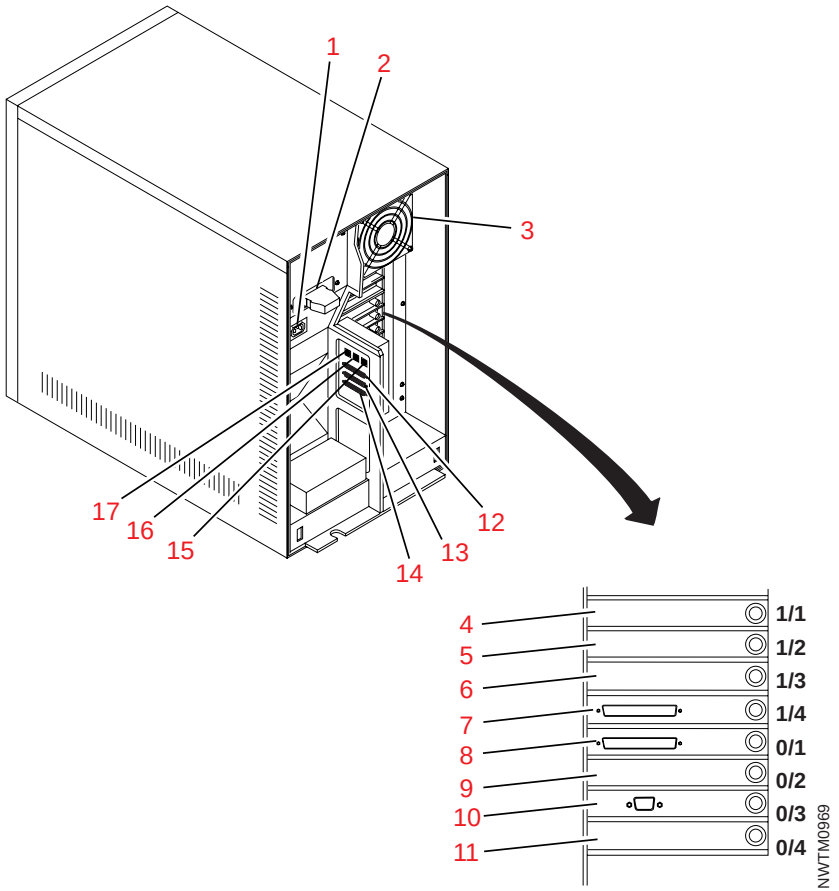
Table 506. 7013 Model 595 Front View



Part Name	Callout
Drive, CDROM	3
Drive, 3.5-inch Diskette	4
Key Mode Switch	7
Optional Slot	1
Optional Slot	2
Power Switch (On/Off Pushbutton)	5
Reset Button	8
3-Digit Display	6

7013 Model 595 - Rear View

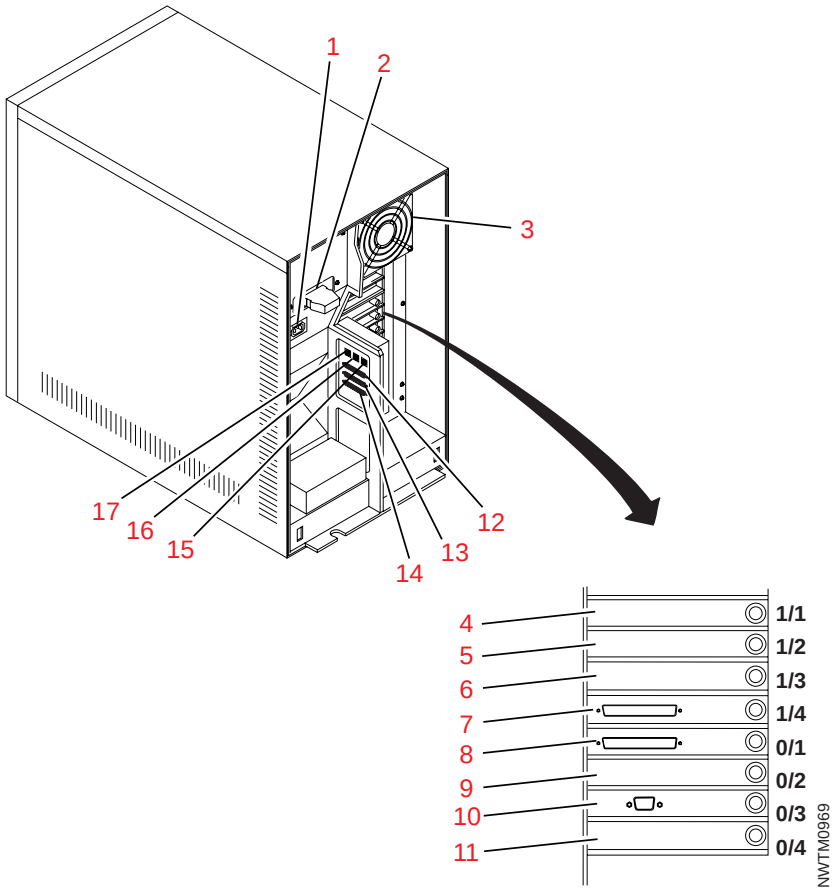
Table 507. 7013 Model 595 Rear View



Part Name	Callout
Adapter Card Slots 1/1, 1/2, 1/3 (reserved)	4-6
Connector, Display/Touch Screen Card (Slot 0/3)	10
Connector, External SCSI Interface Terminator	2
Connector, Host Attachment Card (Slot 0/2)	9
Connector, Host Attachment Card (Slot 0/4)	11
Connector, SCSI to Printer 2 MIC (Slot 1/4)	7
Connector, SCSI to Printer 1 MIC (Slot 0/1)	8
Connector, Keyboard (not used)	15
Connector, Parallel Port (not used)	14
Connector, Power	1
Connector, Serial Port (S1)	12
Connector, Serial Port (S2)	13

(continued on next page)

Table 507. 7013 Model 595 Rear View (continued)

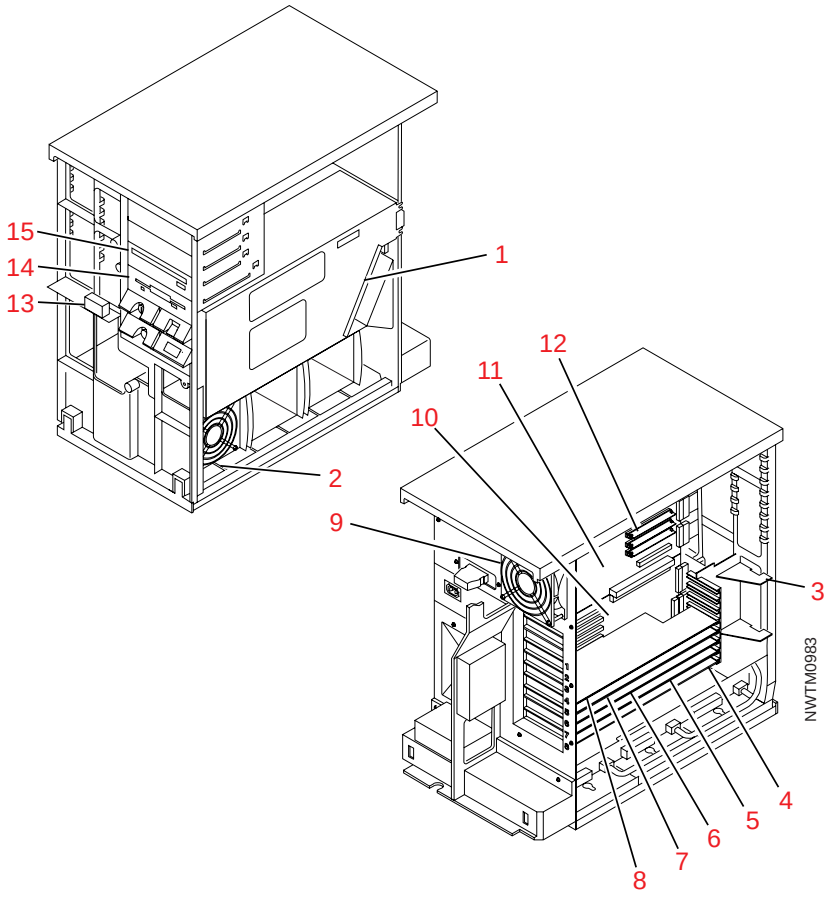


Part Name	Callout
Connector, Tablet (not used)	17
Connector, 3-Button Mouse (used as terminator only)	16
Fan, Power Supply	3

7013 Model 595 - Internal View

Table 508. 7013 Model 595 Internal View

Note: See *Adapters, Devices and Cables Information for Channel Bus Systems*, SA38–0533, for more information.

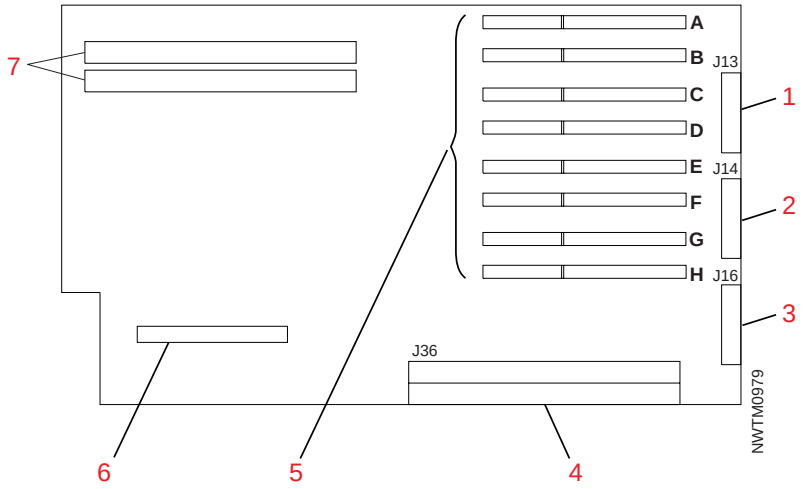


Part Name	Callout
Battery	13
Card, SCSI I/O to Printer 1 MIC (Slot 0/1)	7
Card, SCSI to Printer 2 (Slot 1/4)	8
Card, Host Attachment (Slot 0/2)	6
Card, Host Attachment (Slot 0/4)	4
Card, Display/Touch Screen (Slot 0/3)	5
Card Guide Frame	3
CPU Planar, (Processor Card)	11
Drive, CDROM	15
Drive, Disk	2
Drive, 3.5-inch Diskette	14
Fan, Disk Drive	2
Logic Fan	9
I/O Planar	10
Power Supply	1
Memory Cards	12

7013 Model 595 - CPU Planar Connectors

Table 509. Controller CPU Planar Connectors — RS/6000, Type 7013 Model 595

Note: See *Adapters, Devices and Cables Information for Channel Bus Systems*, SA38–0533, for more information.

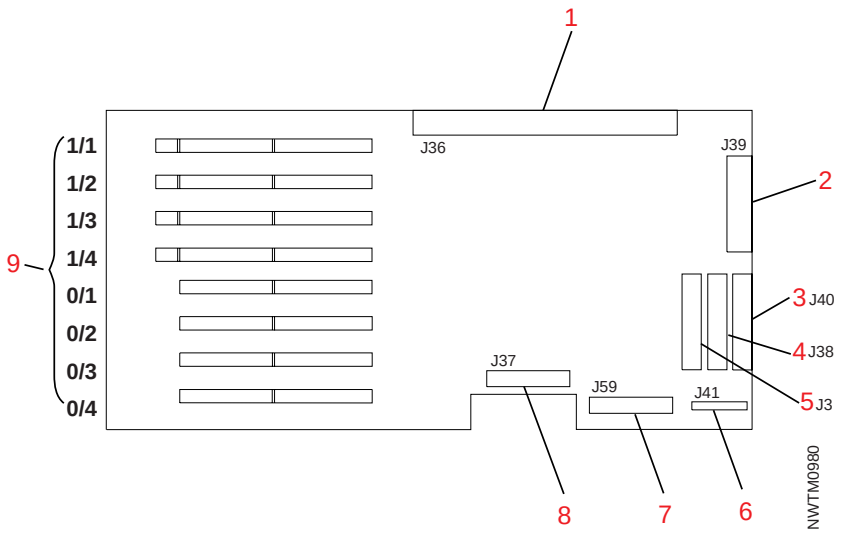


Part Name	Callout
J13, Power Supply	1
J14, Power Supply	2
J16, Power Supply	3
J36, CPU to I/O Planar Interface	4
Memory Card Slots (A thru H)	5
DC-DC Converter	6
L2 Cache	7

7013 Model 595 - I/O Planar Connectors

Table 510. 7013-595 I/O Pplanar connectors

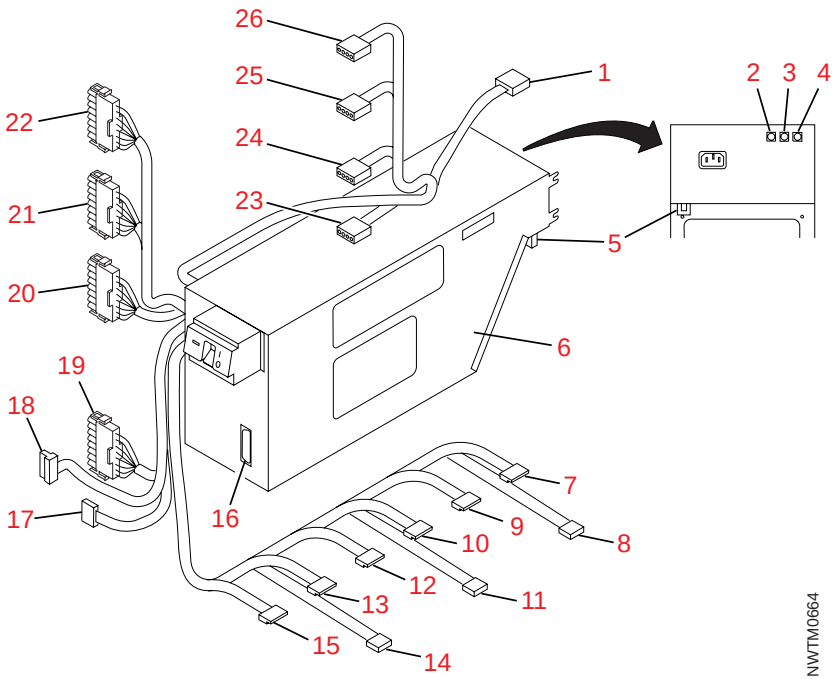
Note: See *Adapters, Devices and Cables Information for Channel Bus Systems*, SA38–0533, for more information.



Part Name	Callout
J3, 16 Bit SCSI to DASD	5
J36, CPU to I/O Planar Interface	1
J37, External Interface	8
J38, 8 Bit SCSI to Media	4
J39, Operator Panel	2
J40, Power Supply	3
J41, Power Supply	6
J59, Diskette Drive	7
Micro Channel Adapter Slots	9

7013 Model 595 - Power Supply Connectors

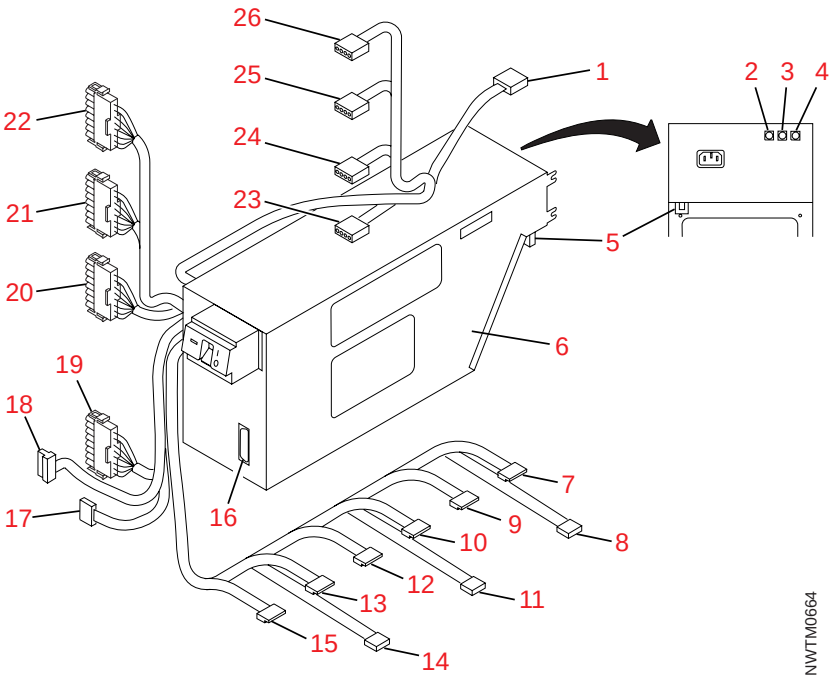
Table 511. 7013 Model 595 Power Supply Connectors



Part Name	Callout
Power Supply Cover	6
P13, Planar	22
P14, Planar	21
P16, Planar	20
P40, I/O Planar	19
P41, I/O Planar	18
P45A, Unused	26
P45B, Unused	25
P45C, CDROM Power	24
P45D, Diskette Power	23
P46A, Logic Fan	1
P46B, Tape Drive Fan (not used)	17
P47, Power Supply Fan	5
P49A, Disk Drive Fan E	14
P49B, Disk Drive Fan F	11
P49C, Disk Drive Fan G	8

(continued on next page)

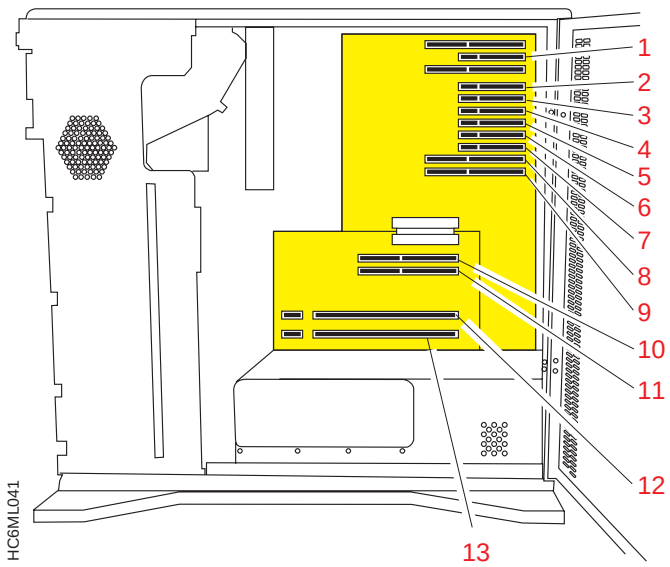
Table 511. 7013 Model 595 Power Supply Connectors (continued)



Part Name	Callout
P65A, Disk Drive E	15
P65B, Disk Drive	13
P65C, Disk Drive F	12
P65D, Disk Drive	10
P66A, Disk Drive G	9
P66B, Disk Drive	7

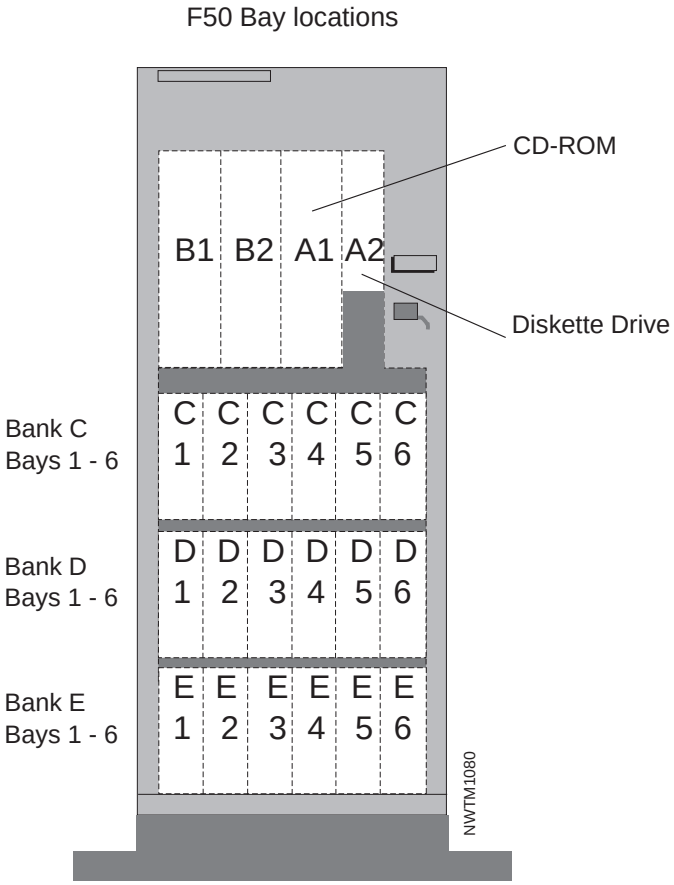
7025 Model F50 - Card Locations

Table 512. 7025- F50 Card Loactions



Part Name	Callout
Adapter Card (Slot 2) (not used)	8
Adapter Card (Slot 5) (not used)	5
Adapter Card, Display/Touch Screen (Slot 3)	7
Adapter Card, Host Attachment Card (Slot 6)	4
Adapter Card, Host Attachment Card (Slot 7)	3
Adapter Card (Slot 8) (not used)	2
Adapter Card, SCSI (IR1/IR2) (Slot 1)	9
Adapter Card, SCSI (IR3/IR4) (Slot 1)	9
Adapter Card, SCSI (IR3/IR4) (Slot 4)	6
Memory Card, (field converted IR3/IR4 only)	10
Memory Card	11
Processor Card	12
Processor Card	13
Adapter Card, SCSI (IR1/IR2) (Slot 9)	1
Adapter Card, SCSI (IR3/IR4) (Slot 9)	1

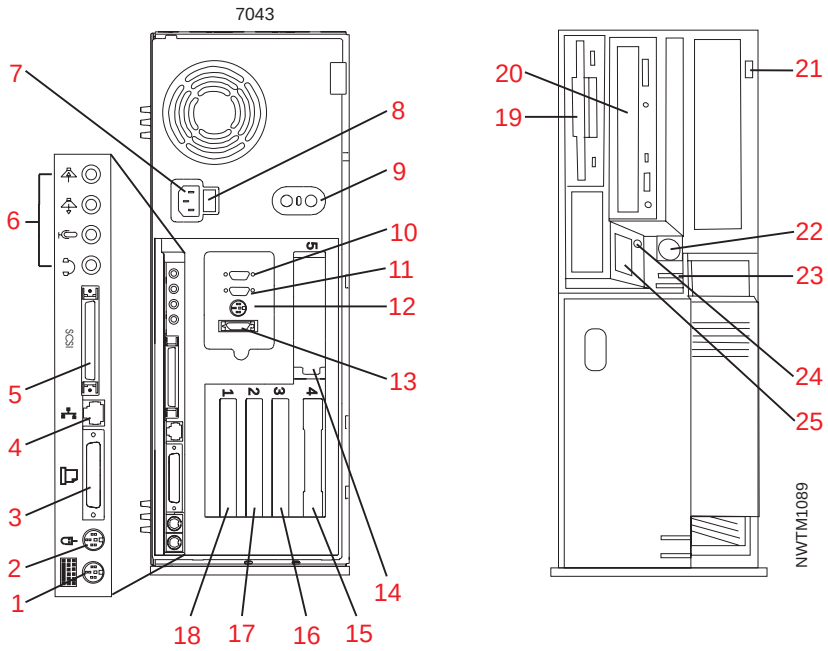
7025 Model F50 - Bay Locations



7043 Model 43P-140 - External View

Table 513. 7043 Model 43P-140 External View

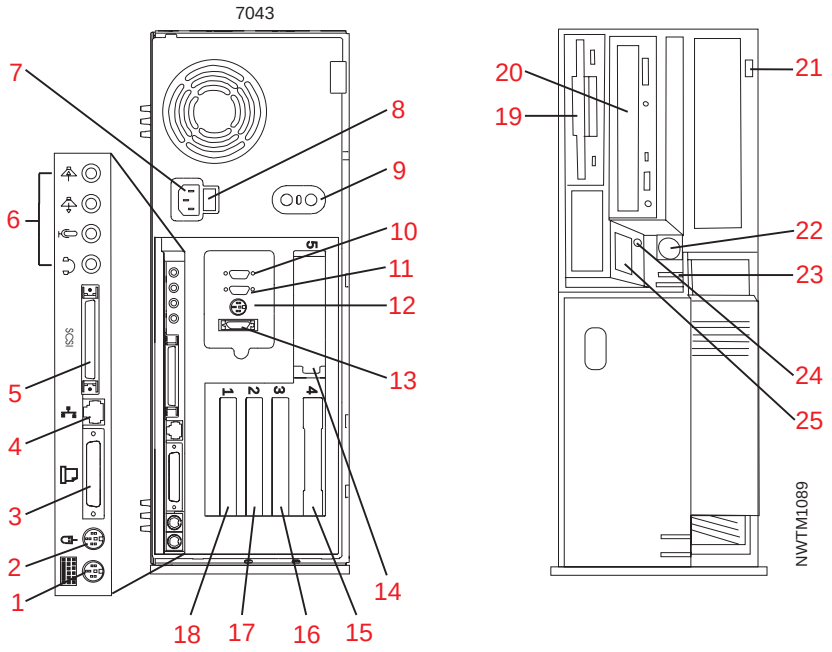
Note: See the *RS/6000 Type 7043 Model 43P Series Service Guide* SA38–0512, for location information internal to the 43P.



Part Name	Callout
Adapter Card (Slot 5) (not used)	14
Connector, Display/Touch Screen (Slot 1)	18
Connector, External SCSI Interface Terminator (not used)	5
Connector, Host Attachment Card (Slot 2)	17
Connector, Host Attachment Card (Slot 4)	15
Connector, Keyboard (not used)	1
Connector, Mouse	2
Connector, Parallel Port (not used)	3
Connector, Power	7
Connector, SCSI I/O Card to MIC (Slot 3)	16
Connector, Serial Port (S1)	10
Connector, Display/Touch Screen Serial Port (S2)	11

(continued on next page)

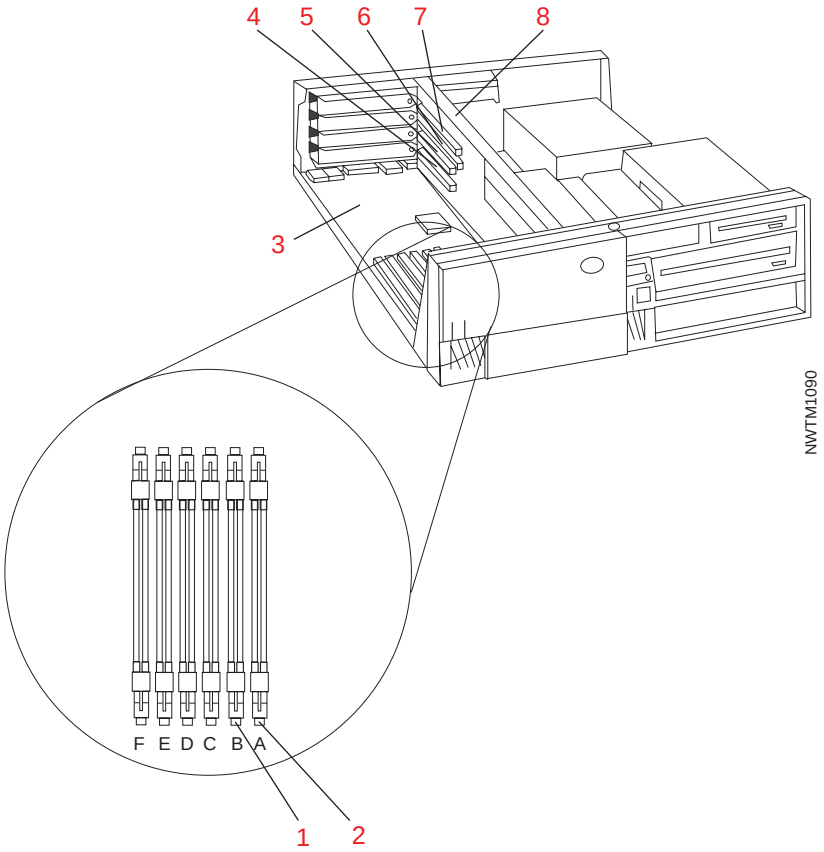
Table 513. 7043 Model 43P-140 External View (continued)



Part Name	Callout
Connector, Tablet (not used)	12
CPU Speed/Type	21
Drive, CDROM	20
Drive, 3.5-inch Diskette	19
Connector, Ethernet Twin Coax (not used)	13
Connector, Ethernet Twisted Pair (not used)	4
Ports, Audio	6
Power Switch (On/Off Pushbutton)	22
Power-On LED	23
Reset Button	24
Display	25
Serial Number	21
Switch, Voltage	8
Tether, Security	9

7043 Model 43P-140 - Internal View

Table 514. Controller, Covers Removed — RS/6000, Type 7043 Model 43P-140



Part Name	Callout
Adapter Card (Slot 5) (not used)	8
Adapter Card, Display/Touch Screen (Slot 1)	4
Adapter Card, Host Attachment (Slot 2)	5
Adapter Card, Host Attachment (Slot 4)	7
Adapter Card, SCSI (Slot 3)	6
DIMM, 64 MB	1
DIMM, 64 MB	2
Processor Card	3

Chapter 5. Removals and Adjustments

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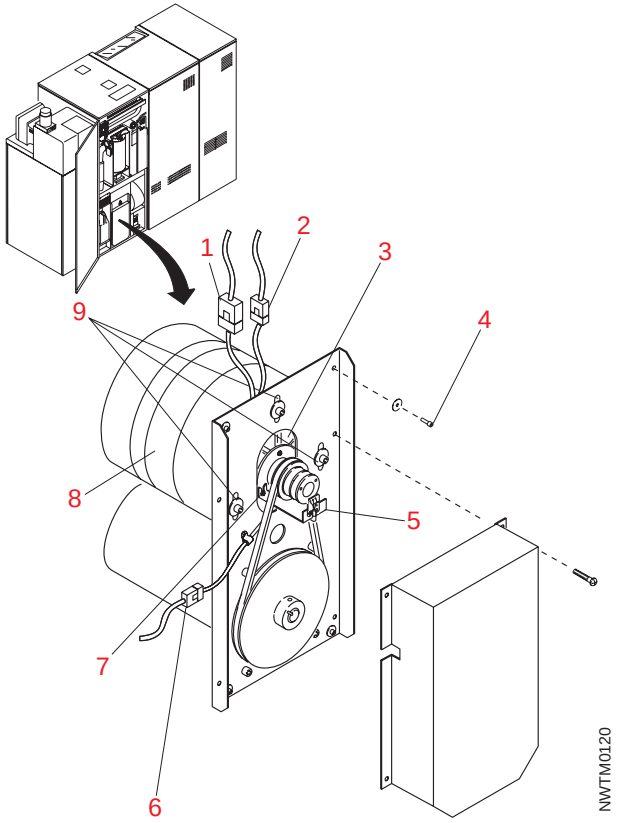
Air System

Cyclone Blower 2173
Cyclone Blower Drive Belt 2175
Cyclone Blower Motor (M104) 2177
Cyclone Blower Rotation Sensor (S116) 2178
Cyclone Pressure Check 2180
Filter Pressure Switch (S102) 2182
Fine Filter Case 2183
Fine Filter Switch (S108) 2184
Manifold Distribution Filter 2185
Toner Collector Bottle Assembly 2186
Toner Collector Bottle Switch (S118) 2187
Ozone Filter (Feature 9911) 2188
Preheat Platen Vacuum Adjustment 2189
Vacuum Blower (M105) 2191

Cyclone Blower

Table 515. Cyclone Blower



Cyclone Blower and Motor Assembly

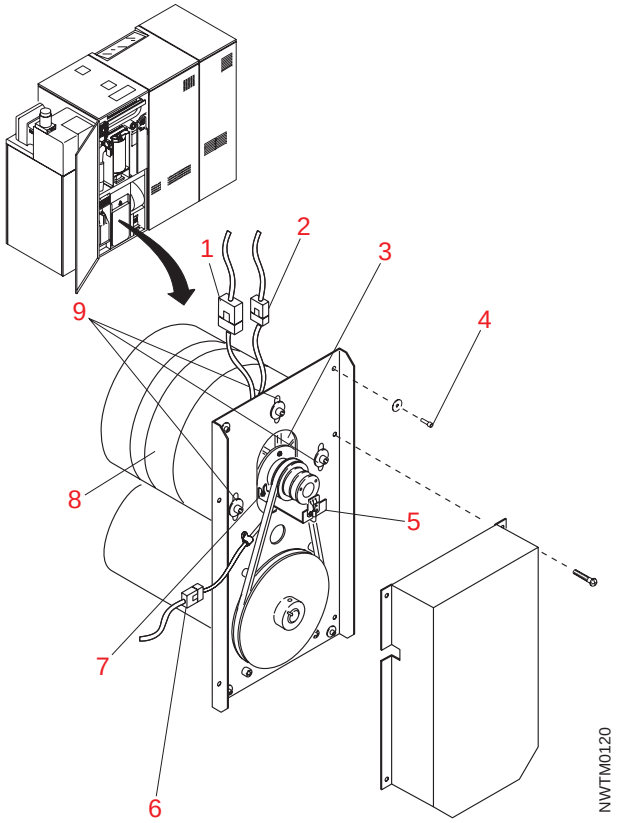
CAUTION:
<54> The cyclone blower motor weighs 17.7 kg (39 lb).

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Cyclone Blower Drive Belt.
4. Remove the four screws **(4)**; remove the cyclone blower and motor assembly **(3)**.
5. Disconnect connectors PJ150 **(6)**, PJ123 **(1)**, and PJ124 **(2)**.
6. Loosen the two screws **(7)** and remove the rotation sensor and mounting bracket **(5)**.
7. Remove the three screws **(9)** and remove the cyclone blower **(8)**.

(continued on next page)

Table 515. Cyclone Blower (continued)



Cyclone Blower and Motor Assembly

Installation

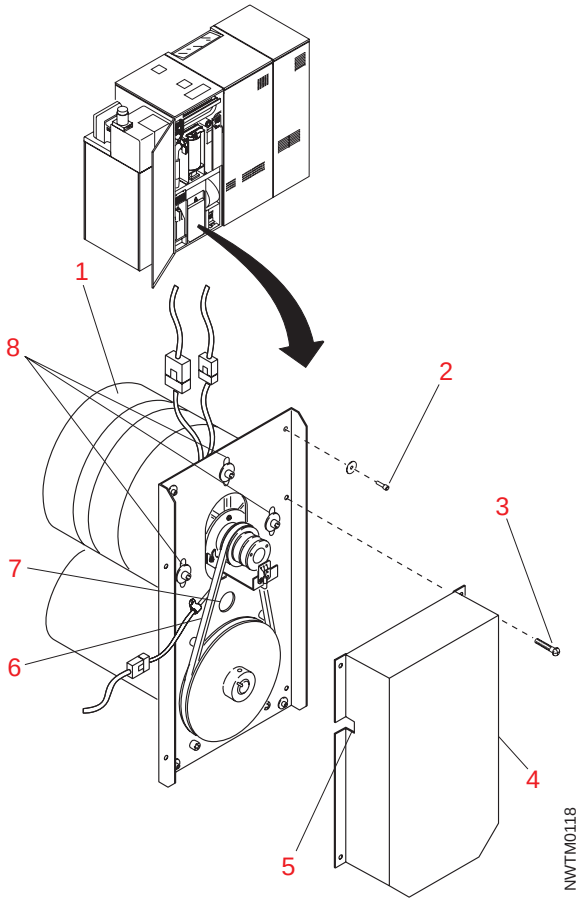
Reverse the removal procedure.

Check

1. Ensure that there is a clearance of 1.0 ±0.5 mm (0.04 ±0.02 in.) between the Cyclone Blower Rotation Sensor (S116) and the cyclone blower pulley.
2. Perform the Cyclone Pressure Check. Ensure the pressure differential across the cyclone is greater than 130 mm (5.0 in.) of water.
3. Run Print Pack to check print quality.

Cyclone Blower Drive Belt

Table 516. Cyclone Blower Drive Belt



Special Tools Required:

Push-pull scale (PN 0460870)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Remove the blower cover.
5. Remove the four screws **(3)** and remove the belt cover **(4)**.

Note: Because the holes in the belt cover are slotted, you can loosen the screws and flex the cover to free it.

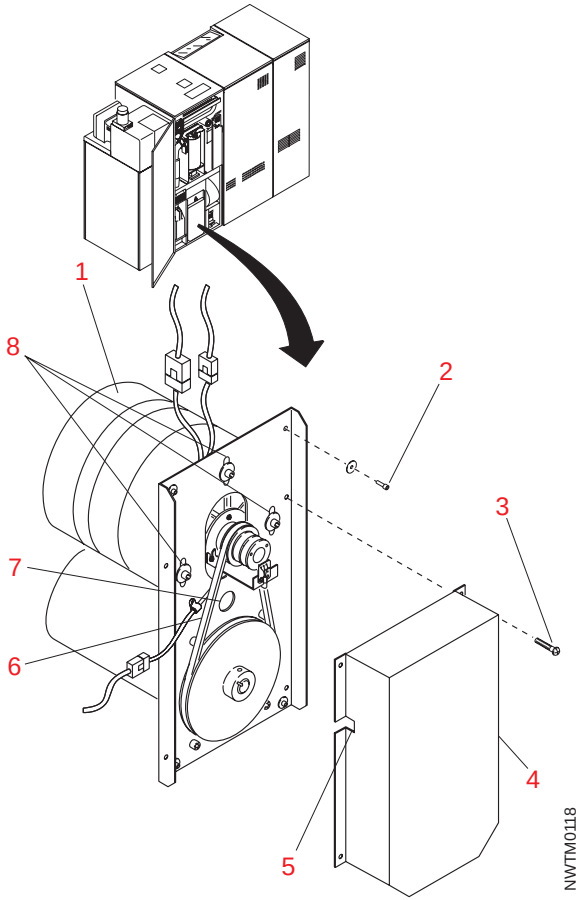
6. Loosen the four screws **(2)** to relieve pressure from the rear rubber gasket on the cyclone blower **(1)**.

Note: Before you remove the belt from the cyclone blower pulley, note on which pulley, the large or small one, the belt **(6)** is mounted. You will use the same pulley during installation.

7. Loosen the three screws **(8)**; lower the cyclone blower **(1)**; and remove the belt **(6)**.

(continued on next page)

Table 516. Cyclone Blower Drive Belt (continued)



Installation and Adjustment

Note: For 60-Hz printer, the belt goes on the large pulley. For 50-Hz printers, the belt goes on the small pulley.

1. Install the belt **(6)**.
2. Insert a screw driver into the hole **(7)** on the cyclone blower plate.

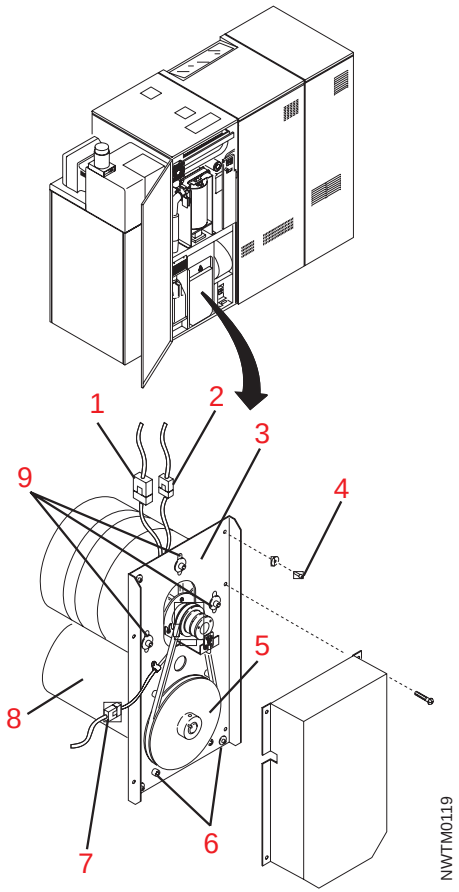
   Lift up on the cyclone blower **(1)** to adjust the belt tension.
3. Adjust the belt **(6)** so that there is a deflection of 3.0 mm (0.1 in.) when 1.0 to 1.3 kg (2.2 to 2.8 lb) of force is applied to the midpoint of the belt.
4. Tighten the three screws **(8)**.
5. Tighten the four screws **(2)** on the cyclone blower motor assembly.
6. Install the belt cover **(4)**.
7. Ensure that the cable is in the cutout **(5)**.

Check

1. Check the belt for a deflection of 3.0 mm (0.1 in.) when 1.0 to 1.3 kg (2.2 to 2.8 lb) of force is applied to the midpoint of the belt.
2. Perform the Cyclone Pressure Check. Ensure that the pressure differential across the cyclone is greater than 130 mm (5.0 in.) of water .
3. Run Print Pack to check print quality.

Cyclone Blower Motor (M104)

Table 517. Cyclone Blower Motor (M104)



CAUTION:
<54> The cyclone blower motor weighs 17.7 kg (39 lb).

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Cyclone Blower Drive Belt.
4. Remove the four screws **(4)**; remove the cyclone blower and motor assembly **(3)**.
5. Disconnect connectors PJ150 **(7)**, PJ123 **(1)**, and PJ124 **(2)**.
6. Loosen the two screws on the motor pulley **(5)** and slide it off the shaft.
7. Remove the four screws **(6)** with nuts and washers and remove the motor **(8)**.

Installation

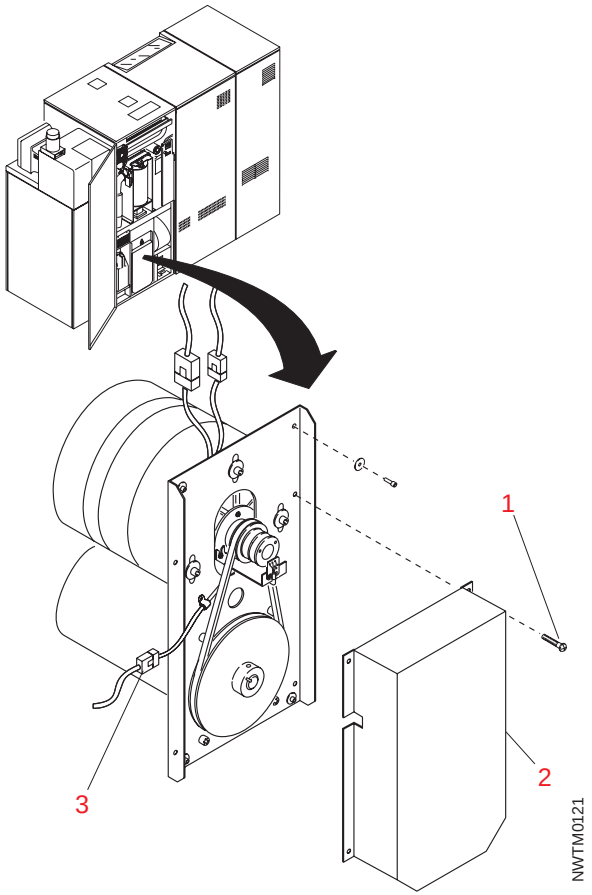
Reverse the removal procedure.

Check

1. Perform the Cyclone Pressure Check. Ensure the pressure differential across the cyclone is greater than 130 mm (5.0 in.) of water.
2. Run Print Pack to check print quality.

Cyclone Blower Rotation Sensor (S116)

Table 518. Cyclone Blower Rotation Sensor (S116)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Remove the blower cover.

Note: Because the holes in the belt cover are slotted, you can loosen the screws and flex the cover to free it.

5. Remove the four screws **(1)** and remove the belt cover **(2)**.
6. Disconnect connector PJ150 **(3)** and remove the cable from the clamp.
7. Remove the screw **(5)** and remove the cyclone blower rotation sensor **(4)**.

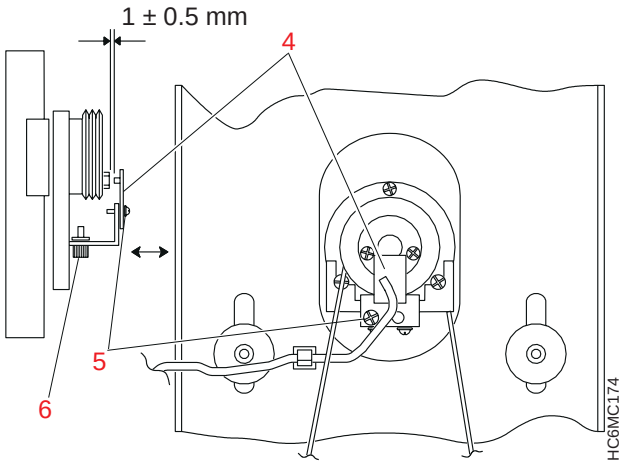


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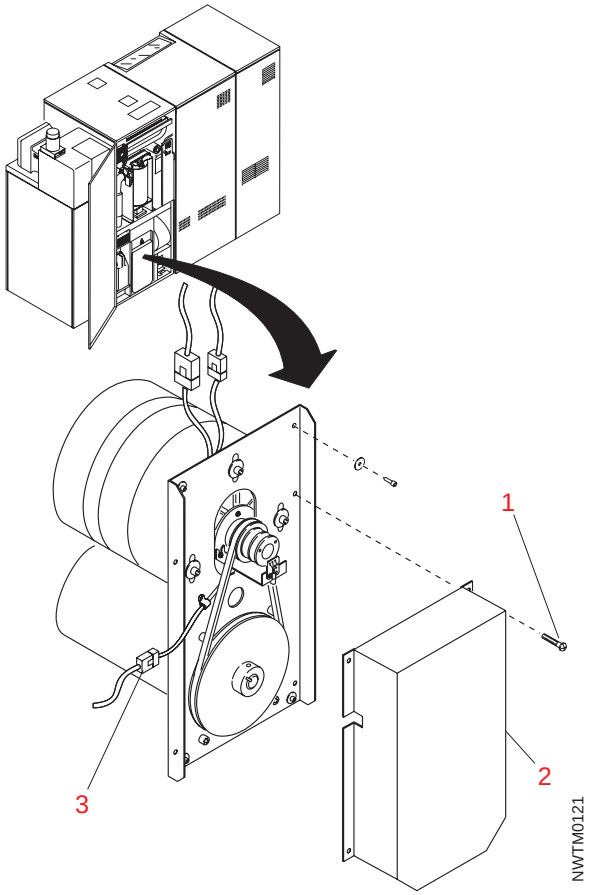
Table 518. Cyclone Blower Rotation Sensor (S116) (continued)

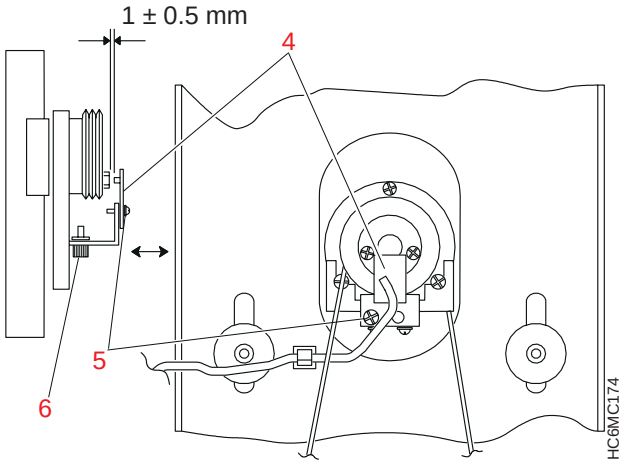


Installation and Adjustment

1. Install the rotation sensor.
2. Install the rotation sensor in the clamp and connect connector PJ150 **(3)**.
3. Loosen the screw **(6)** and adjust the rotation sensor gap so that there is a clearance of 1.0 ±0.5 mm (0.04 ±0.02 in.).
4. Install the belt cover **(2)**.
5. Install the blower cover.

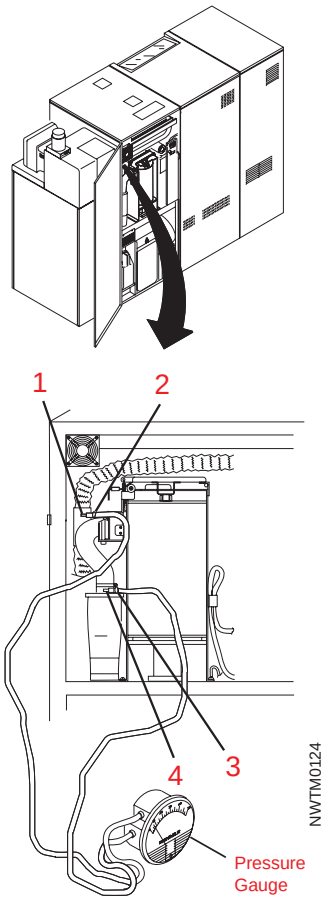
Check

1. Ensure that there is a clearance of 1.0 ±0.5 mm (0.04 ±0.02 in.) between the rotation sensor and the magnet.
2. Run Encoder Routine A7 to ensure that the cyclone blower rotation sensor works correctly.
3. Run Print Pack to check print quality.



Cyclone Pressure Check

Table 519. Cyclone Pressure Check



Special Tools Required:

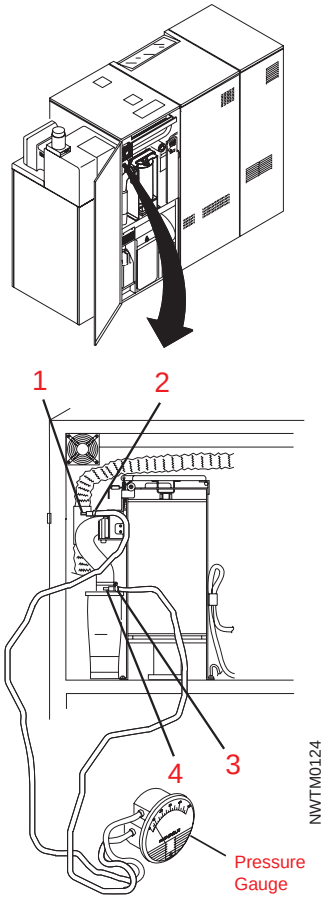
Pressure gauge (PN 03F5635)

Procedure

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Ensure that the toner collector bottle and the fine filter are not full before you continue with this procedure.
3. Load full-size forms into the printer.
4. Open the printer left rear cover.
5. Remove the rear process cover.
6. Remove the two air caps from the air test points **(2)** and **(3)** from the air test check points **(1)** and **(4)**.
7. Insert the HI side pressure gauge hose into the air check point **(1)**.
8. Insert the LO side pressure gauge hose into the air check point **(4)**.
9. Run Driver Routine 02 to ensure that the cyclone pressure is greater than 130 mm (5.0 in.) of water.

(continued on next page)

Table 519. Cyclone Pressure Check (continued)



You cannot make an adjustment to correct a low or high reading.

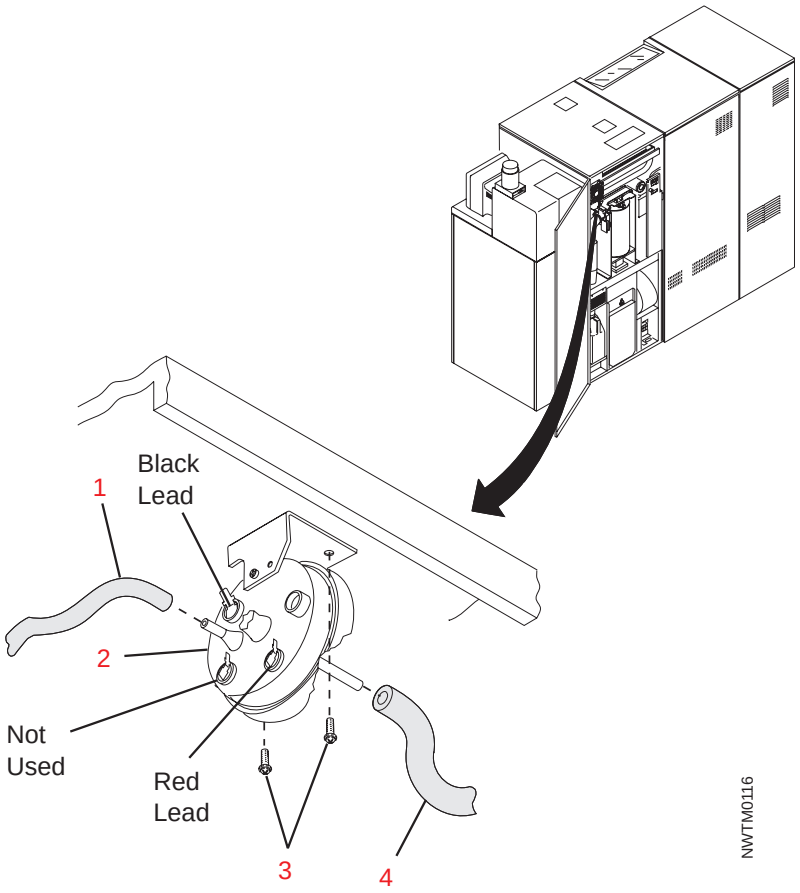
- A low vacuum reading may indicate one of the following:
  - A leaking, loose, or torn hose or fitting
  - A faulty cyclone blower
  - A clogged air hose
  - A fine filter that is full or not seated correctly.
- A high vacuum reading may indicate one of the following:
  - An obstruction in the cleaner, in the hose from the cleaner, or in the cyclone.

Installation

Disconnect the pressure gauge and reinstall the two air caps on the cyclone air test points.

Filter Pressure Switch (S102)

Table 520. Filter Pressure Switch (S102)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Remove the rear process cover.
5. Remove the hoses **(1)** and **(4)** from the pressure switch.
6. Remove the two wires from the switch.
7. Remove the two screws **(3)** and remove the pressure switch **(2)**.

Installation

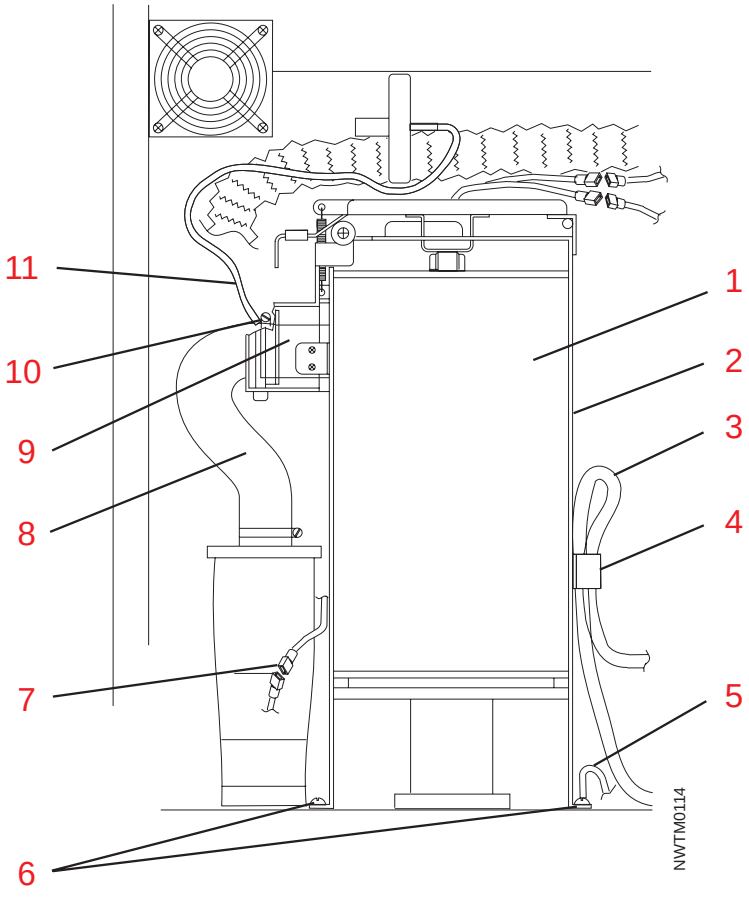
Reverse the removal procedure.

Check

1. Remove one hose from the filter pressure switch.
2. Force an end-of-forms condition by doing the following:
   a. Run Print Pack.
   b. Shine a light on the end of forms sensor.
3. The **Change fine filter** message appears on the Display/Touch Screen.
   This indicates that the pressure switch works correctly.
4. Run Print Pack to check print quality.

Fine Filter Case

Table 521. Fine Filter Case



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Remove the rear process cover.
5. Remove the fine filter.
6. Unhook the cable **(3)** from the clamp **(4)**.
7. Disconnect connector PJ131.
8. Remove the screws **(6)** (front and back).

   The ground wire **(5)** is attached by the front screw.
9. Loosen the hose clamp **(10)** and remove the hose **(8)** from the filter case pipe **(9)**.
10. Remove the filter pressure switch hose **(11)** from the rear of the fine filter case pipe **(9)** and slide out the fine filter case **(2)**. If necessary, lift the fine filter case off the foam seal to slide it out.
11. Tape a piece of paper over the fine filter vacuum hole to prevent contamination.

Installation

Reverse the removal procedure.

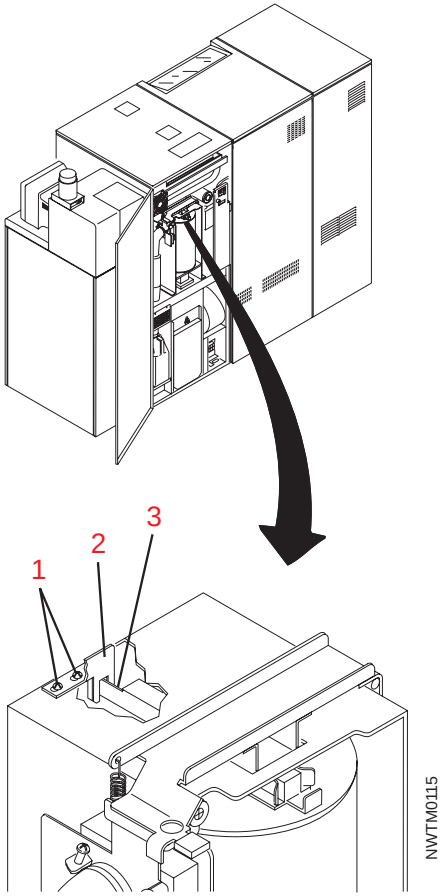
Be sure to install the star washer under the ground wire.

Check

Run Print Pack to check print quality.

Fine Filter Switch (S108)

Table 522. Fine Filter Switch (S108)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Fine Filter Case.
4. Remove the two screws **(1)** and remove the switch **(2)**.

Installation and Adjustment

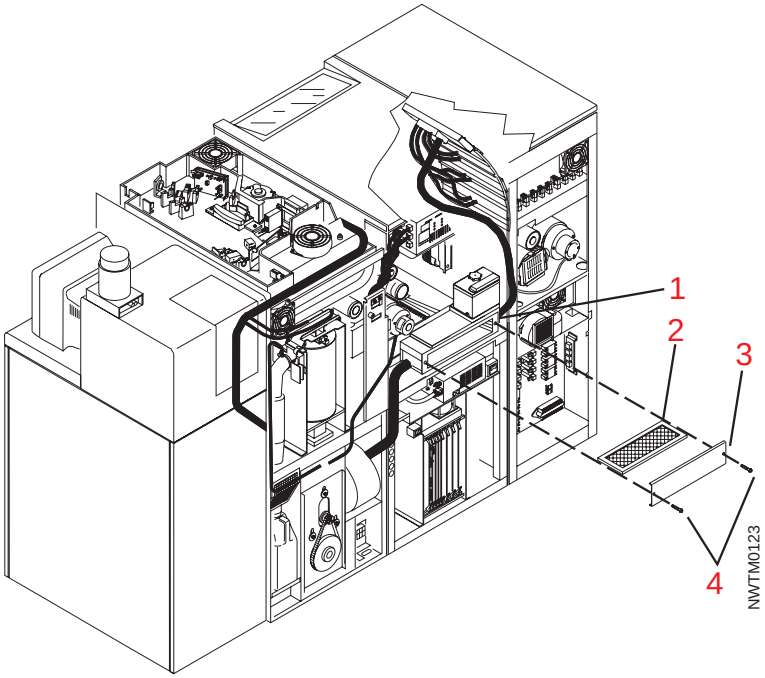
1. Install the fine filter into the fine filter case.
2. Reverse the removal procedure.
3. Adjust the switch so that it is centered around the vertical edge of the guide **(3)** on top of the fine filter.
4. Install the fine filter case.

Check

1. Run Sensor Routine 54 to ensure that the sensor correctly senses the presence of the fine filter.
2. Run Print Pack to check print quality.

Manifold Distribution Filter

Table 523. Manifold Distribution Filter



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer center rear cover.
4. Remove the two screws **(4)** and the cover **(1)**.
5. Carefully remove the filter **(2)**, remove the loose debris into a trash container or plastic bag.
6. Vacuum the filter **(2)** and filter box **(1)**.
7. If the filter is damaged or cannot be cleaned thoroughly, order a new manifold distribution filter.

   If the filter is damaged or you cannot clean it thoroughly, order a new manifold distribution filter.

Installation

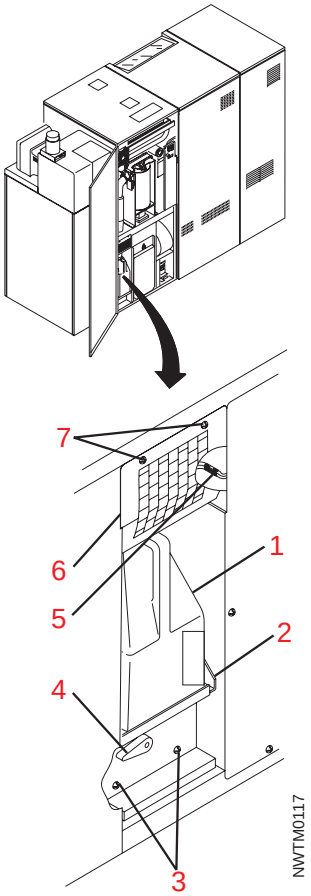
Reverse the removal procedure.

Check

Ensure proper positioning of the filter to prevent debris from going around the installed manifold distribution filter.

Toner Collector Bottle Assembly

Table 524. Toner Collector Bottle Assembly



Removal

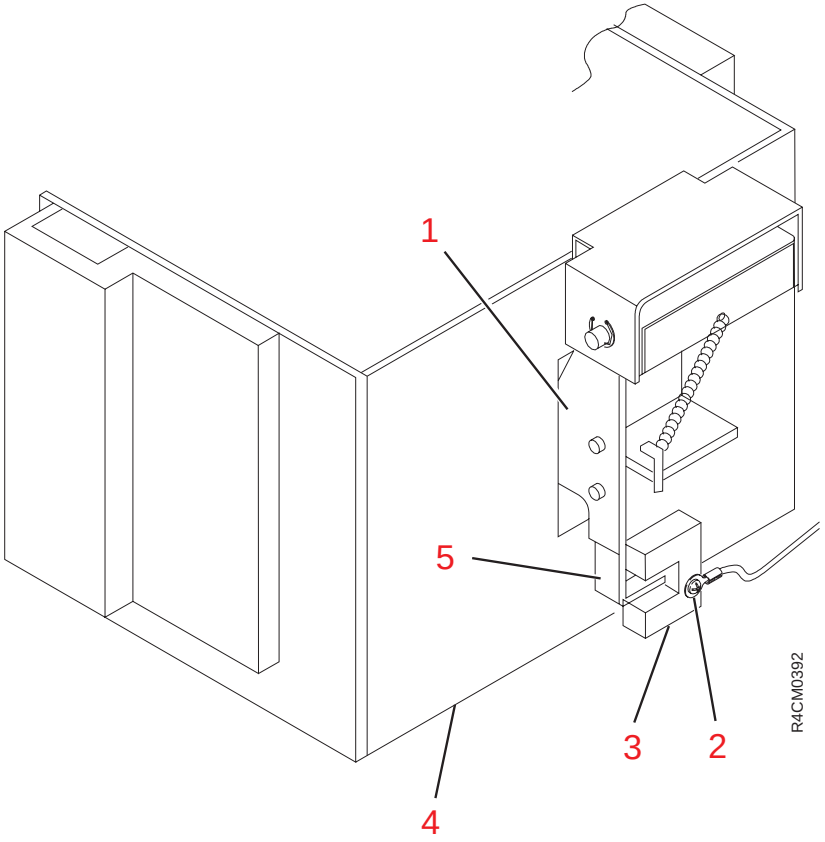
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Place paper or disposable cloths on the floor beneath the toner collector bottle to catch excess or spilled toner.
5. Turn the lever **(4)** clockwise, remove the toner collector bottle **(1)**. Be careful not to spill toner.
6. Remove the two screws **(7)**, remove the toner collector bottle fan cover **(6)**.
7. Disconnect connector PJ191.
8. Remove the lever **(4)** from the toner collector bottle and stand assembly **(2)**.
9. Release the cable from the clamp at the rear of the assembly.
10. Lift the assembly up and out to remove.

Installation

Reverse the removal procedure.

Toner Collector Bottle Switch (S118)

Table 525. Toner Collector Bottle Switch (S118)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Toner Collector Bottle Assembly.
4. Remove the screw **(2)**, remove the toner collector bottle switch **(3)**.

Installation and Adjustment

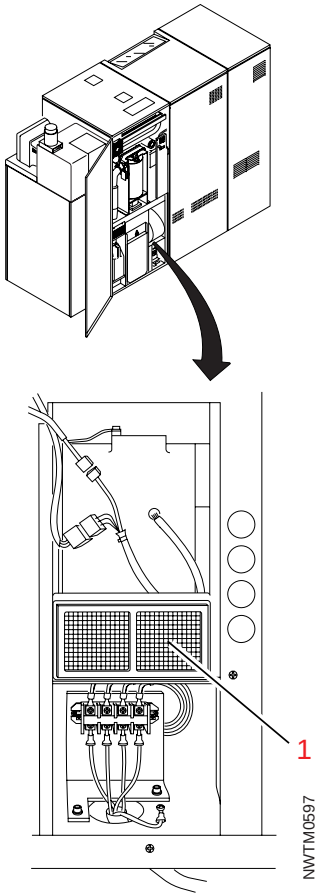
1. Install the toner collector bottle switch.
2. Adjust the sensor plate **(5)** so that it does not touch the switch **(3)** when the sensor arm **(1)** moves.
3. Install the Toner Collector Bottle Assembly.

Check

1. Run Sensor Routine 53 to ensure that the sensor detects the presence of the toner collector bottle.
2. Run Print Pack to very print quality.

Ozone Filter (Feature 9911)

Table 526. Ozone Filter (Feature 9911)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Remove the blower cover.
5. Remove the ozone filter **(1)**.

Installation

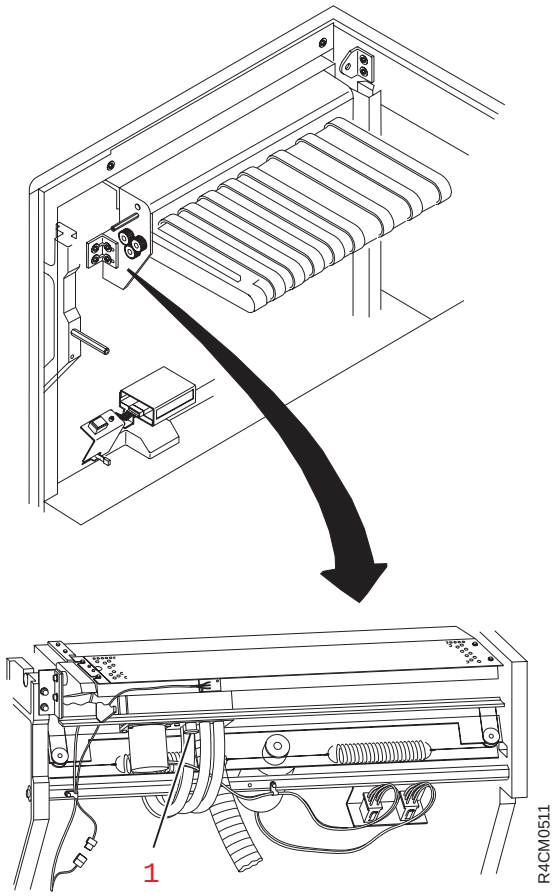
Reverse the removal procedure.

Check

Ensure the ozone filter is properly positioned to prevent air going around the filter when installed.

Preheat Platen Vacuum Adjustment

Table 527. Preheat Platen Vacuum Adjustment



Special Tools Required:

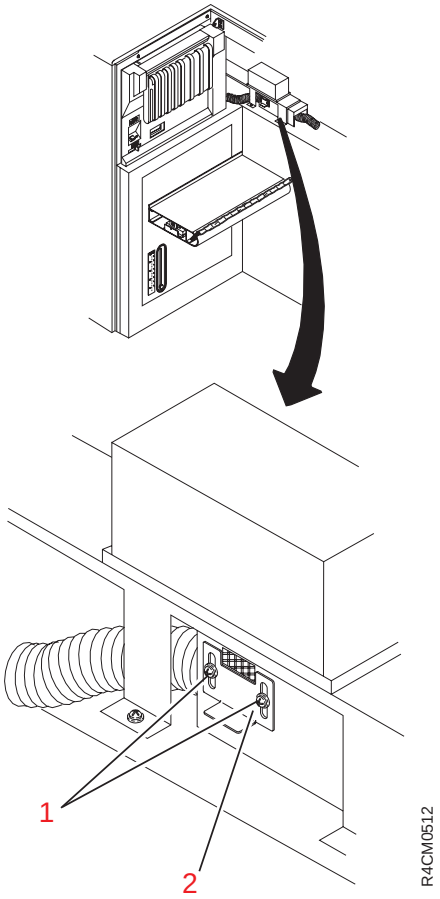
Pressure gauge (PN 03F5635)

Procedure

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Open the printer center front cover.
3. Run Driver Routine 21 to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
4. Remove the fuser right side cover.
5. Disconnect one of the preheat platen vacuum hoses from its fuser vacuum manifold port.
6. Connect the LO side of the pressure gauge to the fuser vacuum port **(1)** from which the vacuum hose was just disconnected. DO NOT use one of the vacuum manifold ports that is fitted with a plug.
7. Cover the shutter and preheat platen with forms. Ensure that the forms are lined up with the red line on the front of the shutter plate.
8. Set the rear tractor to the width of the form.
9. Run Driver Routine 22. Press **Enter** two times to drive the shutter to the rear. When you hear the beep, press **Start/Stop**. the shutter should be lined up with the rear edge of the forms.
10. Run Driver Routine 24 to start the vacuum pressure. The forms should attach to the vacuum plate.
11. Read the pressure gauge. The pressure should be 250.0 ±15.0 mm (10.0 ±0.6 in.).

(continued on next page)

Table 527. Preheat Platen Vacuum Adjustment (continued)



Vacuum Port Baffle

Adjustment

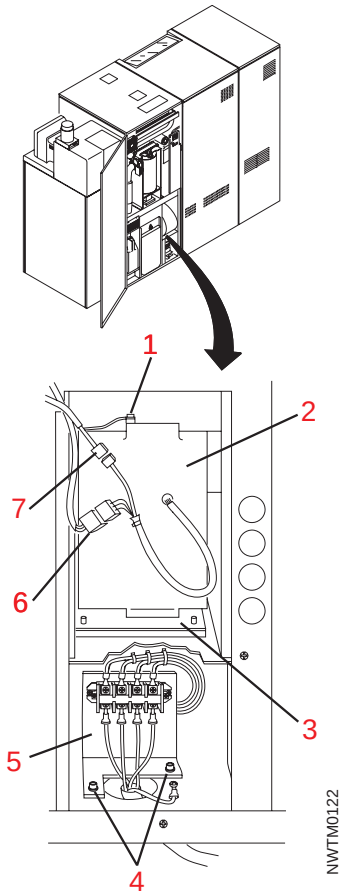
1. Clean the manifold distribution filter.
2. Perform the Shutter Home Sensor (S604) adjustment.
3. If, after you perform the adjustment, the pressure is still not within the acceptable range, perform the following steps:
   a. Remove the oil pump assembly cover.
   b. Loosen the two screws **(1)** and slide the vacuum port baffle **(2)** up or down to adjust the fuser vacuum port so that the pressure gauge indicates 250.0 ±15.0 mm (10.0 ±0.6 in.).

Check

Run Print Pack to check print quality.

Vacuum Blower (M105)

Table 528. Vacuum Blower (M105)



<7> Line voltage is present when the printer is powered-off. Disconnect the power cord before working in this area.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Remove the blower cover.
5. Disconnect connectors PJ633 **(6)**, PJ672 **(7)**, and the ground wire **(1)**.
6. Remove the two screws to move the terminal block **(5)** and gain access to the four screws holding the vacuum blower assembly **(3)**.
7. Remove the four screws with washers, shock mounts, and spacers.
8. Lift up and remove the vacuum blower **(2)**.

Installation

Reverse the removal procedure.

Check

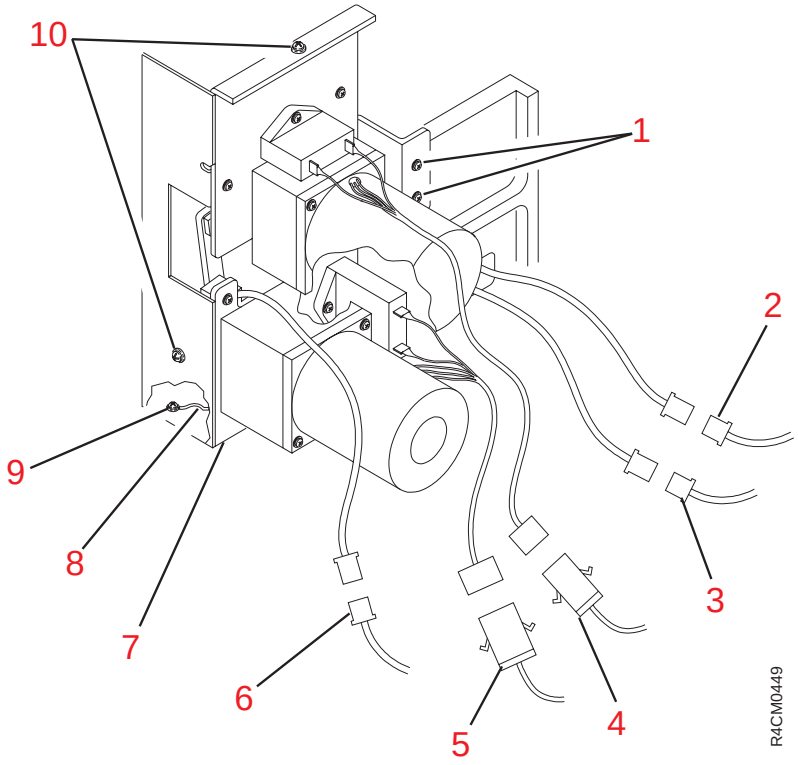
1. Perform the Preheat Platen Vacuum Adjustment.
2. Run Print Pack to check print quality.

Auto Load Bridge

Auto Load Bridge Assembly 2193
Bridge Down Switch (S609) 2195
Bridge Feed Belts. 2196
Bridge Feed Gears 2197
Bridge Feed Motor (M605) and Gearbox 2198
Bridge Height and Parallelism 2199
Bridge Lift Motor (M606) and Gearbox 2202
Bridge Up Switch (S608) 2209

Auto Load Bridge Assembly

Table 529. Auto Load Bridge Assembly



Removal

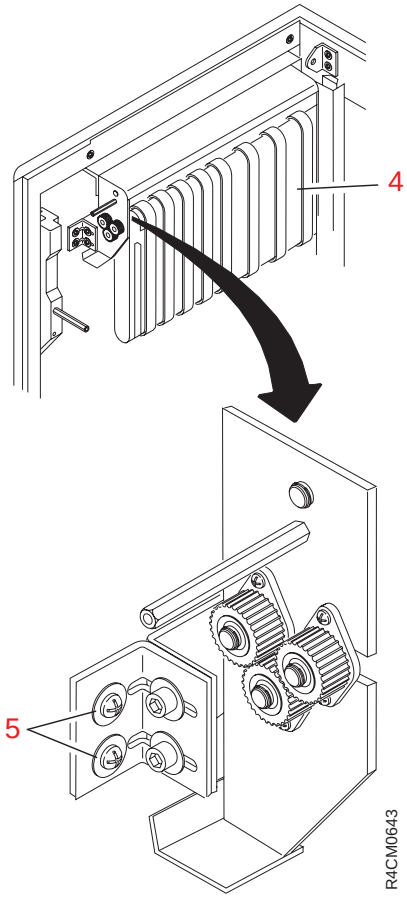
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Remove the two screws **(10)**, remove the auto load bridge motor cover from the front of the printer.
3. Run Driver Routine 21 to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.

Note: If the auto load bridge procedure is not working, remove the Bridge Lift Motor (M606) and Gearbox.

4. Remove the auto load bridge front cover.
5. Run Driver Routine 21 to lower the auto load bridge.
6. Shutdown and power off the printer.
7. Open the printer center rear cover.
8. Remove the transfer station center rear cover.
9. Disconnect connectors PJ617 **(6)**, PJ618 **(3)**, PJ654 **(4)**, and PJ655 **(5)**.
10. Remove the screw **(9)**, remove the ground wire **(8)** from the bottom of the bridge motor assembly **(7)**.
11. Remove the two screws **(1)**.
12. Remove the vacuum hose from the front of the auto load bridge assembly.

(continued on next page)

Table 529. Auto Load Bridge Assembly (continued)



Note: Avoid pinching the cable (PJ618) on the bridge down switch when you rest the bridge assembly on a bench.

13. While you hold the bridge, remove the two screws **(5)**, remove the auto load bridge assembly **(4)**.

Installation

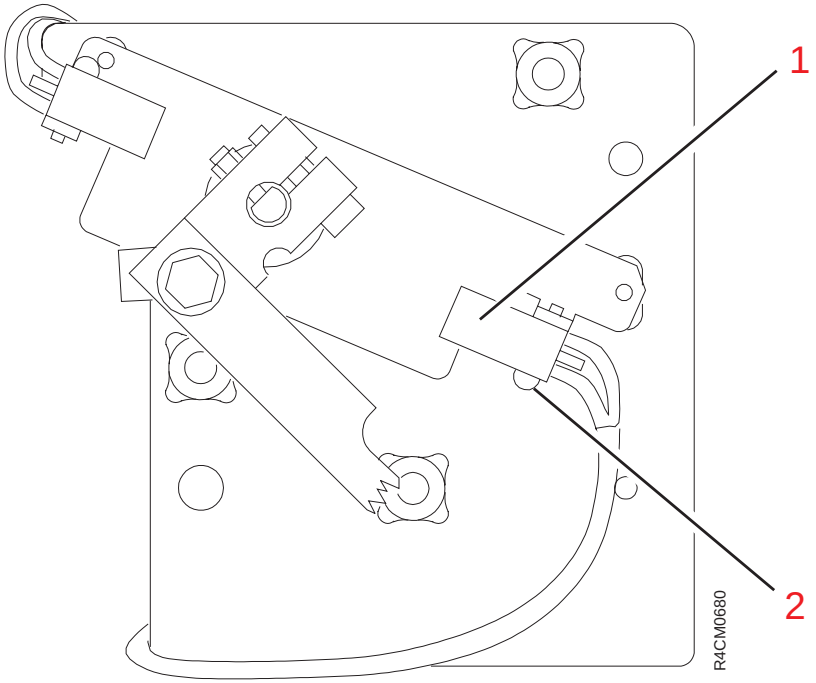
1. Reverse the removal procedure.
2. Perform the following to ensure that the auto load bridge assembly is not tilted toward the transfer station.
   a. Loosen the two rear mounting screws and from the rear of the printer and rotate the entire bridge assembly in a clockwise direction.
   b. Tighten the two rear mounting screws.

Check

1. Ensure that the upper surface of the bridge is level with or up to 3 mm higher than the upper surface of the tension arm when the tension arm is in the load position. If the height is incorrect, perform the Bridge Height Adjustment
2. Run the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.

Bridge Down Switch (S609)

Table 530. Bridge Down Switch (S609)



Removal

1. Remove the Auto Load Bridge Assembly.
2. Remove the screw **(2)**, remove the bridge down switch (S609) **(1)**.

Installation

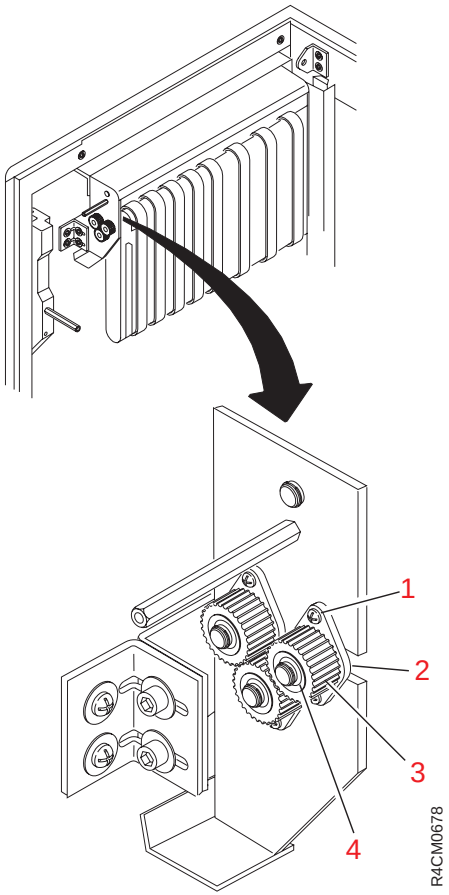
Reverse the removal procedure.

Check

1. Run Driver Routine 21 to ensure that the bridge stops in the down (print) position.
2. Run the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.
3. Run Print Pack to check print quality.

Bridge Feed Belts

Table 531. Bridge Feed Belts



Removal

1. Remove the Auto Load Bridge Assembly.

Attention: Be careful not to drop the drive pin from the back of the feed belt gear **(3)**.

2. Remove the c-clip **(4)**, remove the gear **(3)**.
3. Remove the two screws **(1)**, remove the bearing **(2)**.
4. To remove the bridge feed belts, pivot the bridge to the right until the shaft clears the mounting bracket. The rear of the bridge remains attached.
5. Remove the belts from the bridge assembly.

Note: Cut and remove the belts if they are worn. If you intend to reinstall the belts, you may stretch them to pull them off the front of the bridge assembly.

Installation

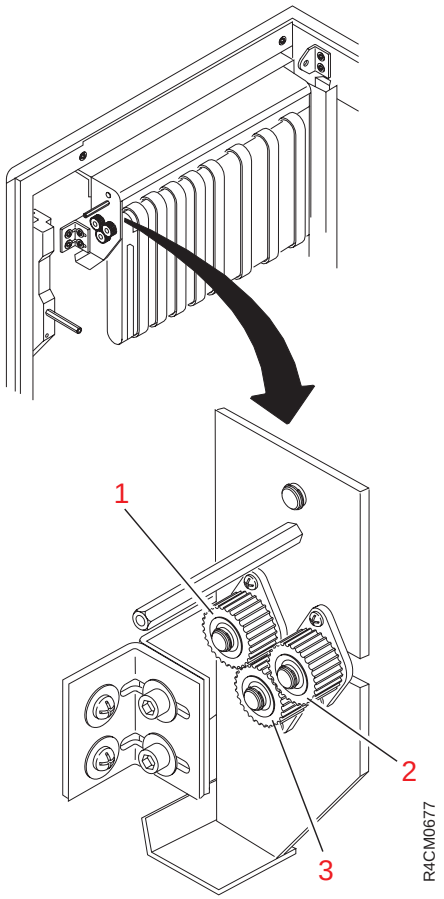
Reverse the removal procedure.

Check

1. Run Driver Routine 20 to ensure that the bridge feed belts track correctly.
2. Run the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.
3. Run Print Pack to check print quality.

Bridge Feed Gears

Table 532. Bridge Feed Gears



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine 21 to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.

Note: You may leave the bridge in the raised position during this procedure.

3. Remove the auto load bridge front cover.
4. Remove the c-clip for the gear **(1)**, **(2)**, or **(3)** being removed.

Attention: Be careful not to drop the drive pin from the back of the feed belt gears **(1)** and **(2)**.

5. Remove the gear.

Installation

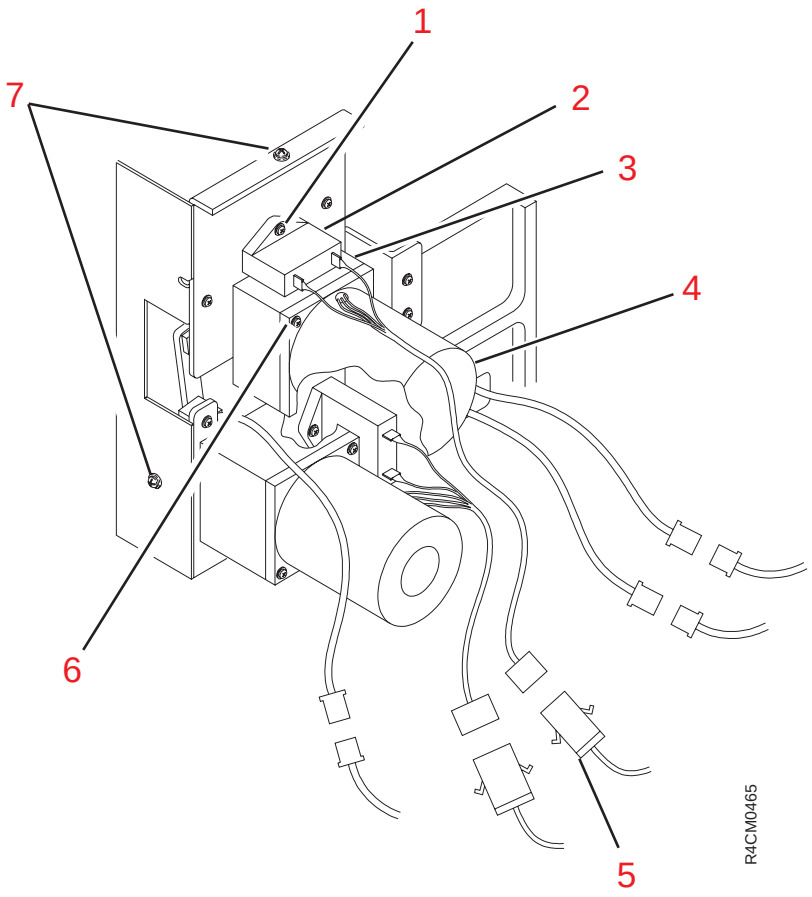
Reverse the removal procedure.

Check

1. Run Driver Routine 20 to ensure that the bridge feed belts work correctly.
2. Perform the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.

Bridge Feed Motor (M605) and Gearbox

Table 533. Bridge Feed Motor (M605) and Gearbox



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer center rear cover.
4. Remove the transfer station center rear cover.
5. Remove the two screws **(7)**, remove the auto load bridge motor cover.
6. Disconnect connector PJ654 **(5)**.
7. Remove the screw **(1)**, remove the capacitor **(2)**.
8. Remove the two screws **(6)**, remove the bridge feed motor **(4)** and gearbox **(3)**.

Installation

Reverse the removal procedure.

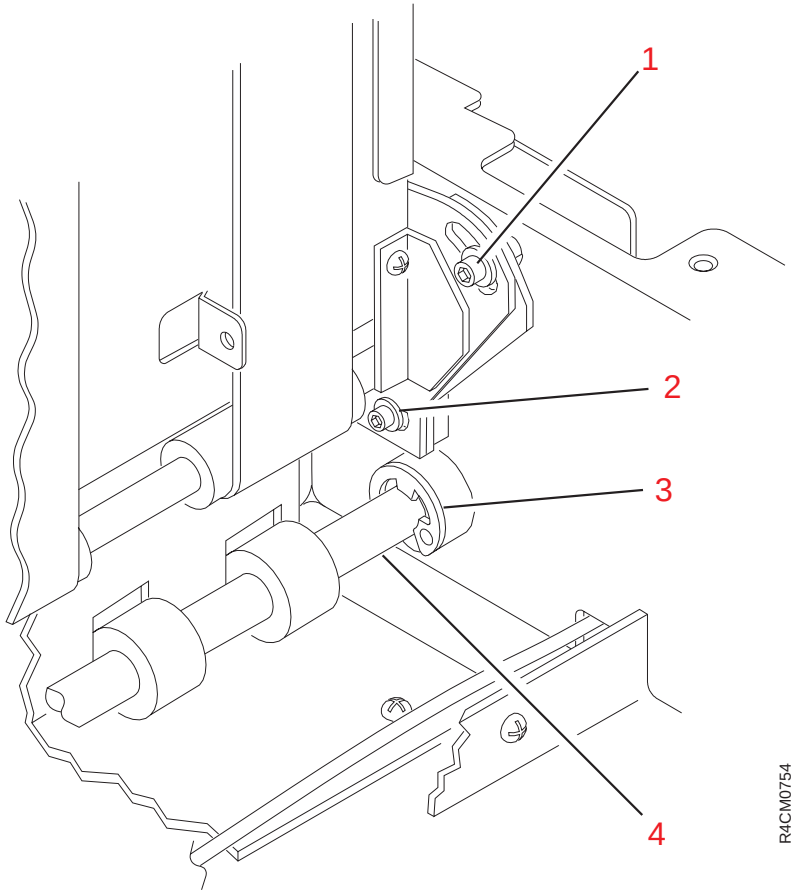
Hint: Before you secure the feed motor, press the motor gear against the feed shaft gear by raising it to the right to ensure that the teeth are fully engaged.

Check

1. Run Driver Routine 20 to ensure that the bridge feed belts turn.
2. Perform the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.

Bridge Height and Parallelism

Table 534. Bridge Height and Parallelism



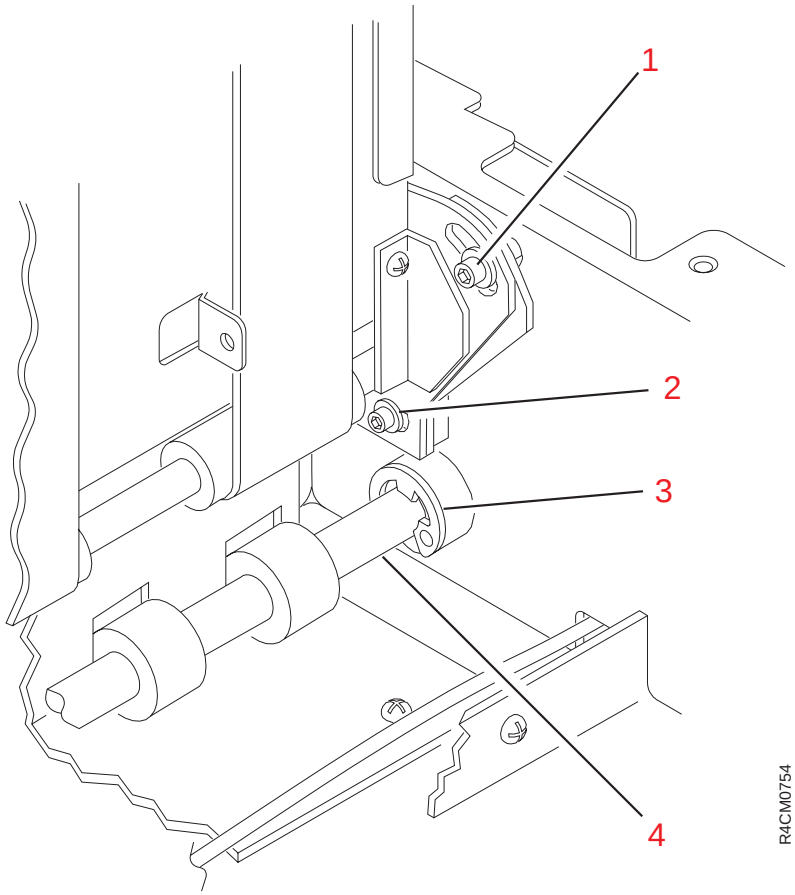
Check

1. Run Adjustment Routine C5 to raise the bridge to its uppermost position and to lower the tension arm to its load position. Press **Start/Stop** to stop the feed belts from turning.
2. Use a 150 mm (6 in.) ruler to measure the clearance between the rear of the bridge and the tension arm. Then measure the clearance between the front of the bridge and the tension arm. If the clearances are not the same, perform the Bridge Parallelism Adjustment
3. Ensure that the upper surface of the bridge is level with or up to 3 mm higher than the upper surface of the tension arm when the tension arm is in the load position. If the height is incorrect, perform the Bridge Height Adjustment.

(continued on next page)

Table 534. Bridge Height and Parallelism (continued)

Bridge Height Adjustment

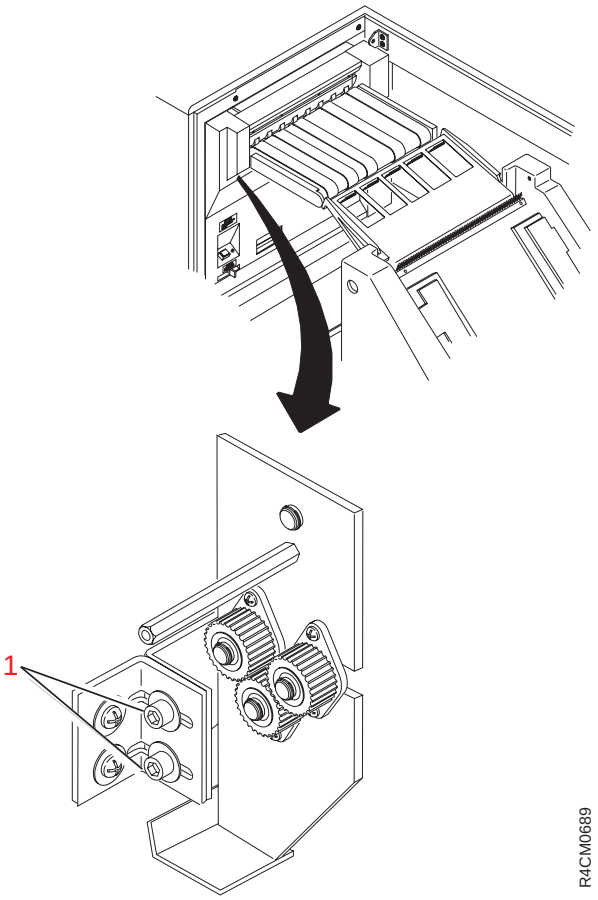


Height Adjustment

1. Ensure that the auto load bridge assembly is not tilted toward the transfer station:
   a. Loosen the two rear mounting screws from the rear of the printer and rotate the entire bridge assembly in a clockwise direction.
   b. Tighten the two rear mounting screws.
2. Perform the **Check** procedure under Bridge Lift Motor Interrupter.
3. With the bridge down, loosen the screw **(2)** at the rear of the auto load bridge.
4. Run Adjustment Routine C5 to raise the bridge to its uppermost position and to lower the tension arm to its load position. Press **Start/Stop** to stop the feed belts from turning.
5. Loosen the screw **(1)** at the rear of the underside of the bridge and raise or lower the bridge until its upper surface is level with or up to 3 mm higher than the upper surface of the tension arm when in the load position.
6. Tighten the screw **(1)**.
7. Run Adjustment Routine C5. Press **Enter** to lower the bridge.
8. Tighten the top screw **(2)**.
9. Run the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.

(continued on next page)

Table 534. Bridge Height and Parallelism (continued)
Bridge Parallelism Adjustment



Parallelism Adjustment

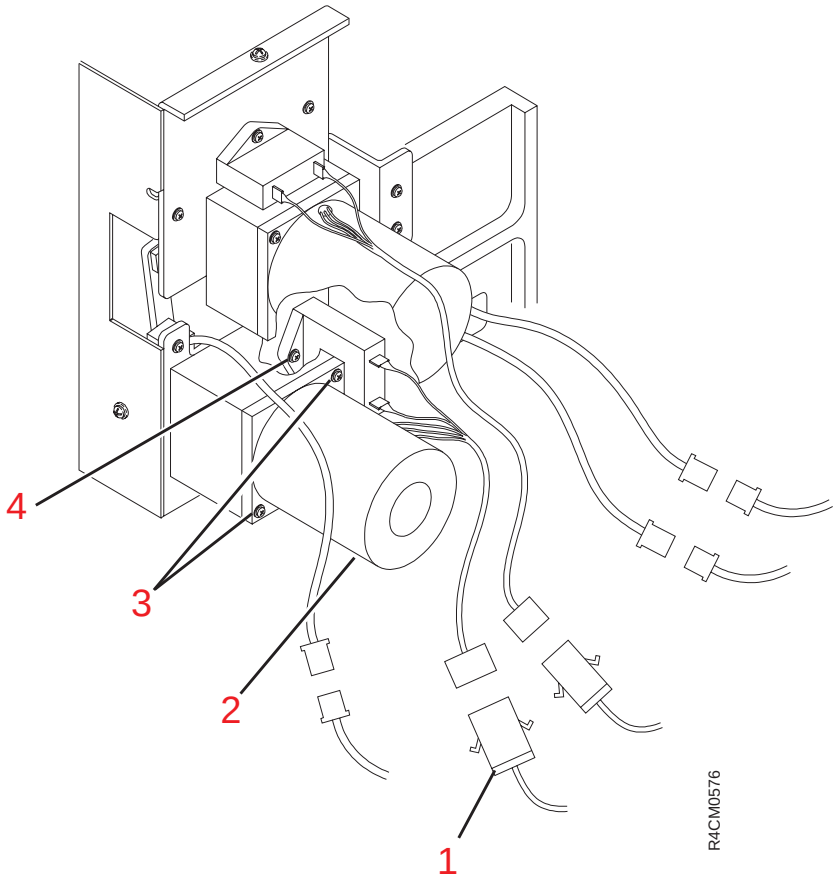
1. Ensure that the auto load bridge assembly is not tilted toward the transfer station:
   a. Loosen the two rear mounting screws from the rear of the printer and rotate the entire bridge assembly in a clockwise direction.
   b. Tighten the two rear mounting screws.
2. Run Adjustment Routine C5 to raise the bridge to its uppermost position and to lower the tension arm to its load position. Press **Start/Stop** to stop the feed belts from turning.
3. Use a 150 mm (6 in.) ruler to measure the clearance between the rear of the bridge and the tension arm. Then measure the clearance between the front of the bridge and the tension arm.
4. Remove the auto load bridge front cover.
5. Loosen the two screws **(1)** on the front mounting bracket and slide the table until the clearance is the same in the front and the rear. The rear position is fixed.
6. Run the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.

Check

Run Print Pack to check print quality.

Bridge Lift Motor (M606) and Gearbox

Table 535. Bridge Lift Motor (M606) and Gearbox



Removal: Motor Only

Hint: Try replacing only the motor first because the gearbox is difficult to remove.

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer center rear cover.
4. Remove the transfer station center rear cover.
5. Remove the screw **(4)**, remove the capacitor.
6. Disconnect connector PJ655 **(1)**.
7. Remove the two screws **(3)**, remove the bridge motor **(2)** from the gearbox.

Installation

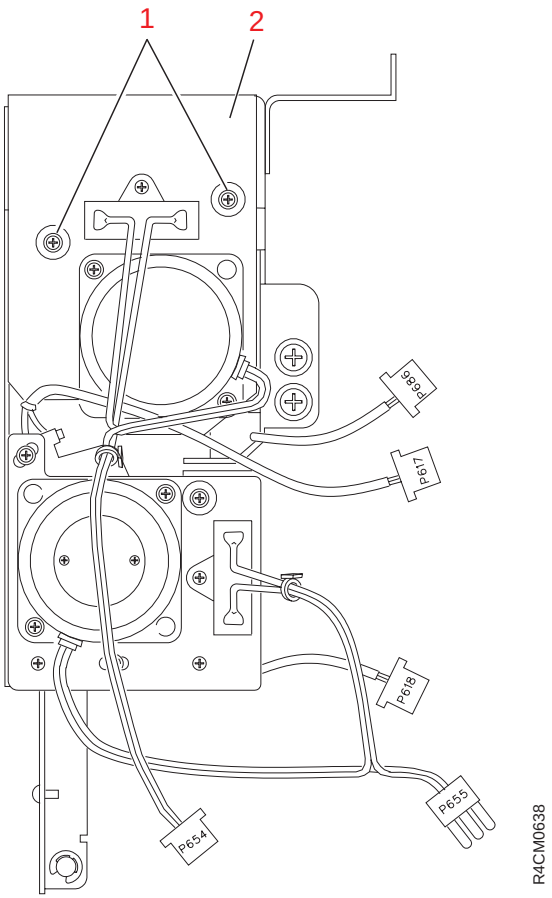
Reverse the removal procedure.

Check

1. Run Driver Routine 21 to ensure that the auto load bridge works correctly.
2. Perform the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.

(continued on next page)

Table 535. Bridge Lift Motor (M606) and Gearbox (continued)



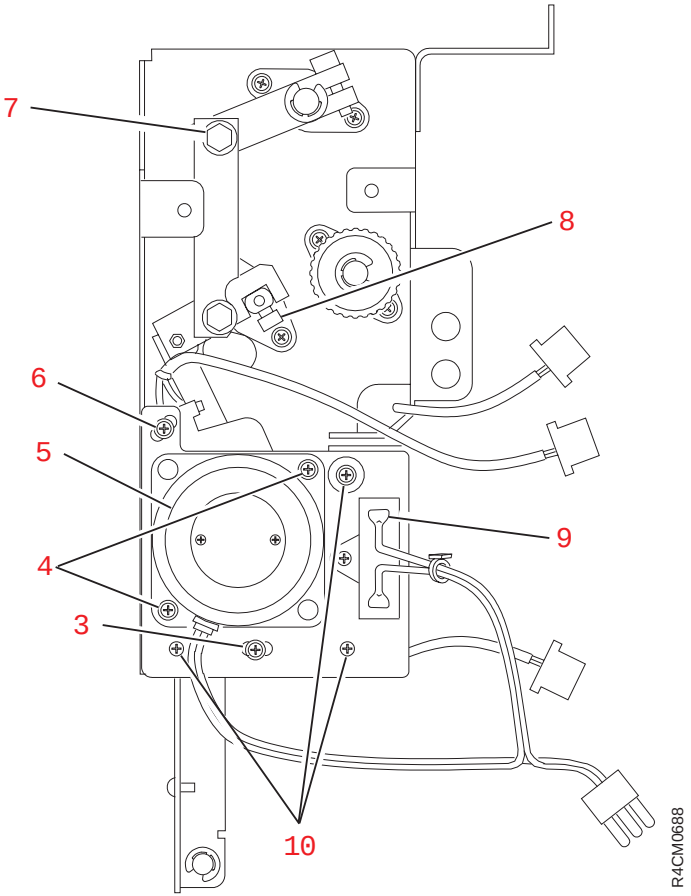
Removal: Motor and Gearbox

Note: Ensure that the bridge is in the down position when you remove the assembly.

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Auto Load Bridge Assembly.
4. Remove the two screws **(1)**, remove the bridge feed motor assembly **(2)**.

(continued on next page)

Table 535. Bridge Lift Motor (M606) and Gearbox (continued)



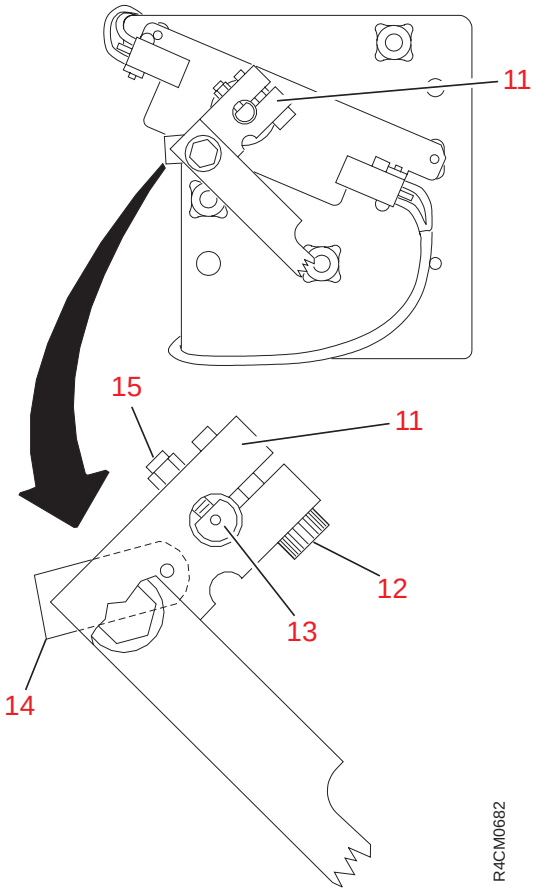
5. Remove the screw and washer **(8)**.
6. Remove the screw and nut **(7)**, disconnect the linkage.
7. Remove the three screws **(10)**, remove the bridge lift motor **(5)** with links attached.

Note: Do not loosen the screws **(3)** and **(6)** or you will have to adjust the Bridge Up Switch (S608).

8. Remove the screw, remove the capacitor **(9)**.

(continued on next page)

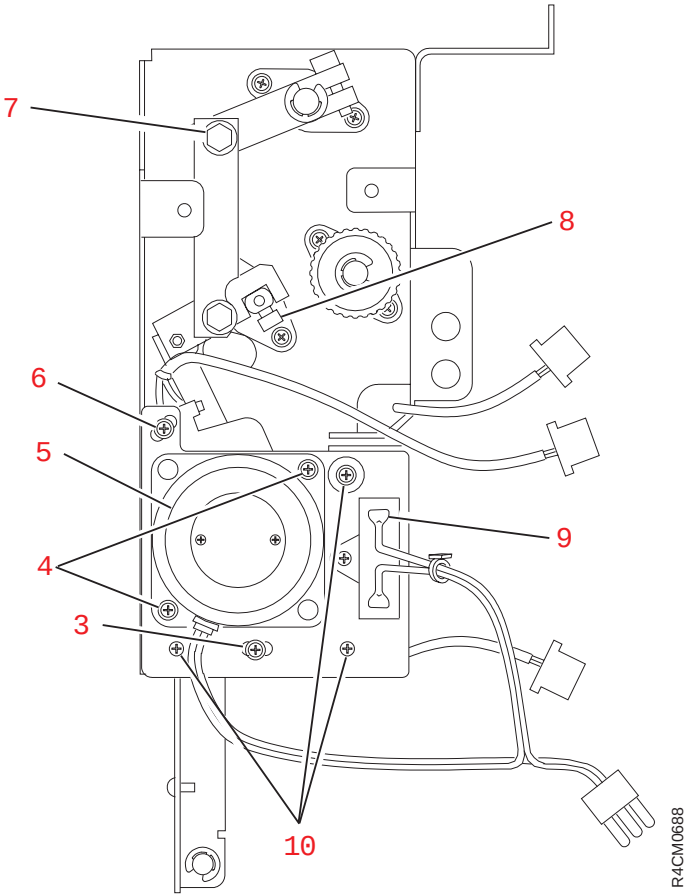
Table 535. Bridge Lift Motor (M606) and Gearbox (continued)



9. Loosen the nut and set screw **(15)**, the clamping screw **(12)**, remove the link **(11)** from the bridge lift motor shaft.

(continued on next page)

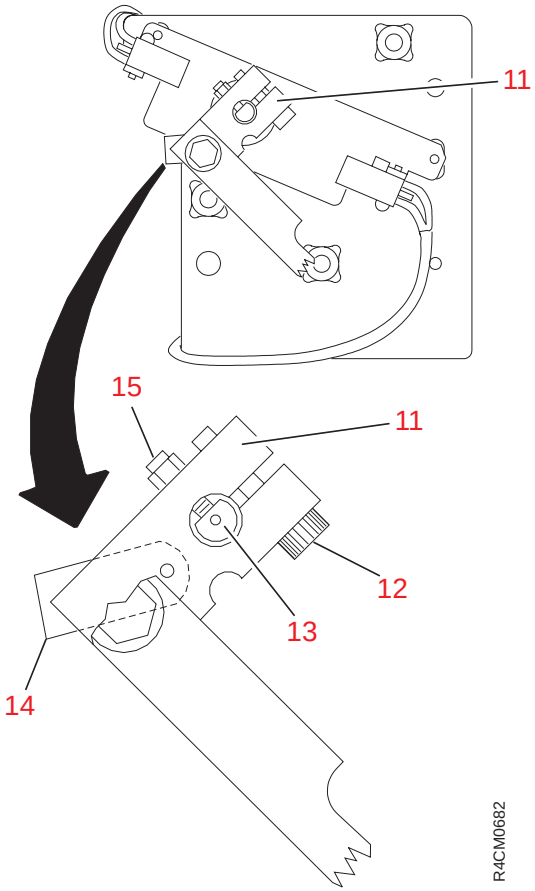
Table 535. Bridge Lift Motor (M606) and Gearbox (continued)



10. Remove the two screws **(4)**, remove the bridge lift motor and gear box **(5)** from the bracket.

(continued on next page)

Table 535. Bridge Lift Motor (M606) and Gearbox (continued)



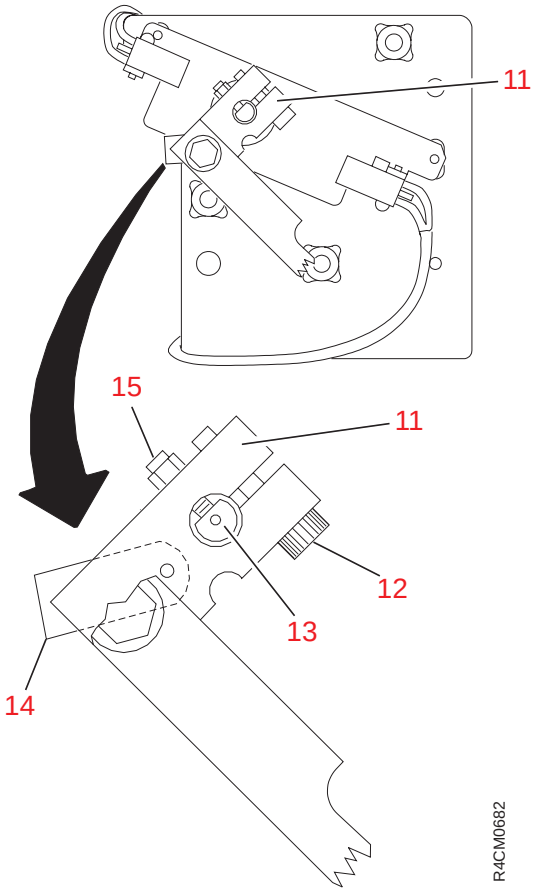
Installation

1. Ensure that the interrupter **(14)** is positioned on the crank as shown. If the interrupter is not in this position, you will not be able to set the bridge up switch correctly.
2. Reverse the removal step 10.
3. If necessary, apply Molycoat G (PN 0357830) to the bridge linking mechanism.
4. Install the linkage on the gearbox shaft **(13)** and lightly tighten the set screw **(15)** so that the linkage can slide along the shaft.
5. Turn the shaft and ensure that the interrupter **(14)** passes through the center of the switches.
6. Tighten the set screw **(15)** and locking nut onto the flat of the shaft.
7. Tighten the clamping screw **(12)**.
8. Reverse the removal procedure.

Hint: Before you secure the feed motor, press the motor gear against the feed shaft gear by raising it to the right to ensure that the teeth are fully engaged.

(continued on next page)

Table 535. Bridge Lift Motor (M606) and Gearbox (continued)



Adjustment

Run Adjustment Routine **C5** to ensure that the upper surface of the bridge is level with or up to 3 mm higher than the upper surface of the tension arm when the tension arm is in the load position. Press **Enter** to end routine **C5**. This returns the tension arm and auto load bridge to their normal positions.

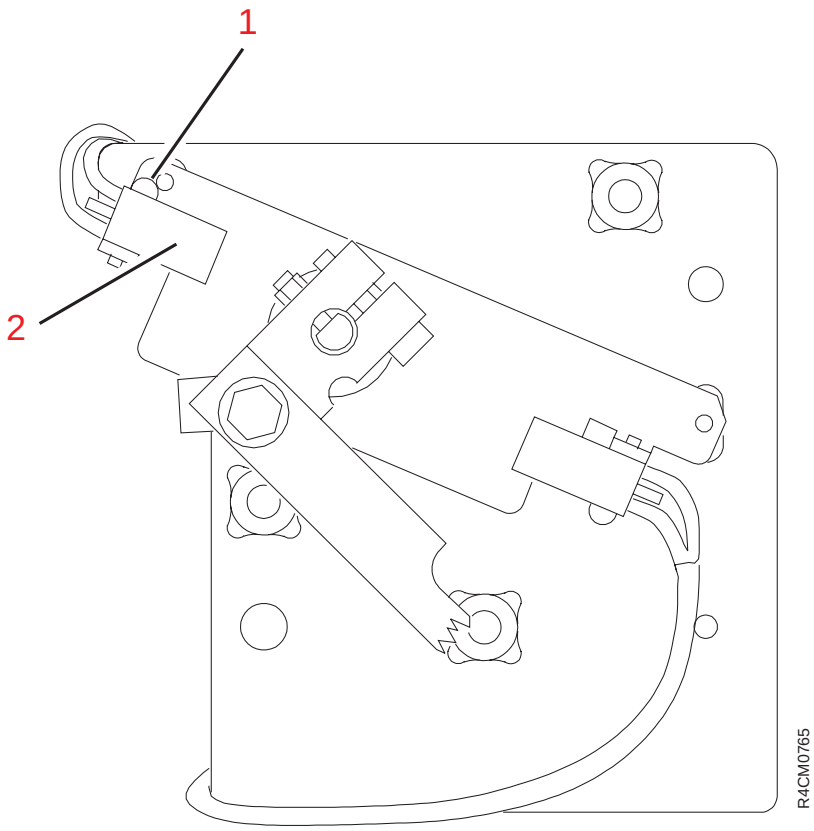
If the bridge does not stop within the 3 mm range stated above, perform the Bridge Up Switch Adjustment.

Check

1. Perform the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.
2. Run Print Pack to check print quality.

Bridge Up Switch (S608)

Table 536. Bridge Up Switch (S608)

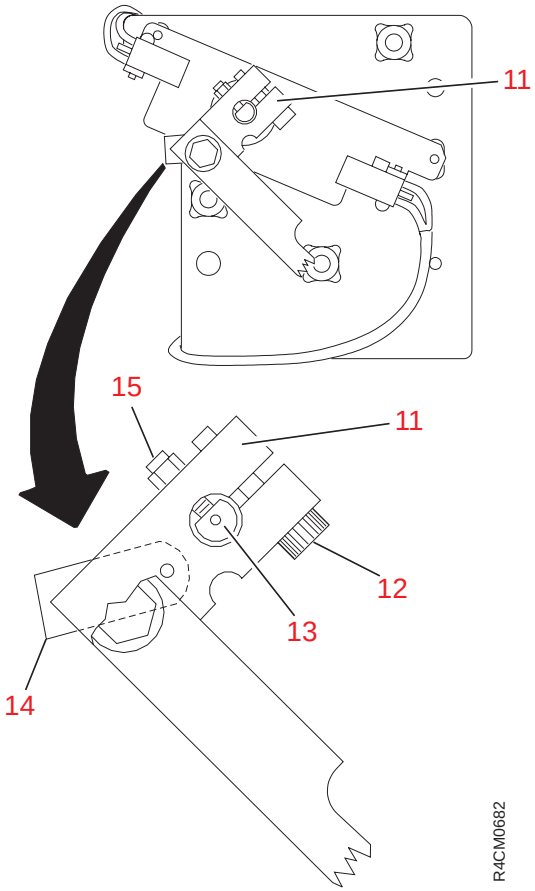


Removal

1. Remove the Auto Load Bridge Assembly.
2. Remove the Bridge Lift Motor (M606).
3. Remove the screw **(1)**, remove the bridge up switch (S608) **(2)**.

(continued on next page)

Table 536. Bridge Up Switch (S608) (continued)



Installation

1. Ensure that the interrupter **(14)** is positioned on the crank as shown. If the interrupter is not in this position, you will not be able to set the bridge up switch correctly.
2. Reverse the removal procedure.

Check

Run Driver Routine 21 to ensure that the bridge pauses at its uppermost position.

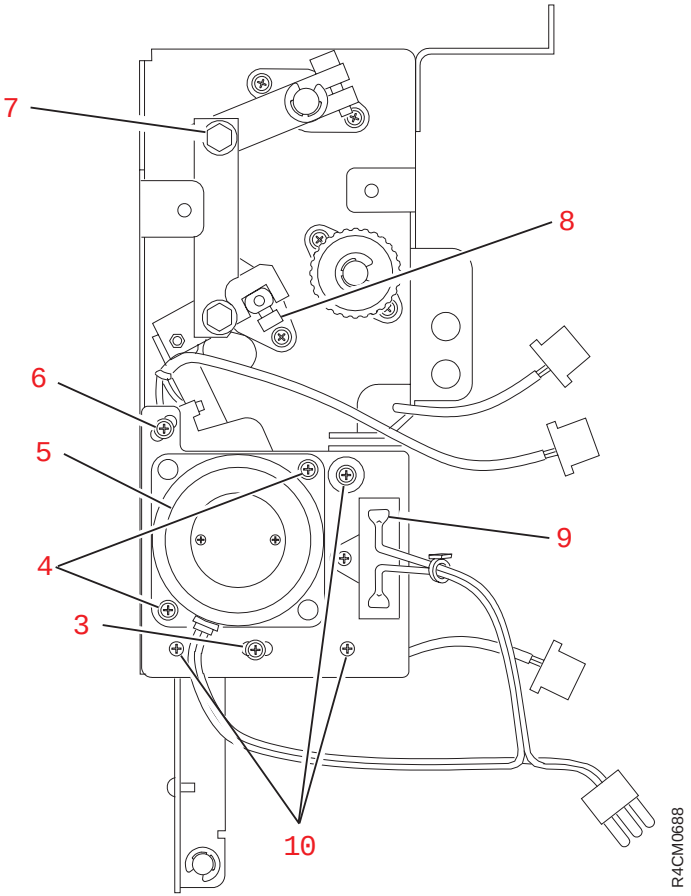
If the bridge does not pause at the correct position, perform the Bridge Up Switch Adjustment.

Run the auto load procedure to ensure that it works correctly. See the Operator's Guide for your printer.

Run Print Pack to check print quality.

(continued on next page)

Table 536. Bridge Up Switch (S608) (continued)



Adjustment

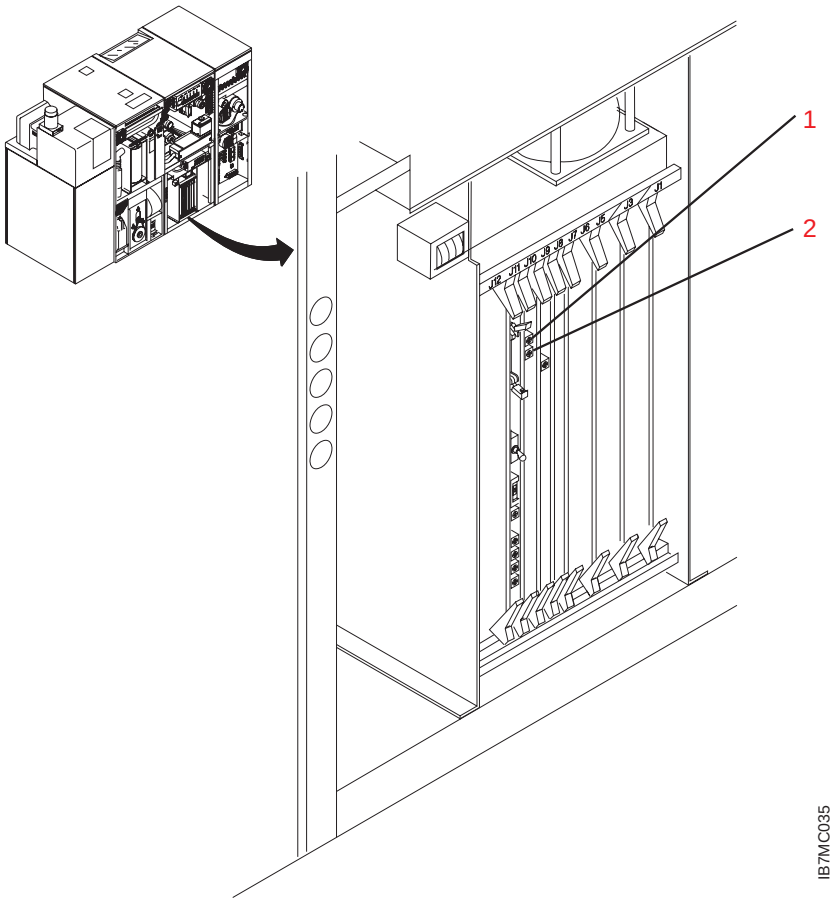
1. Run Driver Routine 21 to raise the bridge.
2. Press the **Start/Stop** key on the maintenance panel to stop the routine when the bridge is in its raised position.
3. Loosen the screws **(3)** and **(6)**, pivot the bridge up switch (S608) slightly.
4. Tighten the screws **(3)** and **(6)**.
5. Repeat steps 1 through 4 until the bridge stops at its uppermost position.

B1 Logic Cards

B1J10 Card Replacement 2213
B1J11 Card Replacement. 2215
B1J11 EPROM Module 2218

B1J10 Card Replacement

Table 537. B1J10 Card Replacement



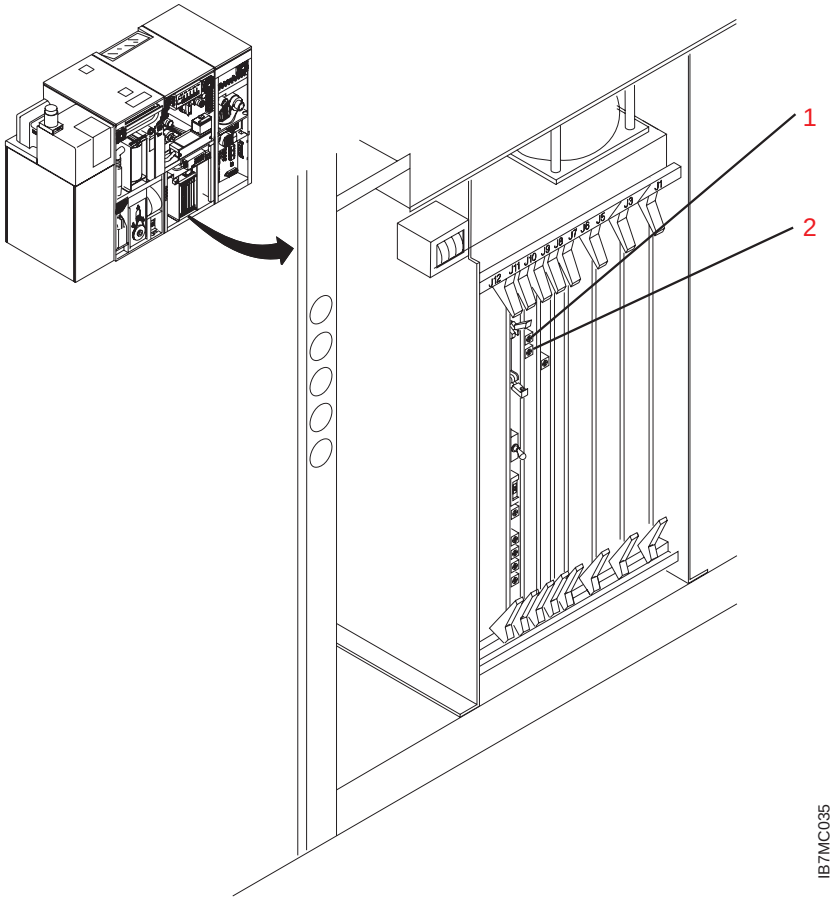
(continued on next page)

Attention: Use ESD procedures when you handle ESD-sensitive parts.

Replacement

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. SHUTDOWN AND POWER OFF THE PRINTER.
3. Locate the B1J10 Card .
4. Access the card by removing the appropriate covers.
5. Disconnect all the connectors that are attached to the card.
6. Release the plastic clips that hold the card in place.
7. Remove the defective B1J10 card and check the position of SW1 Switch.

Table 537. B1J10 Card Replacement (continued)



SW1 Switch Setting - Retractor Acceleration Time

8. Set switch SW1 **(1)** on the new card to the same position as SW1 on the old card.

SW2 Switch Setting - Tractor Motor Gain

9. Set switch SW2 **(2)** on the new card to **5**.
10. Install the new card In the B1J10 position and connect all connectors.
11. Power on the printer.

Adjustment -Retractor Acceleration Time

12. Run Adjustment Routine C4.
13. Adjust SW1 **(1)** for a reading of between 18.00 and 22.00 milliseconds.

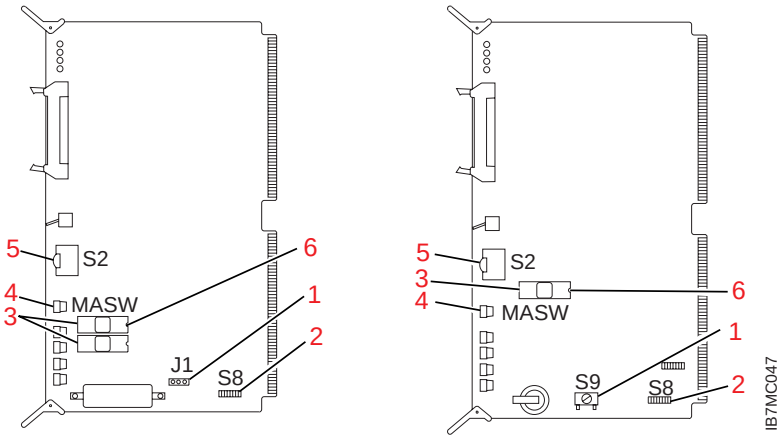
B1J11 Card Replacement

Table 538. B1J11 Card Replacement

Attention:

- If the **new B1J11 Card** is installed without copying the memory or the memory data is destroyed inadvertently, the Clear Memory (Position 8) routine should be run to avoid a parity error.
- After memory is cleared, Writing to Memory the default values. See Memory Addresses and Values.

Note: This card contains a nickel-cadmium battery. You should return the card to IBM as part of IBM's card return program or dispose of it in accordance with federal, state, and local government regulations.



Attention: Use ESD procedures when you handle ESD-sensitive parts.

Replacement

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. SHUTDOWN AND POWER OFF THE PRINTER.
3. Locate the B1J11 Card (2130).
4. Access the card by removing the appropriate covers.
5. Disconnect all the connectors that are attached to the card.
6. Release the plastic clips that hold the card in place.

Note: There a multiple versions of the B1J11 card. Newer versions of the card have a single EPROM module **(3)** and a S9 switch **(1)**.

7. Remove the defective B1J11 card .
8. Ensure that the EPROM(s) on the new card is at the same or higher level than the defective card.
9. If the J1 Jumper **(1)** is present: connect pins 1 and 2 to connect the memory backup battery. (When shipping, the jumper should be between pins 2 and 3.) If the backup battery switch, SW9 **(1)** is present: set it to position 1.
10. Set the MASW switch **(4)** on both the new B1J11 card and the defective card to **0**.
11. Install the defective B1J11 card in card position B1J12.

12. Set DIP switch SW8 **(2)** on the new card as follows:

Table 539. B1J11 DIP Switch S8 Settings

Switch	Description	ON = Not Active	OFF = Active
1	Hertz Designation	50 Hz	60 Hz
2	Low preheat temperature: (ON = Preheat high; OFF = Preheat low)	Printer 1	Printer 2
3	Enhanced Toner Loading		X
4	Eight Inch Paper Width		X
5	229 PPM Duplex Engine 2 Function	Printer 1	Printer 2
6	Low temperature hot roll function	X	
7	Enable Backup Idler Roll	X	
8	Thermistor Control	X	

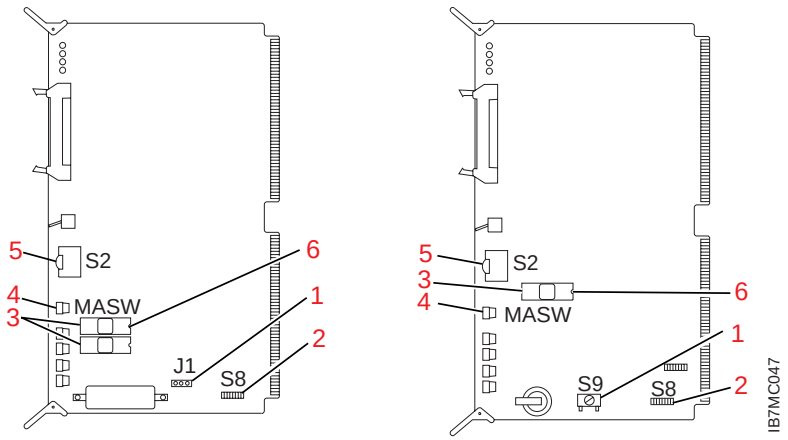
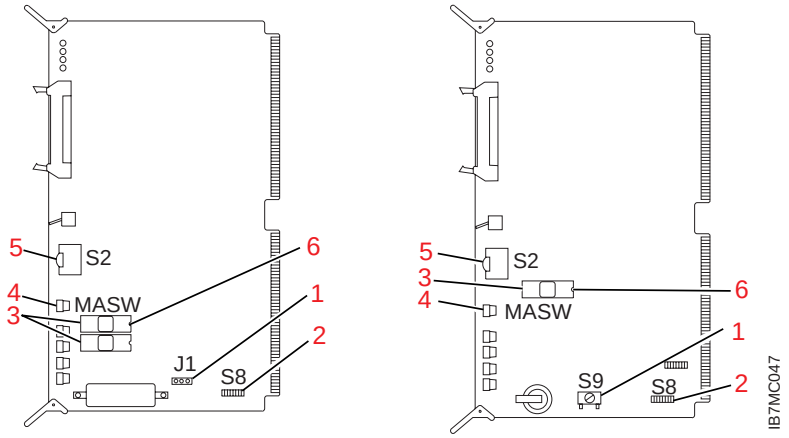


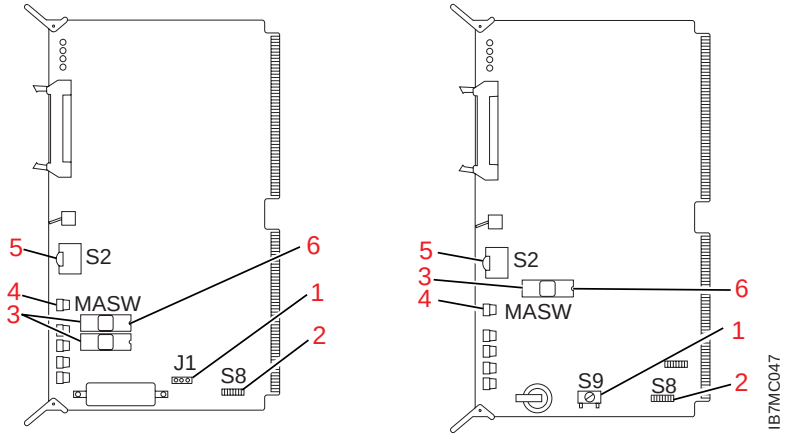
Table 540. B1J11 Card Replacement (cont'd)



13. Install the new card In the B1J11 position and connect all connectors.
14. Power on the printer.
15. The memory copy is performed by the power on initialization of the printer. Wait until the printer electrical initialization is complete (approximately 3 minutes). The maintenance panel should display **END**.
16. Power off the printer.
17. Remove the old memory card from B1J12.
18. Power on the printer.

B1J11 EPROM Module

Table 541. B1J11 Card EPROM



Attention: Use ESD procedures when working with EPROMs.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Locate card B1J11 on board B1.
3. Release the plastic clips that hold the B1J11 card in place.
4. Remove card B1J11 from the printer.
5. Locate the EPROM module(s) **(3)**.
   - Note the EPROM position by observing the notch **(6)**.
6. Carefully lift the EPROM modules from the card.

Installation

1. Install the EPROM modules in the same position.
2. Ensure that all the pins align with the holes in the socket before you insert the module.

Note: It may be necessary to lay the pins on a flat surface and form them slightly for insertion in the socket.

3. Reinstall the card in the B1J11 slot. Reposition the plastic clips and ensure that the card is seated correctly.

Check

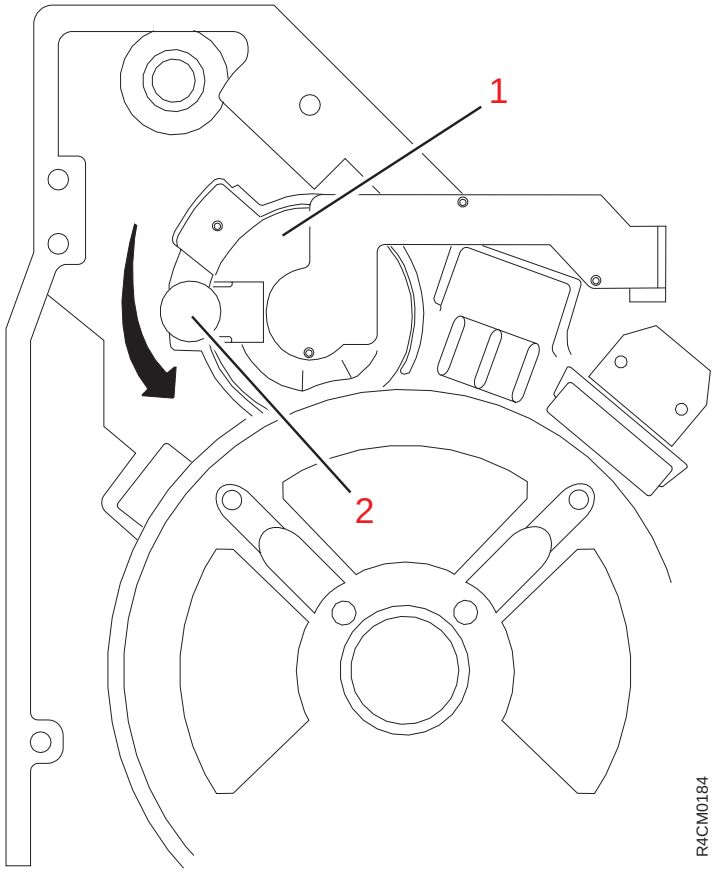
Run Print Pack to check print quality.

Cleaner

Cleaner Brush 2220
Cleaner Brush Drive Belt 2222
Cleaner Brush Drive Cone 2224
Cleaner Brush Driven Cone 2225
Cleaner Brush Motor (M108) Assembly 2227
Cleaner Brush Motor (M108) 2228
Cleaner Brush Rotation Sensor (S114) 2230
Cleaner Housing Cleaning 2232
Cleaner Housing Motor (M106) and Switch (S103) 2233
Cleaner Skirt 2236

Cleaner Brush

Table 542. Cleaner Brush



Special Tools Required:

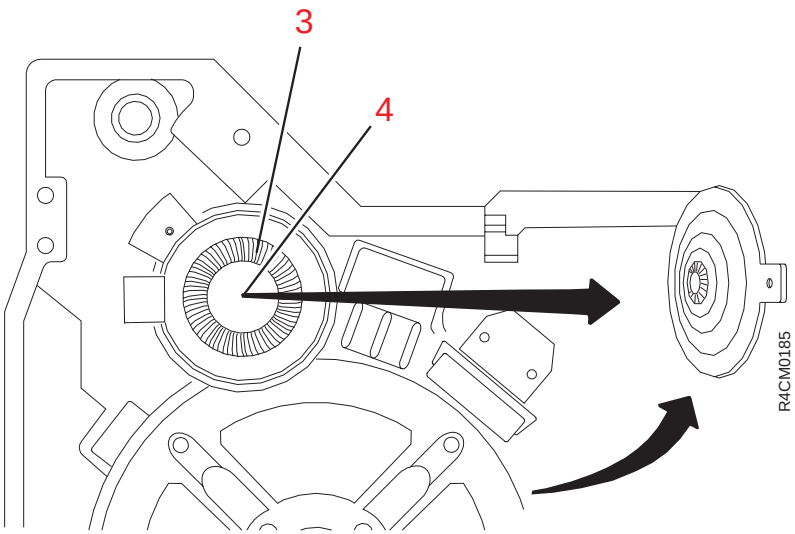
- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Cleaner housing brush (PN 06F1027)
- Lint free cloth (PN 2108930)
- IBM vacuum cleaner (PN 9900735)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the PC Drum Removal procedure and store it in a drum bag or in a box.
4. Cover the developer to prevent contamination by foreign material.
5. Open the front cap **(1)** by turning the knob **(2)** in a counterclockwise direction.

(continued on next page)

Table 542. Cleaner Brush (continued)



Attention: Do not touch the brush fibers. Handle the cleaner brush only from the inside of the cylinder.

6. Remove the cleaner brush **(3)** from the housing by sliding your fingers into the brush cylinder **(4)**, gripping the inside of the cylinder, and pulling the brush forward.
7. Clean the inside of the cleaner brush housing. See Cleaner Housing Cleaning.

Installation

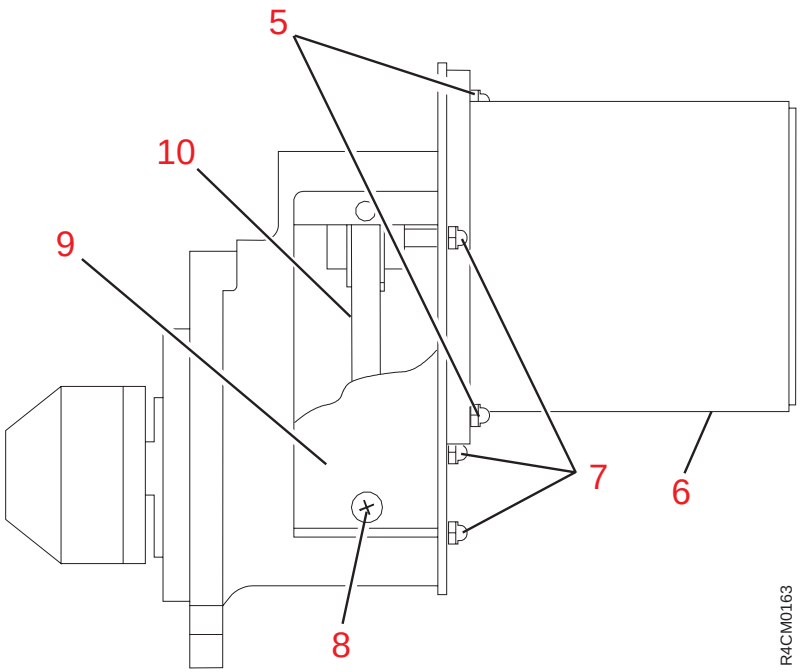
1. Reverse the removal procedure.
2. Close the front cap. Ensure that the cone section engages the center of the cleaner brush.

Check

Run Print Pack to check print quality.

Cleaner Brush Drive Belt

Table 543. Cleaner Brush Drive Belt



Special Tools Required:

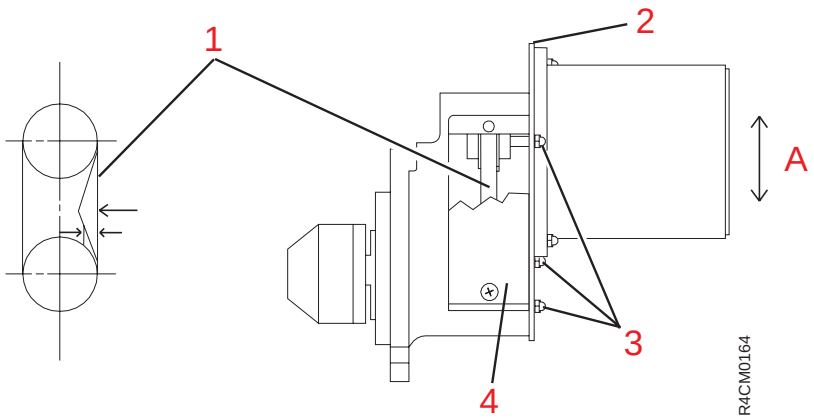
Push-pull scale (PN 0460870)

Removal

1. Remove the Cleaner Brush Motor (M108) Assembly.
2. Remove the two screws **(8)**, remove the belt cover **(9)**.
3. Remove the three screws **(7)**, remove the cleaner brush motor **(6)**, remove the belt **(10)**.

(continued on next page)

Table 543. Cleaner Brush Drive Belt (continued)



Installation and Adjustment

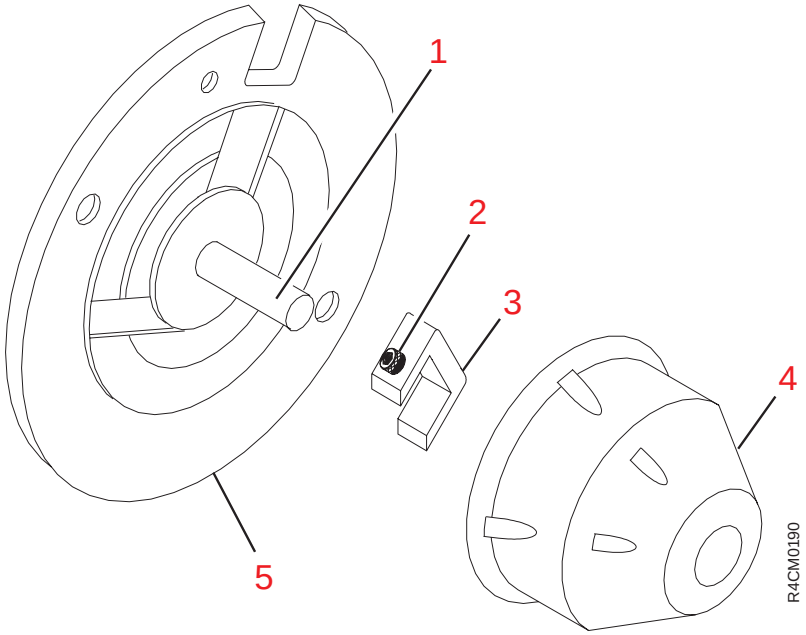
1. Install the belt on the drive pulley.
2. Install the cleaner brush motor and bracket assembly. Do not tighten the three screws completely.
3. Slide the cleaner brush motor plate **(2)** in the **(A)** direction on the assembly to adjust the drive belt tension.
4. Adjust the belt **(1)** to deflect 0.9 mm (0.035 in.) when 0.20 to 0.25 kg (0.44 to 0.55 lb) of force is applied to the center of the belt.
5. Tighten the three screws **(3)**.
6. Install the belt cover **(4)**.
7. Install the Cleaner Brush Motor (M108) Assembly.

Check

1. Ensure that the drive belt deflects 0.9 mm (0.035 in.) when 0.20 to 0.25 kg (0.44 to 0.55 lb) of force is applied to the center of the belt.
2. Run Print Pack to check print quality.

Cleaner Brush Drive Cone

Table 544. Cleaner Brush Drive Cone



Special Tools Required:

Push-pull scale (PN 0460870)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Cleaner Brush Motor (M108) Assembly.
4. At a clean work place, loosen the screw **(2)**.

Note: The pulley shaft **(1)** remains in the pulley (not shown) during the next step.

5. Remove the coupler **(3)** and the drive cone **(4)** from the pulley shaft **(1)**.

Installation

Reverse the removal procedure.

Adjustment

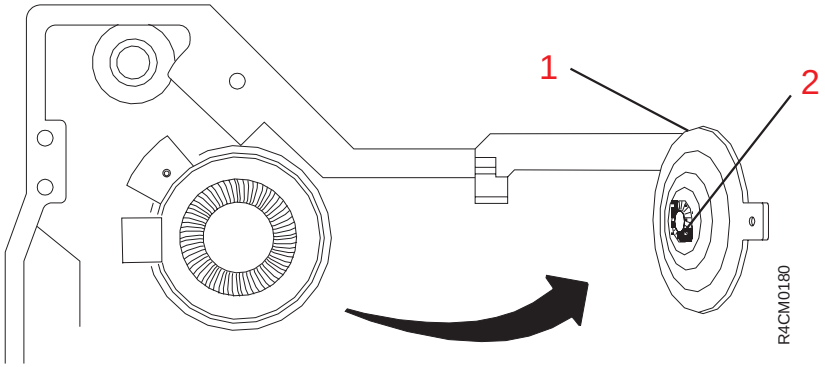
Adjust the clearance between the cleaner brush drive cone **(4)** and the cleaner housing **(5)** to 4 ± 1 mm (0.157 ± 0.039 in.).

Check

1. Run Encoder Routine A8 to ensure that the cleaner brush motor works correctly.
2. Run Print Pack to check print quality.

Cleaner Brush Driven Cone

Table 545. Cleaner Brush Driven Cone



Special Tools Required:

Lint free cloth (PN 2108930)

Removal

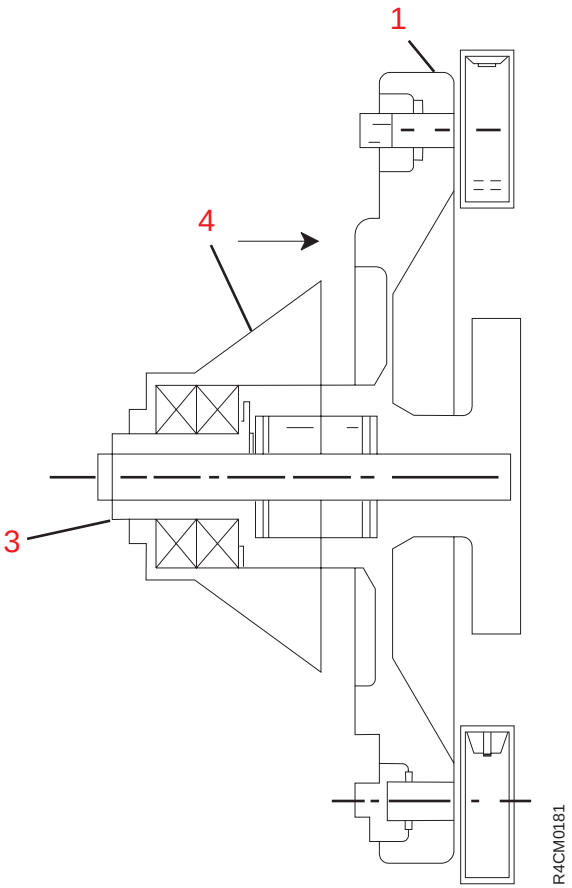
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.

Attention: Avoid exposing the photoconductor (PC) to ambient light when you remove the cleaner brush front cap.

3. Turn the knob counterclockwise and open the cleaner brush front cap **(1)**.

(continued on next page)

Table 545. Cleaner Brush Driven Cone (continued)



4. Slide the cone **(4)** in the direction shown by the arrow to compress the spring and remove the clip **(3)**.
5. Remove the cone and spring (not shown).
6. Clean the parts with the lint-free cloth.

Installation

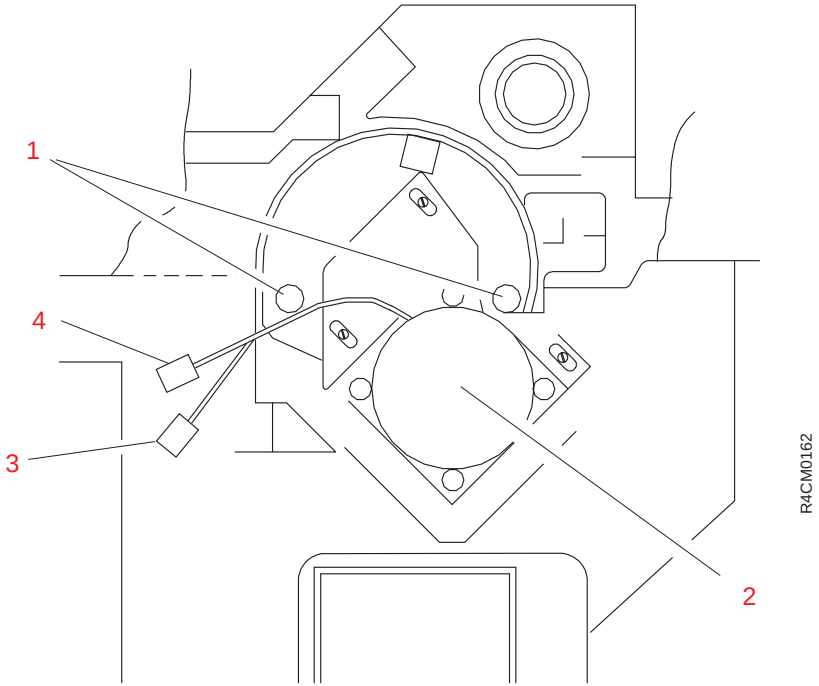
Reverse the removal procedure.

Check

1. Ensure that the cleaner brush driven cone moves freely on the shaft.
2. Run Encoder Routine A8 to ensure that the cleaner brush works correctly.
3. Run Print Pack to check print quality.

Cleaner Brush Motor (M108) Assembly

Table 546. Cleaner Brush Motor (M108) Assembly
Cleaner Brush Drive Assembly



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Cleaner Brush.
4. Open the printer left rear cover.
5. Remove the right rear process cover.
6. Disconnect connectors PJ120 **(4)** and PJ134 **(3)**.

Attention: In the following step, be sure to keep all screws with their washers. If washers are left out during reinstallation, the cleaner housing will not move correctly and can damage the printer.

7. Remove the two screws **(1)** and carefully remove the cleaner brush drive assembly, with the cleaner brush motor **(2)** still attached, by rotating the assembly as necessary.

Installation

Attention: Ensure that all washers are reinstalled correctly. If washers are left out during reinstallation, the cleaner housing will not move correctly and can damage the printer.

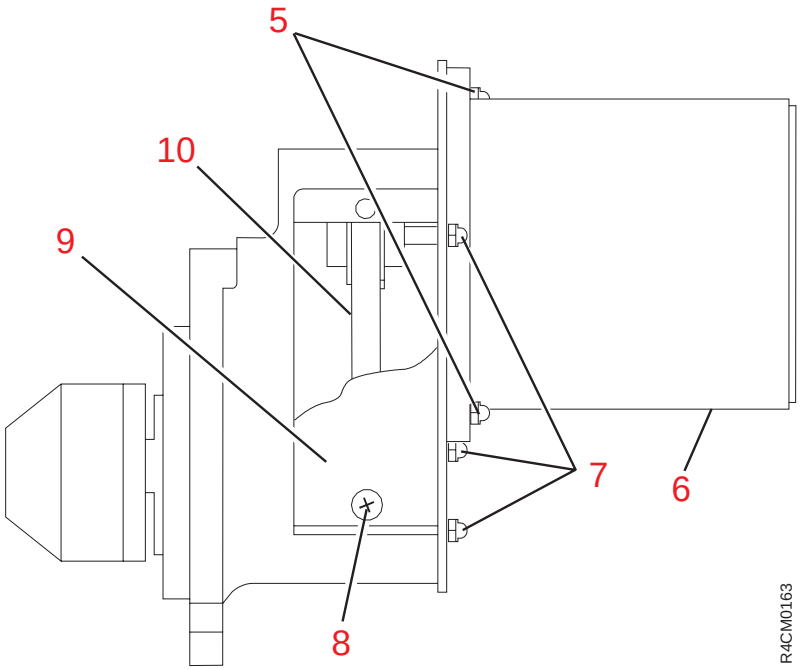
Reverse the removal procedure.

Check

Run Print Pack to check print quality.

Cleaner Brush Motor (M108)

Table 547. Cleaner Brush Motor (M108)
Cleaner Brush Motor Assembly (Side View)



Special Tools Required:

Push-pull scale (PN 0460870)

Removal

1. Remove the Cleaner Brush Motor (M108) Assembly.
2. Remove the two screws **(8)**, remove the cover **(9)**.
3. Remove the three screws **(5)** to separate the cleaner brush motor from the bracket and remove the motor **(6)**.

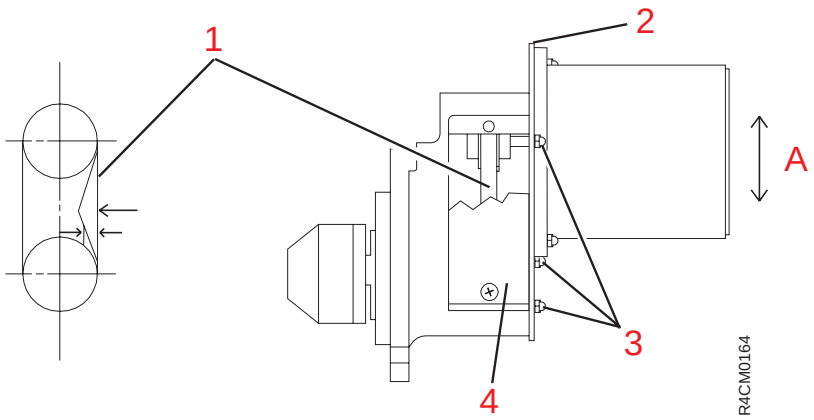
Installation and Adjustment

1. Put the drive belt **(10)** on the motor pulley, install the motor **(6)** and tighten the three screws **(5)**.

Note: Be sure to install the motor with the cables in the positions shown in the figure on page 2227.

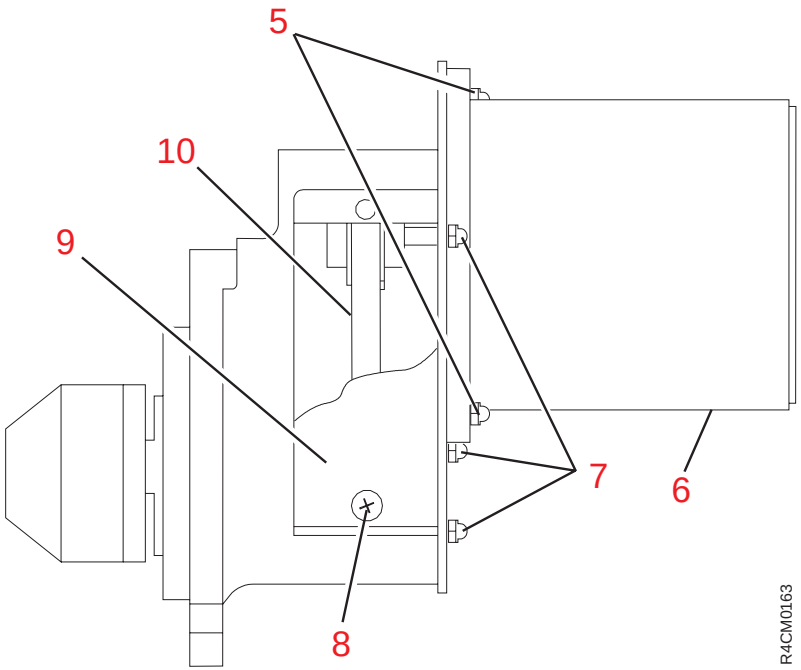
(continued on next page)

Table 547. Cleaner Brush Motor (M108) (continued)



2. Slide the cleaner brush motor plate **(2)** in the **(A)** direction on the assembly to adjust the drive belt tension.
3. Adjust the belt **(1)** to deflect 0.9 mm (0.035 in.) when 0.20 to 0.25 kg (0.44 to 0.55 lb) of force is applied to the center of the belt.
4. Tighten the three screws **(3)**.

(continued on next page)



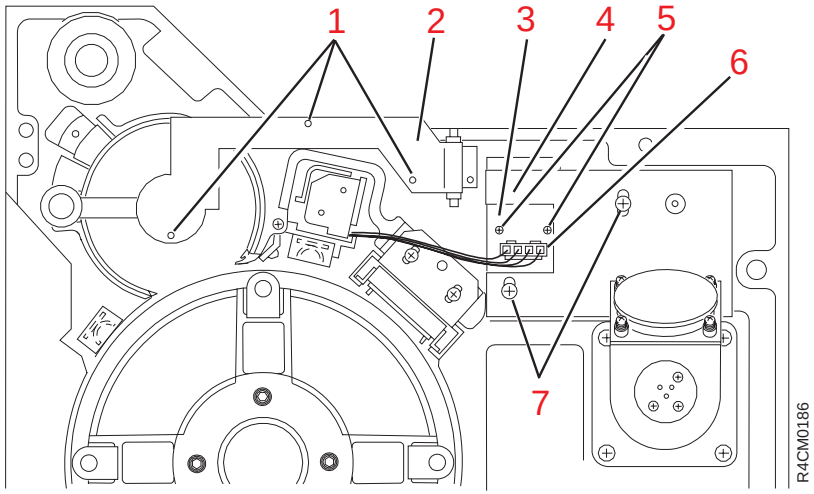
5. Install the belt cover **(9)**.
6. Install the Cleaner Brush Motor (M108) Assembly.

Check

1. Run Driver Routines 04 and 05 to ensure that the cleaner brush motor works correctly.
2. Run Print Pack to check print quality.

Cleaner Brush Rotation Sensor (S114)

Table 548. Cleaner Brush Rotation Sensor (S114)

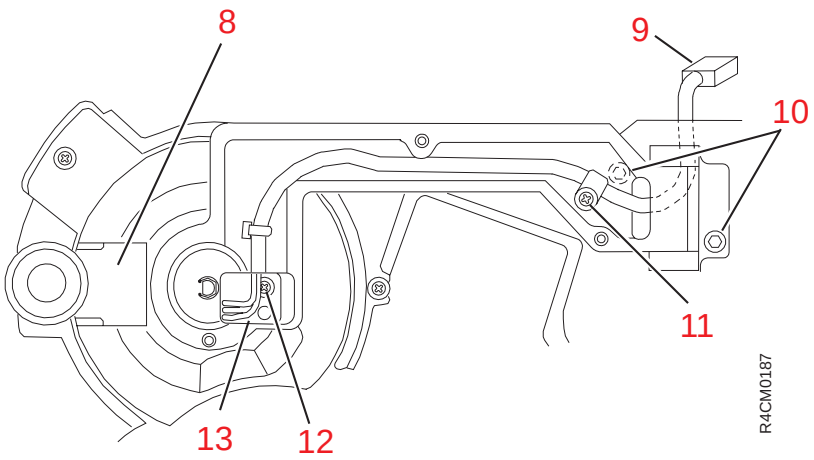


Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the drum cover.
4. Remove the three screws **(1)** and remove the sensor cover **(2)**.
5. Remove the two screws **(7)**, remove the toner inlet cover **(4)**.
6. Disconnect connector PJ161 **(6)**.
7. Remove the two screws **(5)**, remove the bracket **(3)** for the PJ161 secondary lamp connector to gain access to connector PJ175.

(continued on next page)

Table 548. Cleaner Brush Rotation Sensor (S114) (continued)



8. Remove the screw **(11)** and remove the cable from the nylon clip.
9. Swing the cleaner brush front cap **(8)** away from the frame and remove the two screws **(10)** holding the cap to the frame.
10. Reach behind the frame to disconnect PJ175 **(9)** and remove the cleaner brush front cap **(8)**.
11. Remove the screw **(12)** and remove the cleaner brush rotation sensor **(13)**.

Installation

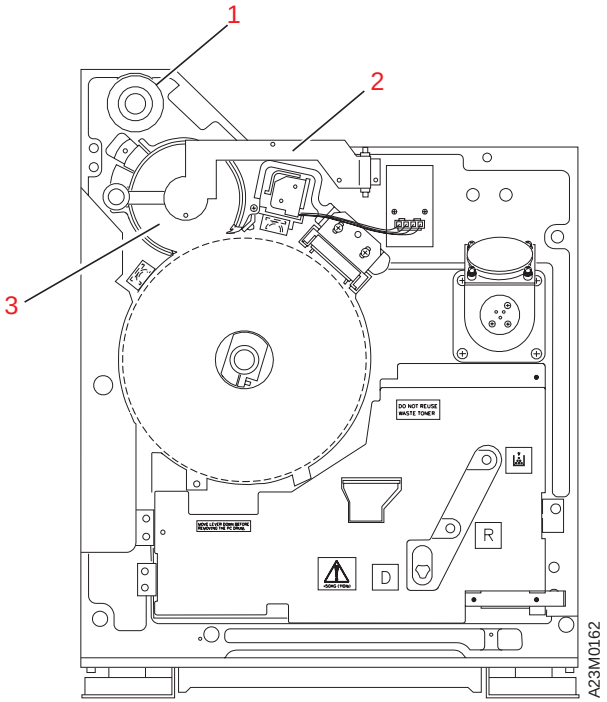
Reverse the removal procedure.

Check

1. Run Encoder Routine A8 to ensure that the cleaner brush rotation sensor works correctly.
2. Run Print Pack to check print quality.

Cleaner Housing Cleaning

Table 549. Cleaner Housing Cleaning



Special Tools Required:

- Drum bag or empty box
- Cleaner housing brush (PN 06F1027)
- Lint free cloth (PN 2108930)
- IBM vacuum cleaner (PN 9900735)

Removal

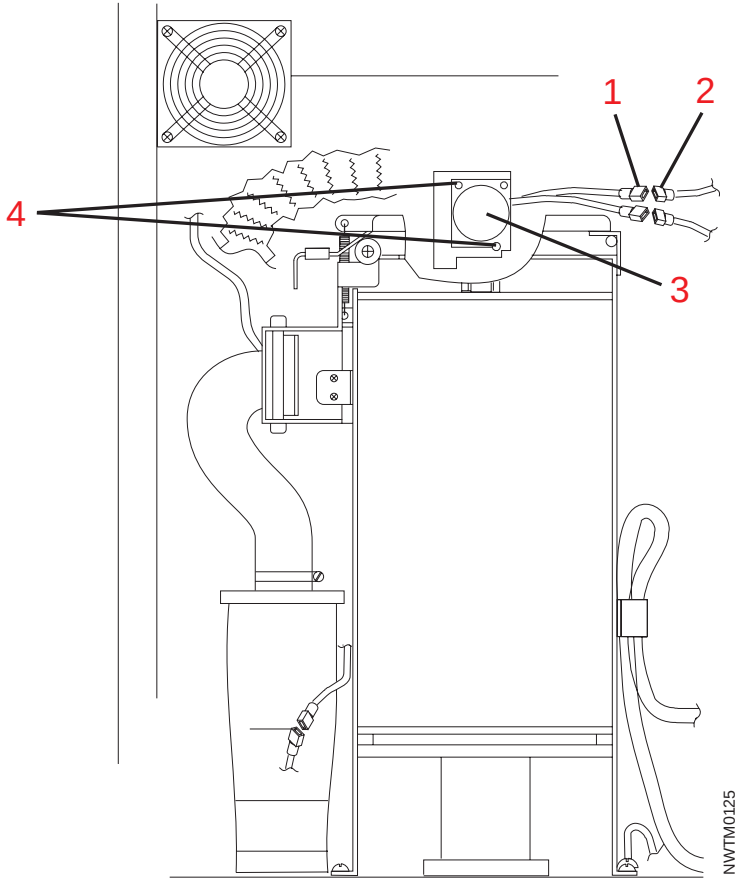
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box. See PC Drum Removal.
4. Cover the developer to prevent contamination by foreign material.
5. Remove the air chamber cap **(1)**.
6. If necessary, vacuum the toner from the cleaner brush front cap **(2)**.
7. Remove the Cleaner Brush.
8. Use the cleaner housing brush and the vacuum cleaner to remove all paper chad and toner from the air chamber above the cleaner housing and from the cleaner housing **(3)**.
9. Wipe any remaining toner from the cleaner housing with a lint-free cloth.

Installation

1. Replace the cleaner brush in the housing.
2. Replace the air chamber and cleaner brush front caps.
3. Reinstall the PC Drum.

Cleaner Housing Motor (M106) and Switch (S103)

Table 550. Cleaner Housing Motor (M106) and Switch (S103)



Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- IBM lubricant No. 23
- Digital voltmeter

Removal

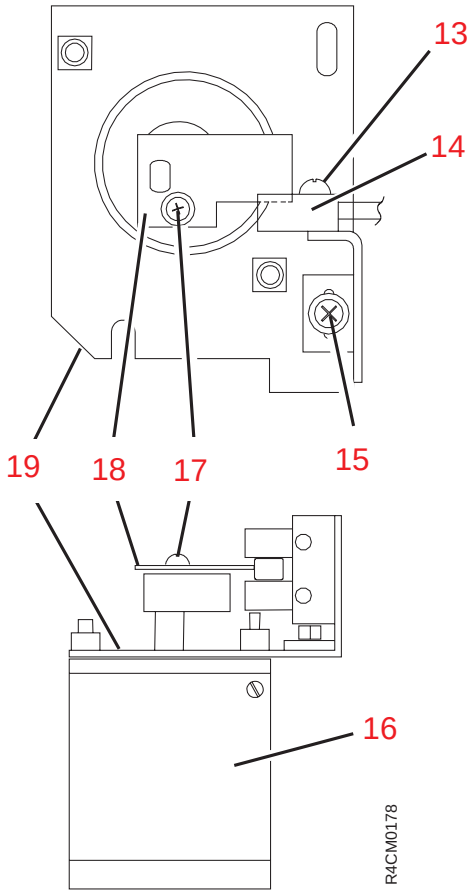
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box. See PC Drum Removal.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Open the left and right rear process covers.
5. Remove the printer right top cover.
6. Remove the Fine Filter Case.
7. Disconnect connectors PJ128 **(1)** and PJ122 **(2)**.
8. Remove the two screws **(4)**, remove the cleaner motor assembly plate **(3)**.

(continued on next page)

Table 550. Cleaner Housing Motor (M106) and Switch (S103) (continued)



9. If only the switch is to be replaced, skip to step 12.

Hint: Rotate the cleaner housing from the top of the printer while rotating the cleaner motor assembly until you can remove the assembly.

10. Remove the screw **(17)** and remove the sensor plate **(18)**.
11. Remove the two screws to separate the motor **(16)** from the mounting plate **(19)**.

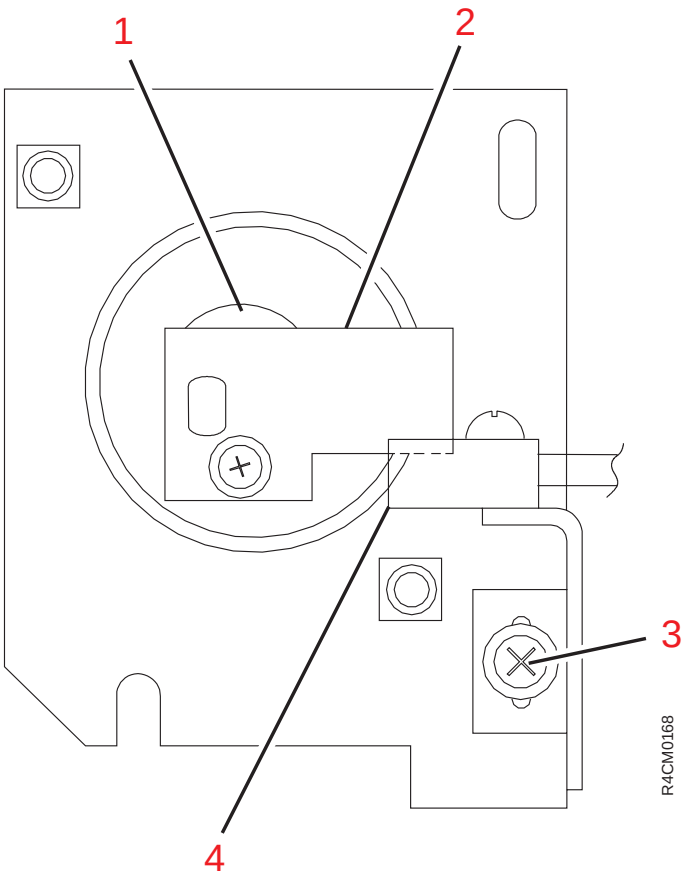
    Note the orientation of the motor cable with respect to the mounting plate. You will need to ensure that the cable is in this same orientation when you install the motor.

Note: Do not loosen the screw **(15)** or you will have to adjust the switch.

12. Remove the screw **(13)** and remove the switch **(14)**.

(continued on next page)

Table 550. Cleaner Housing Motor (M106) and Switch (S103) (continued)



Installation

1. Perform the adjustment procedure.
2. Coat the cam **(1)** on the motor with IBM lubricant No. 23.
3. Reverse the removal procedure.

Adjustment

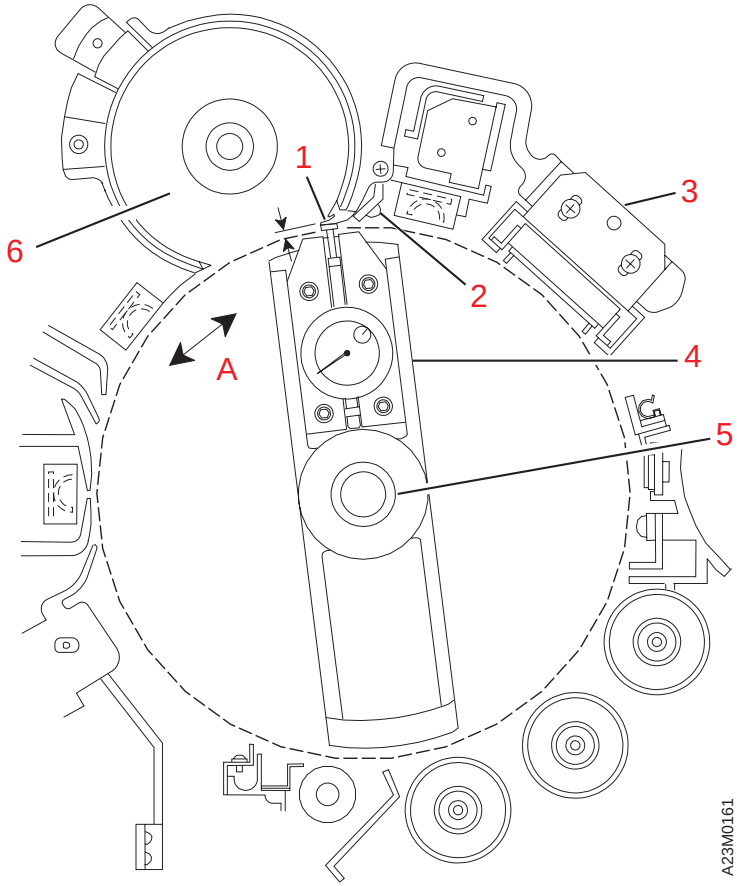
1. Rotate the sensor blade **(2)** and motor into the home position. Ensure that the blade is centered between the tabs.
2. Adjust the vertical position of the sensor blade **(2)**.
   a. Set the digital voltmeter to measure resistance and connect it to connector PJ128.
   b. Loosen the screw **(3)**, and keep the sensor blade and mounting plate parallel.
   c. Slide the switch housing **(4)** in the vertical direction until the digital voltmeter shows open.
   d. Tighten the screw **(3)**.

Check

1. Run Driver Routine 03 to ensure that the cleaner housing and switch work correctly.
2. Run Encoder Routine A8.
3. Run Print Pack to check print quality.

Cleaner Skirt

Table 551. Cleaner Skirt



Special Tools Required:

- Drum clearance gauge (PN 06F1029)
- Drum shaft extension (PN 06F1025)
- Drum bag or empty box

Removal

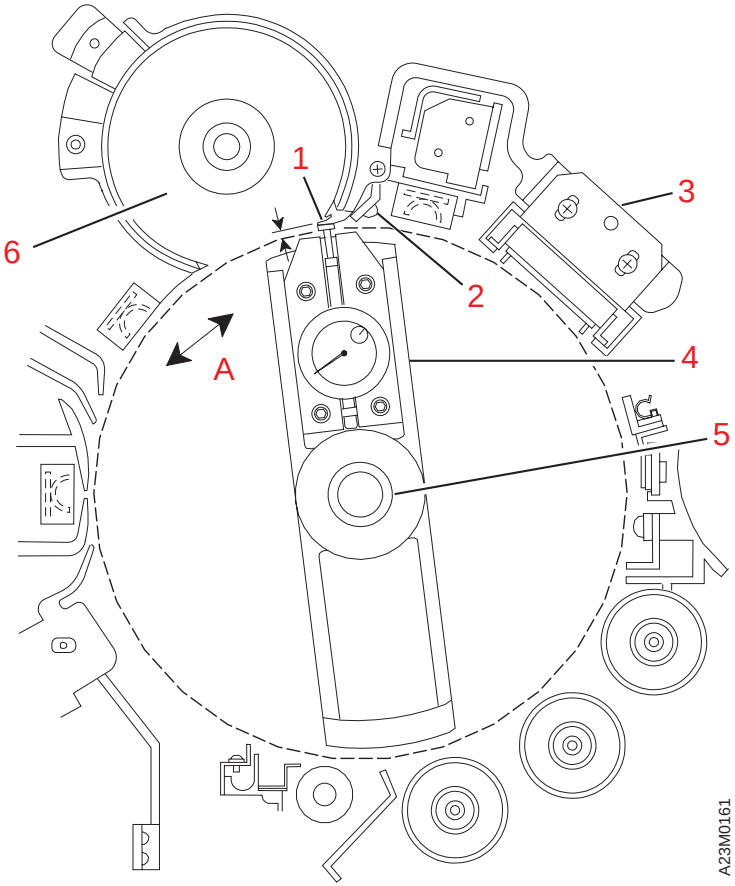
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box. See PC Drum Removal. Cover the developer to prevent contamination by foreign material.
4. Remove the charge corona **(3)** and the precharge corona.
5. Remove the two screws **(2)** and remove the cleaner skirt **(1)**.

Installation and Adjustment

1. Install the cleaner skirt **(1)**. Leave the screws loose to allow for adjustment.
2. Calibrate the Drum Clearance Gauge.
3. Put the drum gauge **(4)** on the drum shaft **(5)**.
4. Use the drum gauge to ensure that the gap (front and rear) between the cleaner skirt **(1)** and the photoconductor drum is 0.9 mm ± 0.2 mm (0.035 in. ± 0.008 in.).
5. If the gap is not within specifications, loosen the two screws **(2)** and adjust the gap by sliding the cleaner skirt in the **(A)** direction.

(continued on next page)

Table 551. Cleaner Skirt (continued)



6. Tighten the two screws **(2)** and recheck the gap.
7. Perform removal steps 1 through 4 in reverse order.

Check

1. Use the drum gauge to ensure that the gap (front and rear) between the cleaner skirt **(1)** and the photoconductor drum is 0.9 mm ± 0.2 mm (0.035 in. ± 0.008 in.).
2. Run Driver Routine 03 to ensure that the cleaner housing motor is not binding.
3. Run Print Pack to check print quality.

Control Unit

Two Types of Control Units 2239
AC Control Box 2240
DC Power Supply 2241
  DC Voltage Measurements 2242
Display/Touch Screen 2243
Mechanism Interface Card (MIC) - Single Beam Printhead 2245
Mechanism Interface Card (MIC) - Two-Beam Printhead 2248
Operator Alert Assembly 2251
Parallel Channel Tailgate 2255
Power Control Panel 2257
PQE Card (Single Beam Printhead) 2258
PQE Card - Two Beam Printhead 2260
Pre/Postprocessing Interface Cards 2262
Side 1 / Side 2 Verification Control Card 2264
RS/6000 Removal and Replacement Procedures 2265
Updating Microcode 2266
7013 Model 595 Controller Removal 2269
7013 Model 595 Hard Disk Drive 2273
7025 Removal Procedures 2278
7025 Controller Removal 2279
7025 Hard Disk Drive 2282
7025 ESCON Serial Channel Adapter Card 2285
7025 PCI Parallel Channel Adapter Card 2290
7043 Removal Procedures 2295
7043 Controller Removal 2296
7043 Hard Disk Drive 2299
7043 ESCON Serial Channel Adapter Card 2302
7043 PCI Parallel Channel Adapter Card 2307

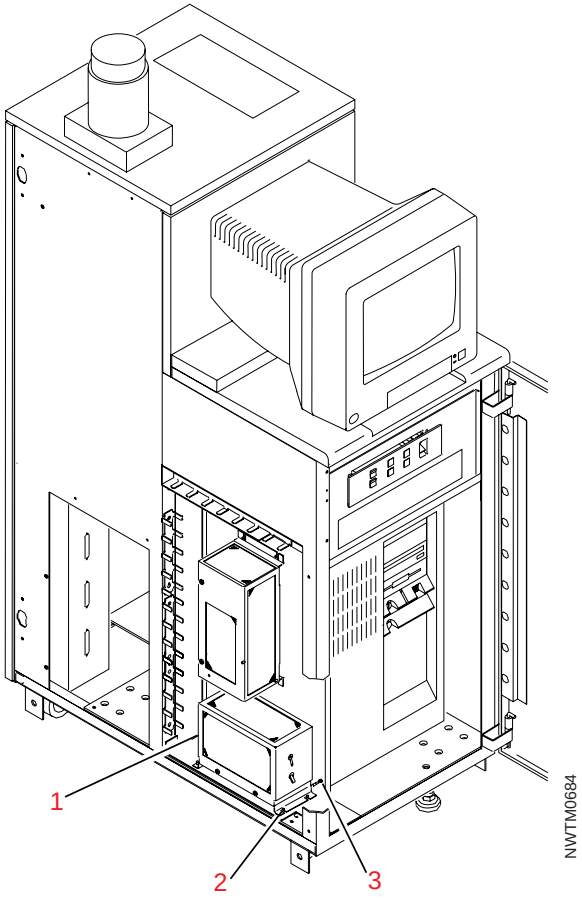
Two Types of Control Units

There are two types of control units:

1. The control unit attached to a simplex printer system or attached to printer 2 in a duplex printing system. This control unit contains the Display/Touch Screen.
2. The control unit attached to printer 1 in a duplex printing system.

AC Control Box

Table 552. AC Control Box



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Remove the control unit side cover.
6. Disconnect the connectors PJA01, PJA05, PJA06, PJA07, PJA08, PJA09, PJA10 (if an urge unit is present and is powered from the control unit), and voltage selection jumper (PJA02, PJA03, or PJA04) from the rear of the ac control box **(1)**.
7. Remove the screw and the ground wire **(3)**.
8. Remove screws **(2)** and remove the ac control box.

Installation

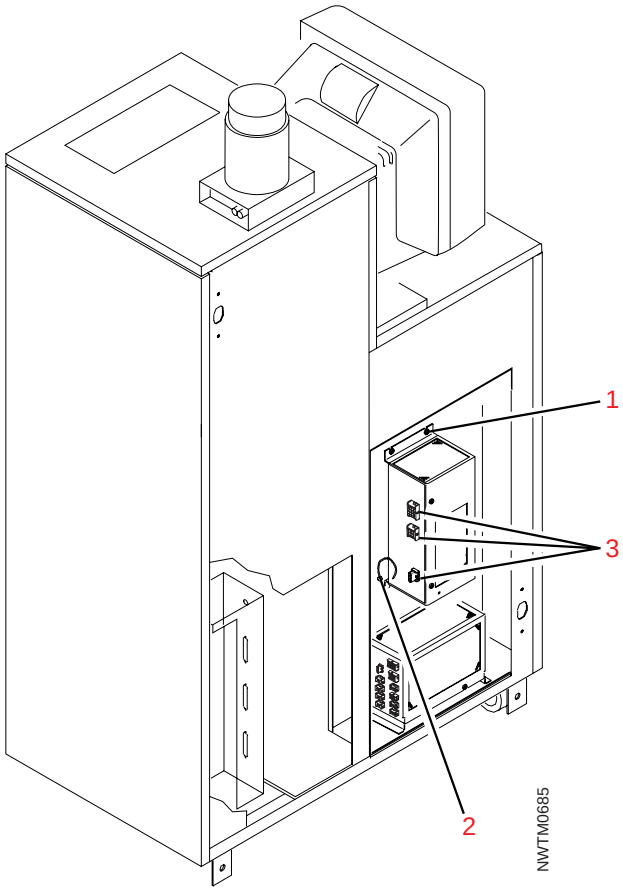
Reverse the removal procedure steps 5 through 8.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Run Print Pack to check print quality.

DC Power Supply

Table 553. DC Power Supply



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Swing the control unit away from the printer.
6. Disconnect connectors PJH01, PJH02, and PJH03 **(3)**.
7. Remove the screw holding the ground wire **(2)**.
8. Remove the screws **(1)** and remove the dc power supply.

Installation

Reverse the removal procedure steps 5 through 8.

Check

1. Set the Power Switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Run Print Pack to check print quality.

(continued on next page)

DC Voltage Measurements

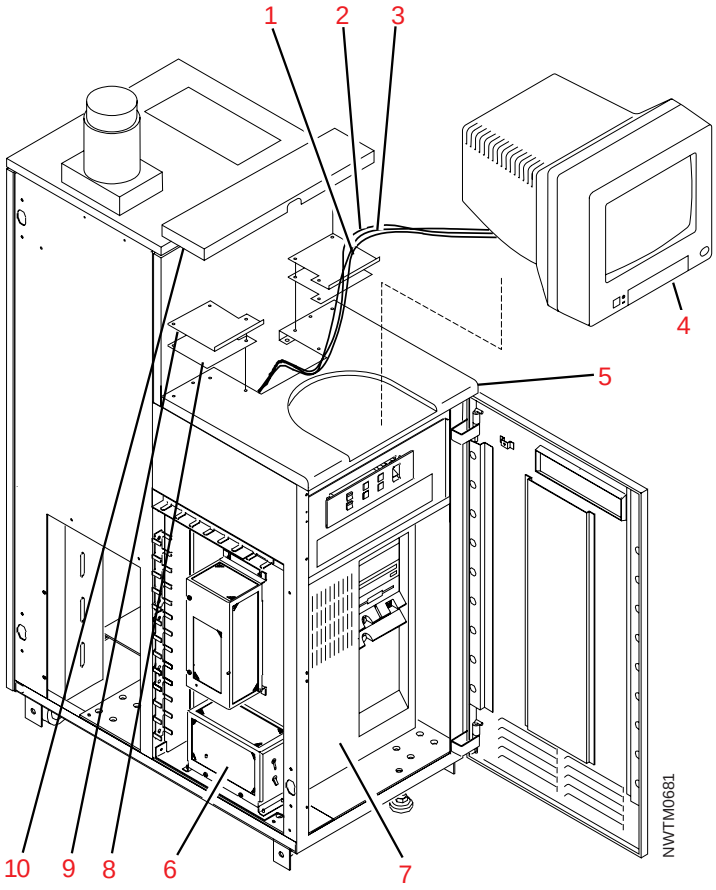
Voltage (V dc)	Regulation Under Load (V dc)	Test Point/Connector
+12	+11.7 to +12.5	PJH02 pins 6 and 7 to PJH03 pins 7 and 9
−12	−12.7 to −11.5	PJH02 pin 8 to PJH03 pin 8
+5	+4.9 to +5.2	PJH02 pins 1, 2, 3, 4, 5 to PJH03 pins 1, 2, 3, 4, 5
−5	−5.0 to −5.3	PJH02 pin 9 to PJH02 pin 10

Notes:

1. The voltages are not adjustable.
2. If the load is removed, voltages may be slightly out of specification.
3. The ac circuits in the control unit are protected by circuit breaker CB503 in the printer.
4. An internal failure or a short circuit in any dc voltage circuit electronically limits the dc current; therefore, fuses are not needed on the dc circuits.

Display/Touch Screen

Table 554. Display/Touch Screen

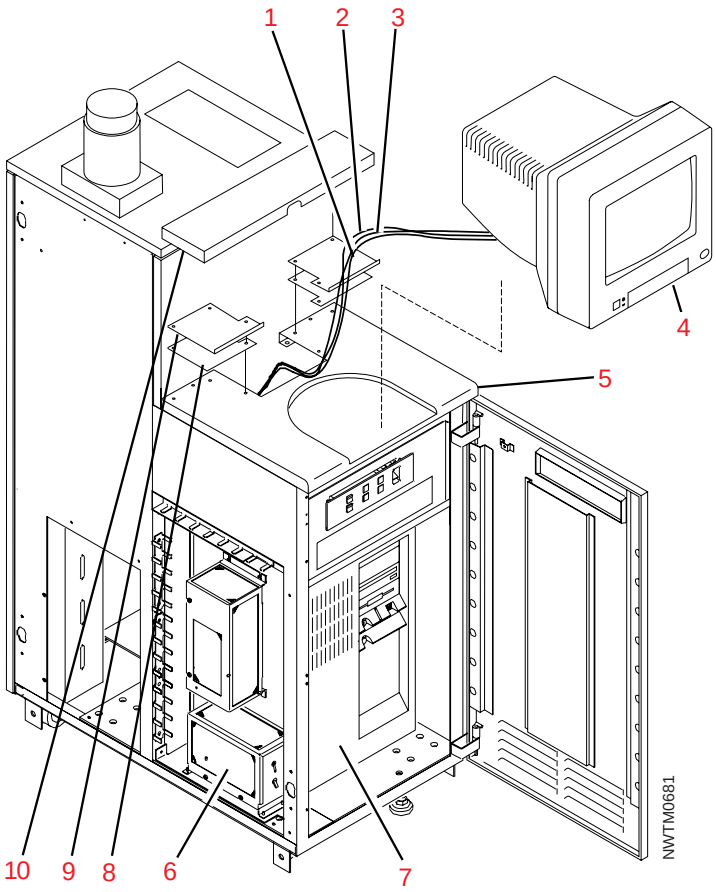


Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Remove the control unit side cover.
6. Disconnect the Display/Touch Screen power cord **(1)** from the ac control box **(6)**.
7. Disconnect the video cable **(2)** from adapter slot seven on the rear of the controller **(7)**.
8. Disconnect the display cable **(3)** from the serial port S2 connector on the rear of the controller.
9. Pull the Display/Touch Screen cables from the control unit and lift the Display/Touch Screen off the control unit shelf.

(continued on next page)

Table 554. Display/Touch Screen (continued)



Installation

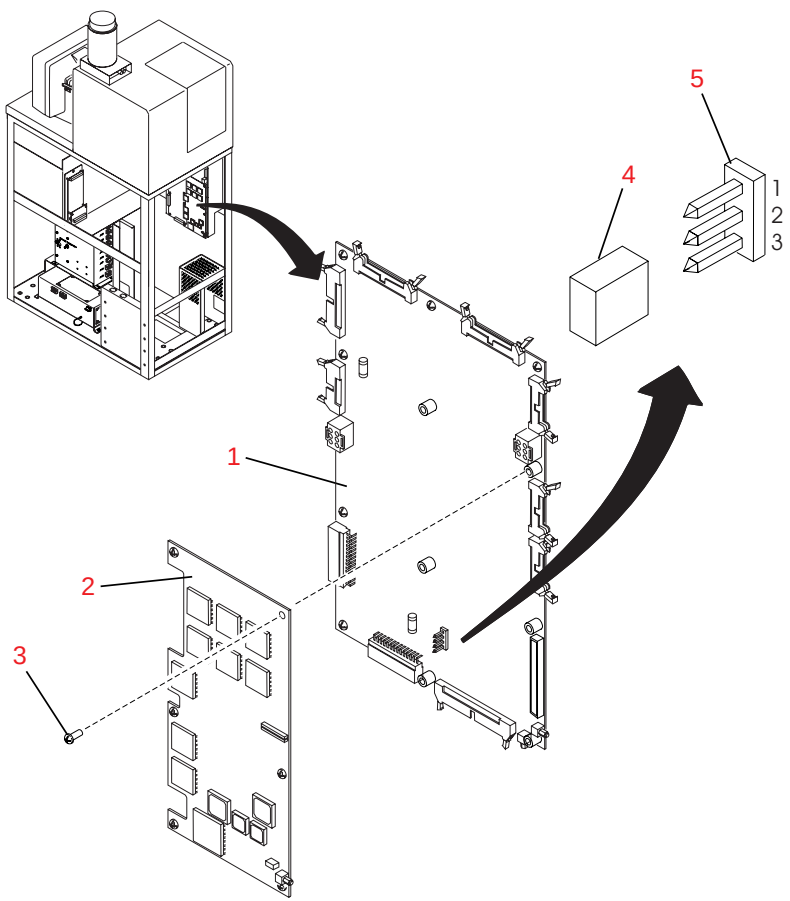
Reverse the removal procedure (steps 5 through 9) to install a Display/Touch Screen.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Perform several operations from the Display/Touch Screen to ensure that it is working properly.

Mechanism Interface Card (MIC) - Single Beam Printhead

Table 555. Mechanism Interface Card (MIC) Single Beam Printhead



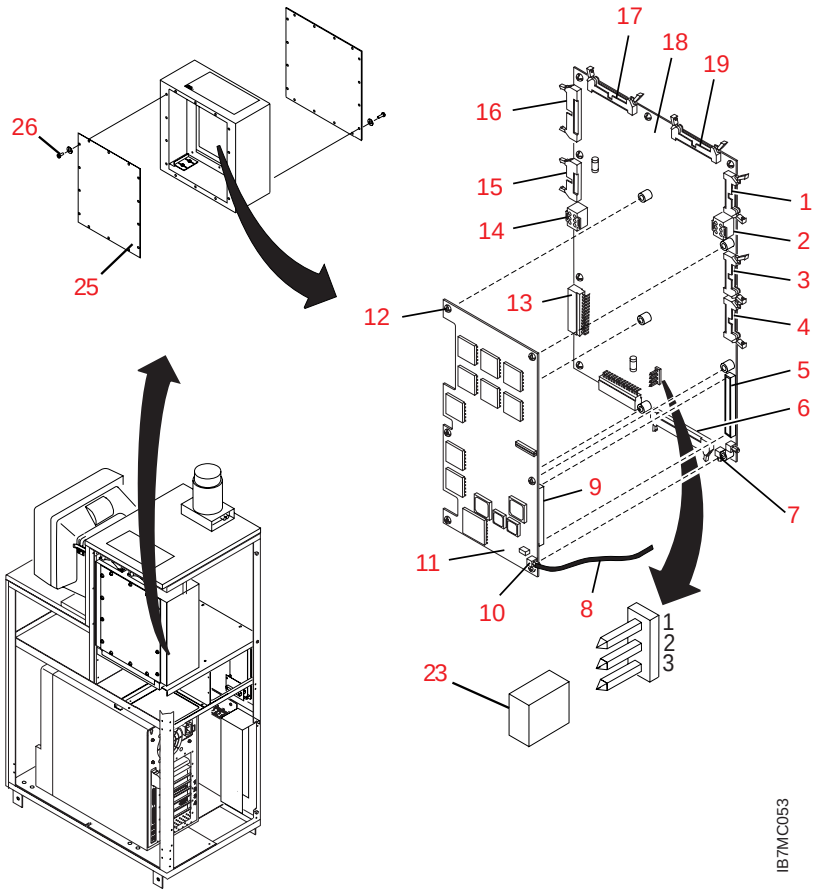
Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Remove the rear inner cover.
6. Open both control unit side covers.
7. Remove the screws **(26)** from the PQE/MIC enclosure and remove the cover **(25)**.

(continued on next page)

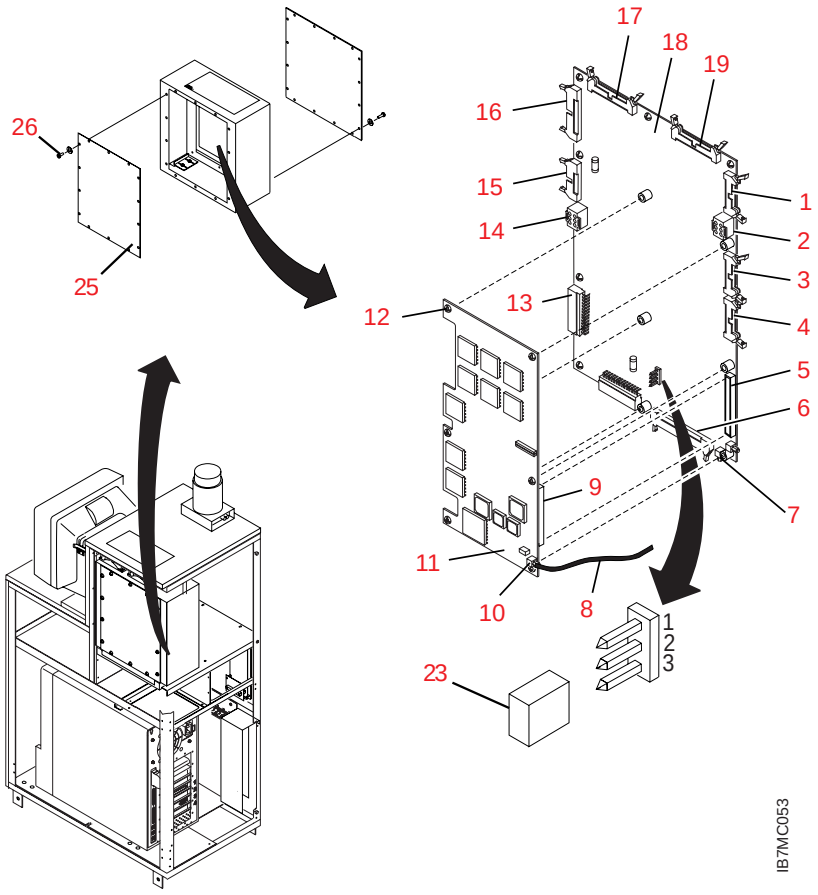
Table 555. Mechanism Interface Card (MIC) Single Beam Printhead (continued)



8. Disconnect the cables from the following MIC and PQE card connectors:
   - PJJ1 – operator alert cable **(1)**
   - PJJ2 – not used **(3)**
   - PJJ3 – operator panel cable **(4)**
   - PJJ5 – dc power cable **(2)**
   - PJJ6 – cable to printer **(6)**
   - PJJ7 – to pre/postprocessing interface card **(19)**
   - PJJ8 – **(24)**
     - Printer 1 - SCSI terminator
     - Printer 2 - SCSI from printer 2 to printer 1 MIC
   - PJJ9 – to pre/postprocessing interface card **(17)**
   - PJJ10 – dc power cable **(14)**
   - PJJ11 – to pre/postprocessing interface card **(16)**
   - PJJ12 – used with enhanced toner loading **(15)**
   - PJJ13 – **(13)**
     - Printer 1: SCSI bus terminator
     - Printer 2: to RS/6000 controller (SCSI)
   - PJU7 – beam detect **(7)**
   - VD1 – video data coax cable on the PQE card **(10)**

(continued on next page)

Table 555. Mechanism Interface Card (MIC) Single Beam Printhead (continued)



9. Remove the screws and standoffs that hold the PQE/MIC card to the enclosure and remove the PQE/MIC cards.
10. Remove the six screws **(12)** that hold the PQE card **(11)** to the MIC **(18)**.
11. Disconnect connector J01 **(9)** on the PQE card from connector PJJ4 **(5)** on the MIC by lifting the PQE card off the MIC and out of the control unit.

Installation

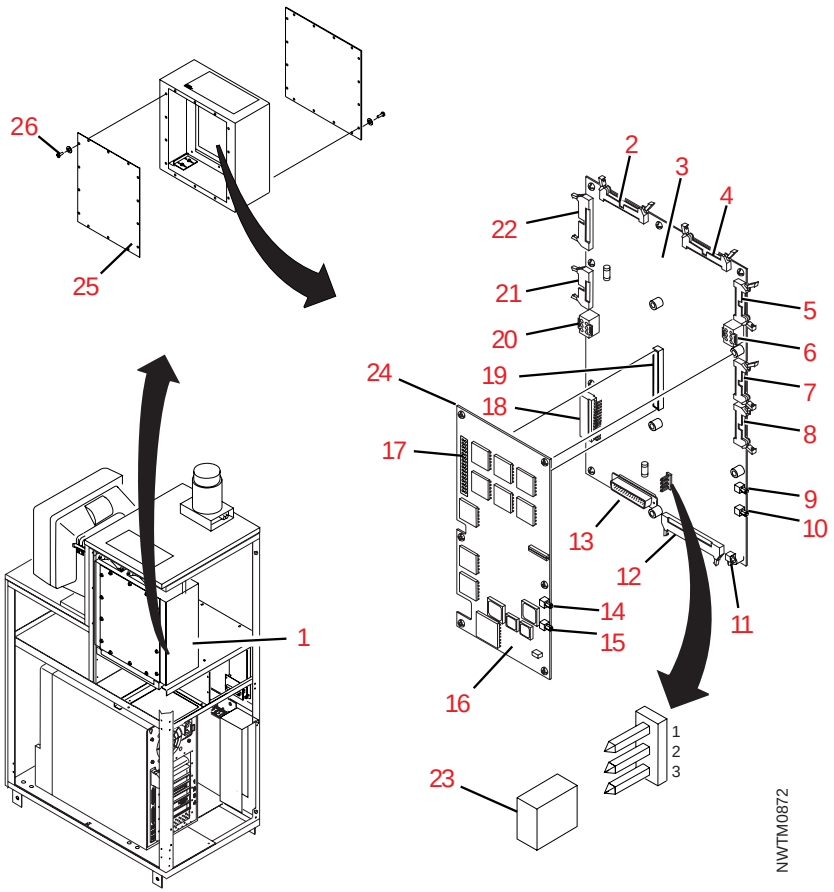
Reverse the removal procedure.

Check

1. Install the 2-pin MIC jumper.
   - Printer 1: install the jumper on pins 1 and 2.
   - Printer 2: install the jumper on pins 2 and 3.
2. Set the power switch on the front of the RS/6000 controller to **On**.
3. Power on the printer.
4. Run the Mechanism Diagnostics to ensure that the MIC works correctly.
5. Run Print Pack to check print quality.

Mechanism Interface Card (MIC) - Two-Beam Printhead

Table 556. Mechanism Interface Card (MIC) Two-Beam Printhead



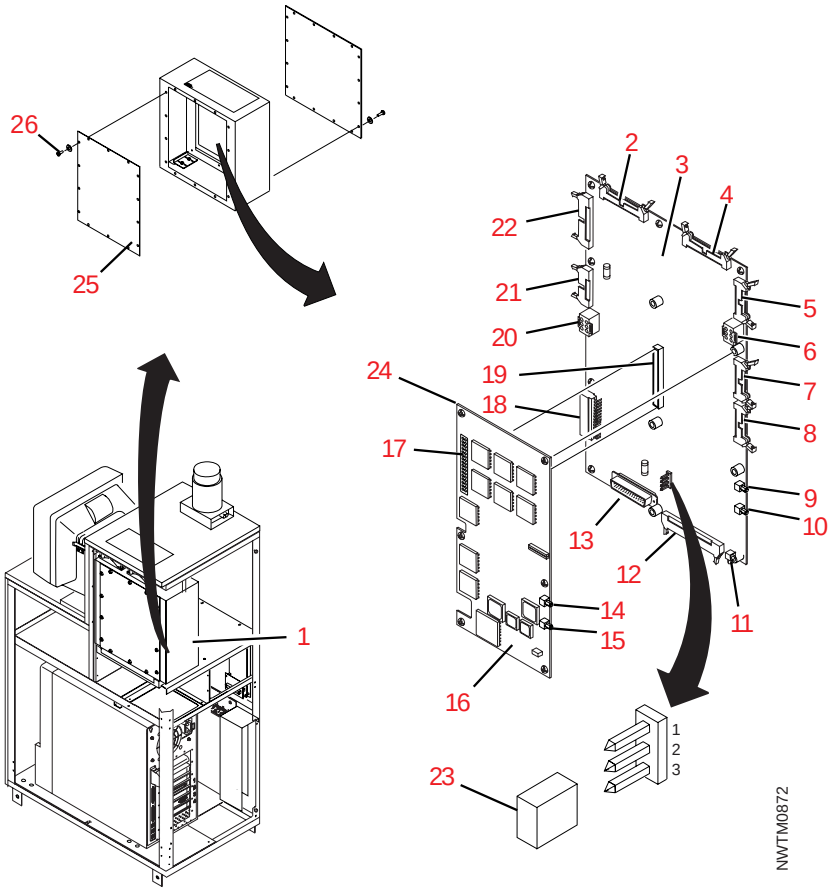
Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Remove the rear inner cover.
6. Open both control unit side covers.
7. Remove the screws **(26)** from the PQE/MIC enclosure and remove the cover **(25)**.

(continued on next page)

Table 556. Mechanism Interface Card (MIC) Two-Beam Printhead (continued)



8. Disconnect the cables from the following MIC and PQE card connectors:
   - PJJ1 – operator alert cable **(5)**
   - PJJ2 – not used **(7)**
   - PJJ3 – operator panel cable **(8)**
   - PJJ5 – dc power cable **(6)**
   - PJJ6 – cable to printer **(12)**
   - PJJ7 – to pre/postprocessing interface card **(4)**
   - PJJ9 – to pre/postprocessing interface card **(2)**
   - PJJ10 – dc power cable **(20)**
   - PJJ11 – to pre/postprocessing interface card **(22)**
   - PJJ12 – used with enhanced toner loading **(21)**
   - VD1 – video data **(15)**
   - VD2 – video data **(14)**
   - BD1 – beam detect **(11)**

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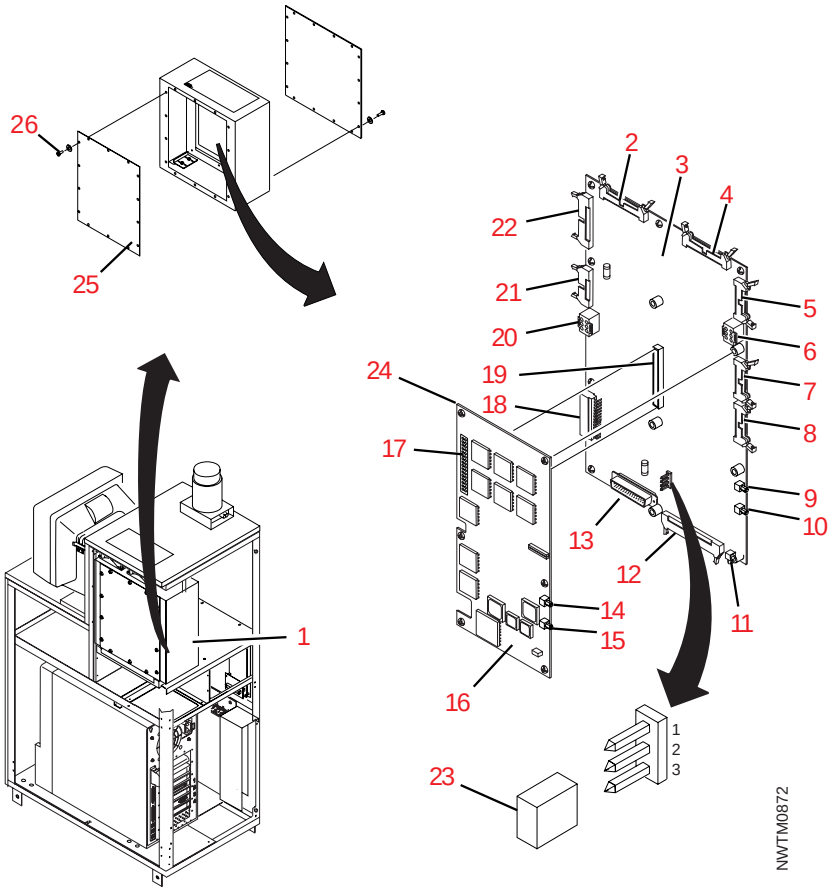
Table 556. Mechanism Interface Card (MIC) Two-Beam Printhead (continued)



9. Remove the screws and standoffs that hold the PQE/MIC card to the enclosure and remove the PQE/MIC cards.
10. Remove the nuts and standoffs **(24)** that hold the PQE card to the MIC.
11. Separate the connector **(19)** on the PQE and MIC cards by gently lifting the PQE card off of the connector on the MIC card.

Installation

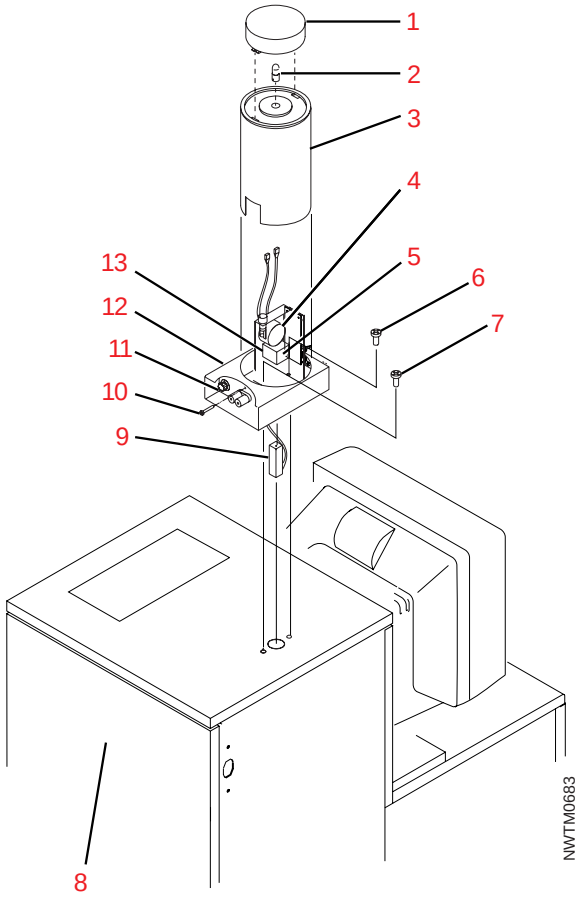
Reverse the removal procedure.

Check

1. Install the 2-pin MIC jumper.
   - Printer 1: install the jumper on pins 1 and 2.
   - Printer 2: install the jumper on pins 2 and 3.
2. Set the power switch on the front of the RS/6000 controller to **On**.
3. Power on the printer.
4. Run the Mechanism Diagnostics to ensure that the MIC works correctly.
5. Run Print Pack to check print quality.

Operator Alert Assembly

Table 557. Operator Alert Assembly



Notes:

1. To replace just the light bulb, go to step 7.

Removal

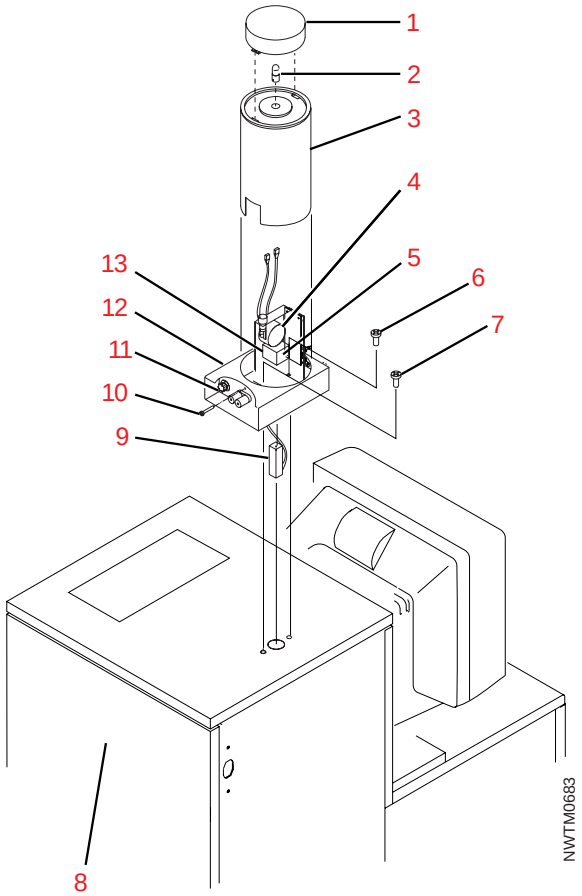
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover, or on other control units, slide open the door **(8)** on the rear of the control unit.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Remove the screw **(10)**.
6. Lift off the operator alert sleeve **(3)** and place it on the top of the control unit.

Note: In the next step, note which numbered wires are attached to the component.

7. Use the following information to remove assembly components:
   - Light bulb **(2)**: Squeeze the plastic light cover **(1)** to remove it. Rotate the bulb counterclockwise.
   - Speaker **(4)**: Unscrew the collar to remove it from the mounting plate.
   - Relay **(5)**: Remove the screws and disconnect the wires.
   - Circuit board **(13)**: Squeeze each mounting standoff while you pull on the circuit board, disconnect the connector, and remove the board.

(continued on next page)

Table 557. Operator Alert Assembly (continued)



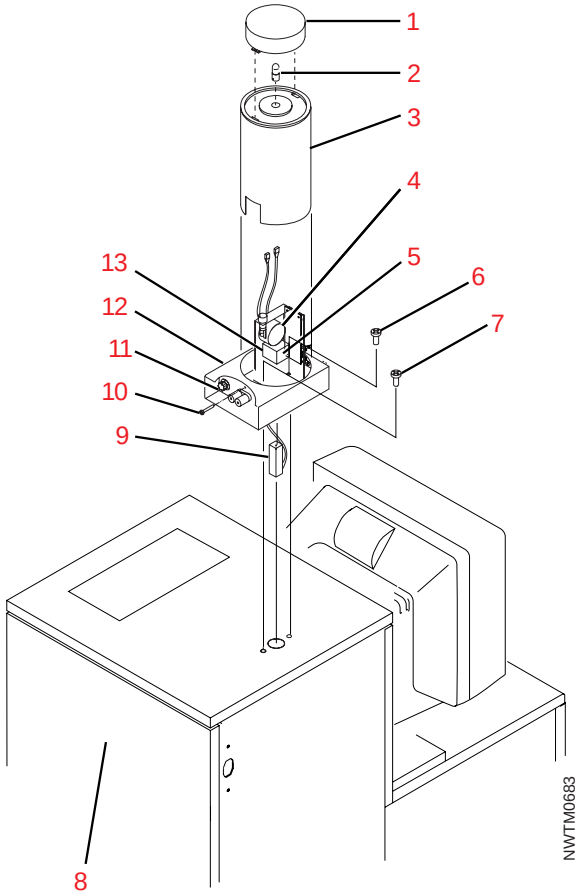
8. Volume control potentiometer **(11)**: Remove the setscrew in the knob and remove the collar.
9. To remove the operator alert base **(12)**, open the toner storage cover **(8)**.
   a. Disconnect connector ALP2 **(9)**.
   b. Loosen the rear screw **(7)**, loosen the front screw **(6)**, and slide the operator alert base **(12)** to the rear of the control unit.

   Note: In the next step be careful not to damage the ALP2 connector **(9)** while you remove the cable from the control unit.

   c. Lift the operator alert base **(12)** from the control unit.

(continued on next page)

Table 557. Operator Alert Assembly (continued)



Installation

Note: During installation, be careful not to damage the operator alert cable when you attach the sleeve to the base.

1. Reverse the removal procedure (steps 5 through 9).

Adjustment

Make the following adjustments as necessary:

- To adjust the alarm volume, use the knob **(11)** on the base.
- To turn off the alarm, set DIP switch 2 on the circuit board **(13)** to **Off**.
- To set the attention light to glow without flashing, set DIP switch 1 on the circuit board **(13)** to **Off**.
- To adjust the attention light flash rate, adjust the potentiometer on the circuit board **(13)**.

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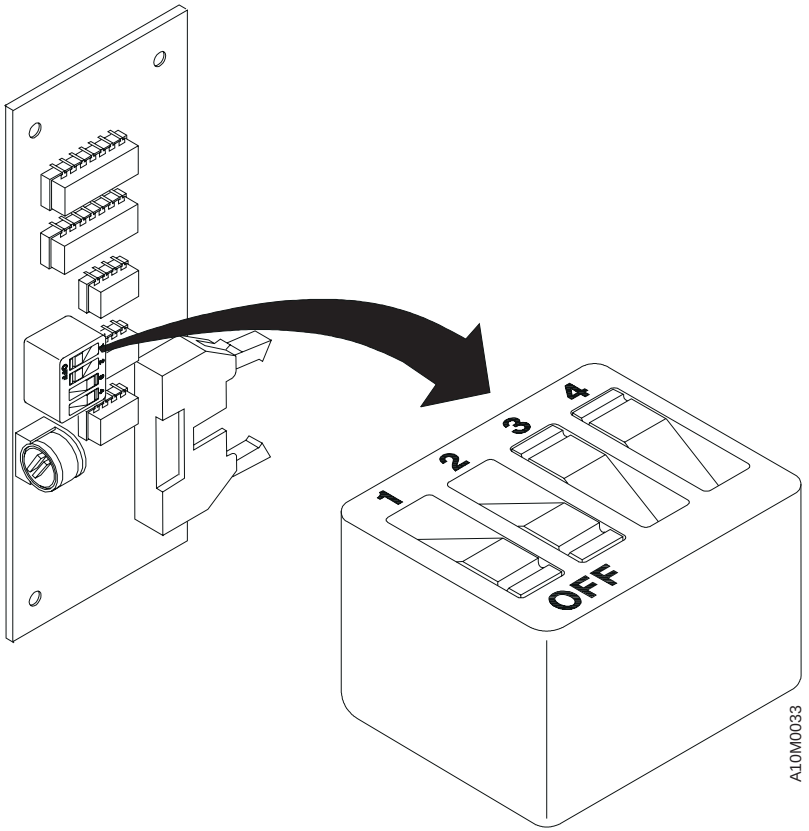
Table 557. Operator Alert Assembly (continued)



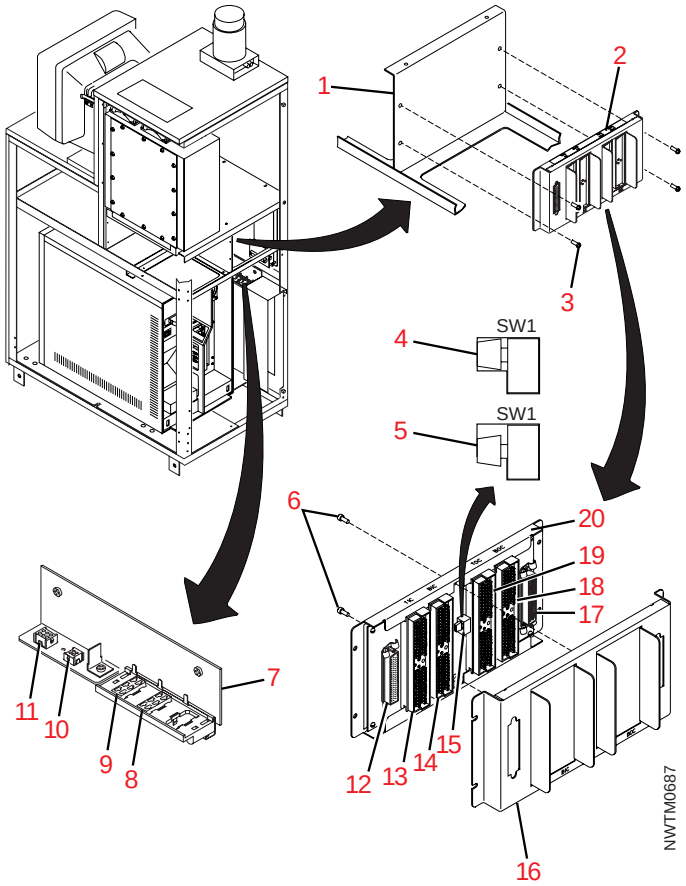
Note: DIP switches 3 and 4 are not used and are normally set to the **Off** position.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Run the Alarm and Attention Light tests. (See “Mechanism Diagnostics” on page 1580.)

Parallel Channel Tailgate

Table 558. Parallel Channel Tailgate



DANGER

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

Special Tools Required:

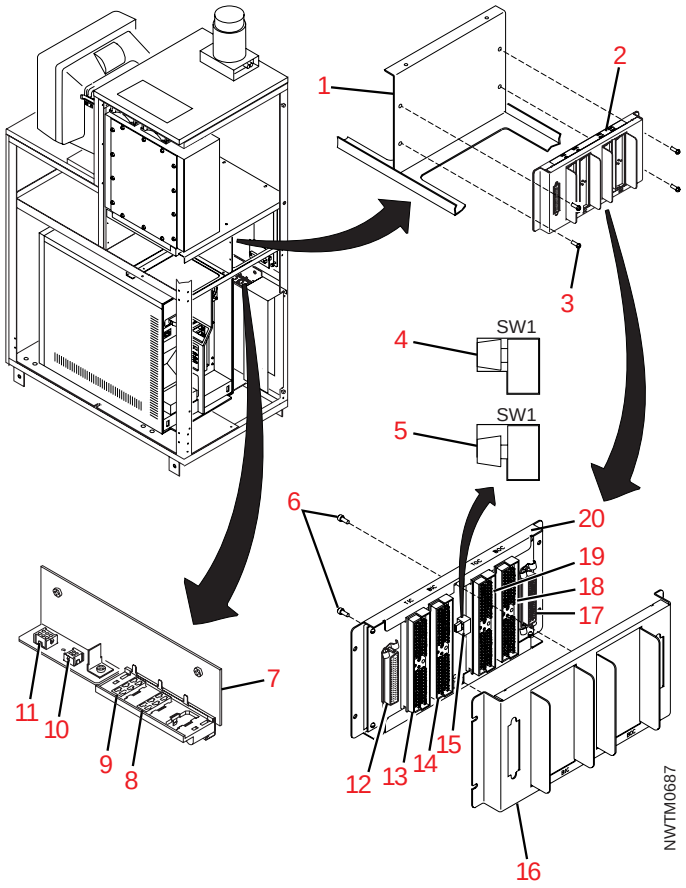
Channel wrap blocks

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Disconnect the power cord from the electrical outlet.
6. Remove the control unit rear inner cover.
7. Take care when you disconnect or connect the BUS/TAG cables, because the connector pins are very easy to bend. Disconnect the external cables from the BUS IN **(14)** and TAG IN **(13)** connectors and the BUS OUT (or terminator) **(18)** and TAG OUT (or terminator **(19)** connectors on the tailgate assembly.

(continued on next page)

Table 558. Parallel Channel Tailgate (continued)



8. Disconnect the internal tailgate to controller Y-cable from the **(12)** and **(17)** connectors on the tailgate.
9. Remove four screws **(3)** holding the channel tailgate assembly to the tailgate frame **(1)**.
10. Note the setting of the channel priority switch on the tailgate assembly (LOW **(5)** or HIGH **(4)**) and remove the tailgate assembly.

Installation

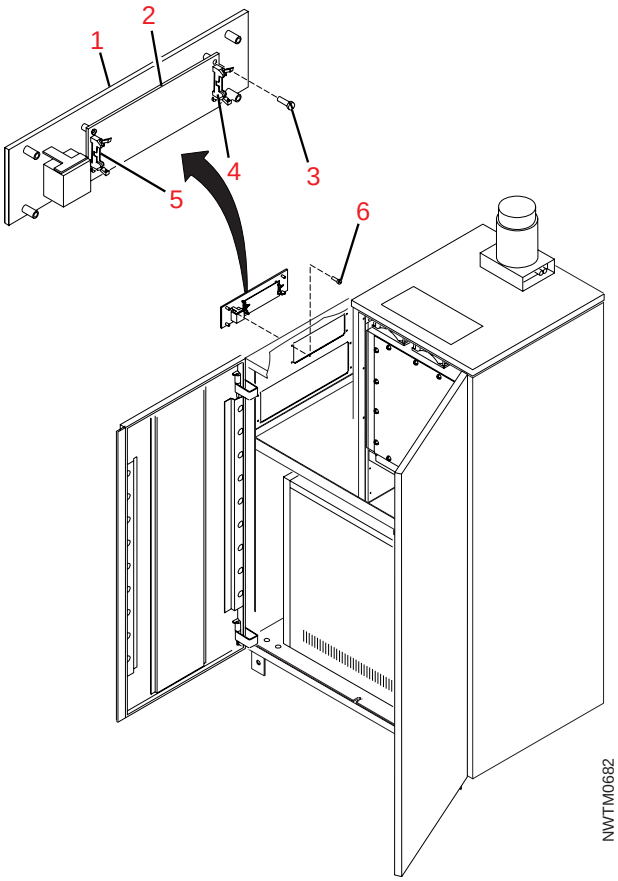
1. Reverse the removal procedure (steps 6 through 10) to install the tailgate assembly.
2. Ensure that the channel priority switch **(15)** on the new tailgate card is set the same as on the old card.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Run Parallel Channel Tests.
4. Run a customer print job to ensure that print data are being received correctly.

Power Control Panel

Table 559. Power Control Panel



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open both control unit side covers.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Open the control unit front cover.
6. Remove the screws **(6)** and remove the power control panel **(1)**.
7. Disconnect connectors PB01 **(4)** and PB02 **(5)** on the power control panel.
8. Remove the four screws **(3)**, and remove the power control panel board **(2)**.

Installation

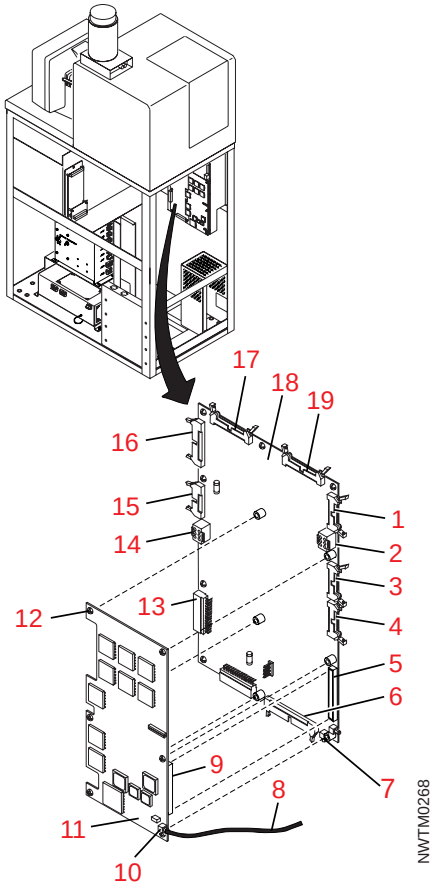
Reverse the removal procedure steps 5 through 8.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Run Print Pack to check operation.

PQE Card (Single Beam Printhead)

Table 560. PQE Card (Single Beam Printhead)



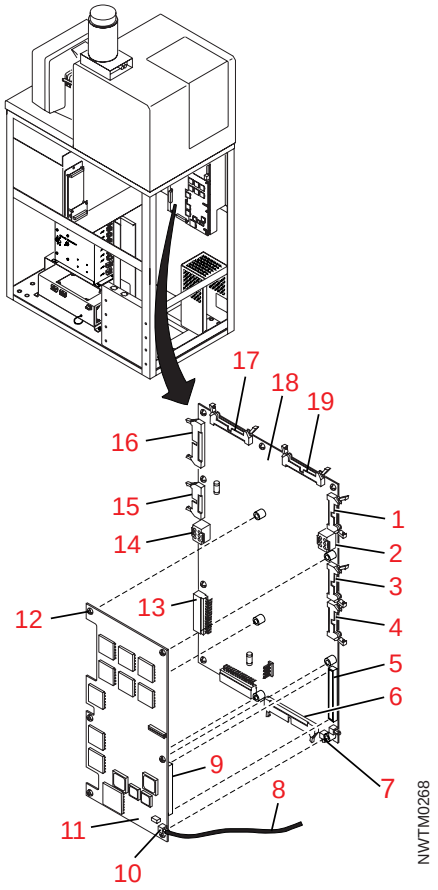
Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Remove the control unit rear inner cover.
6. Remove both control unit side covers.
7. Remove the screws **(26)** from the PQE/MIC enclosure cover.
8. Disconnect the video data coax cables (coming from the printhead) from connector VD1 **(10)** on the PQE card **(11)**.
9. Remove the six screws **(12)** holding the PQE card to the MIC.
10. Carefully separate the PQE card from the MIC and remove it from the PQE/MIC enclosure.

(continued on next page)

Table 560. PQE Card (Single Beam Printhead) (continued)



Installation

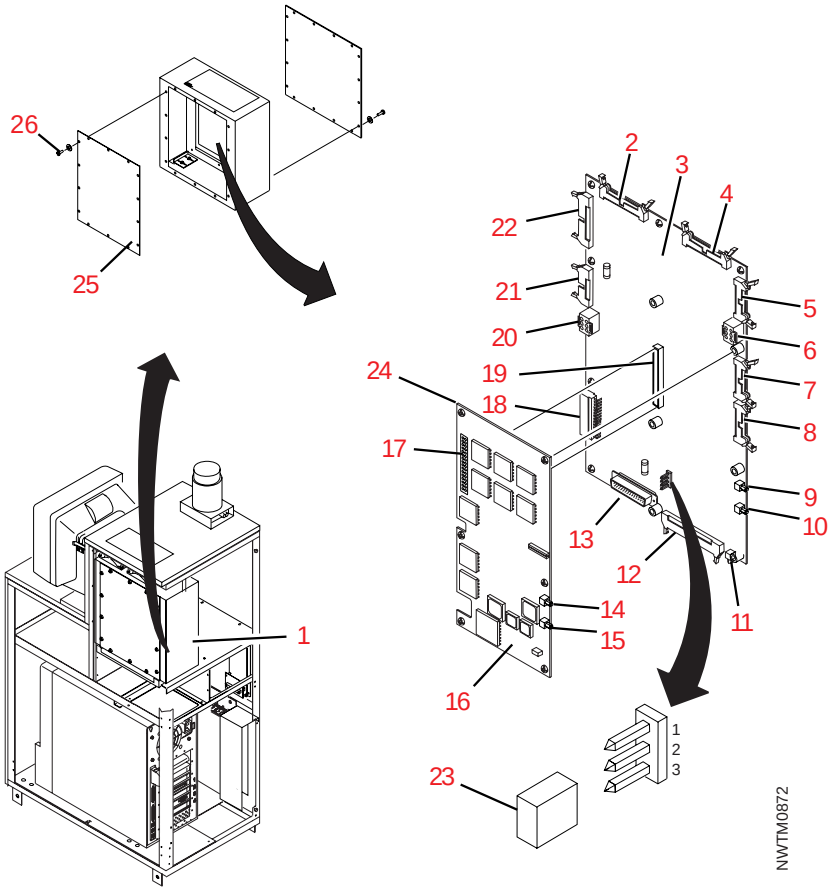
1. Reverse the removal procedure.
2. Carefully align the J01 connector **(9)** with the PJJ4 connector **(5)** when you put the PQE card on the MIC.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Print Print Pack to check printer operation.

PQE Card - Two Beam Printhead

Table 561. PQE Card - Two-Beam Printhead



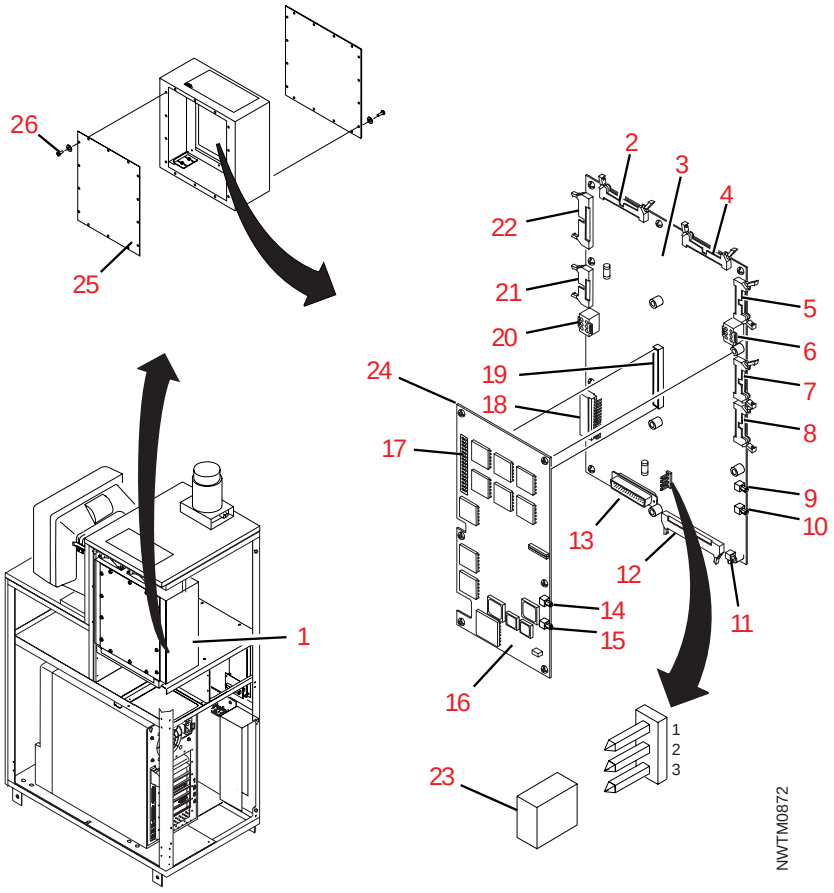
Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Set the power switch on the front of the RS/6000 controller to **Off**.
5. Remove the control unit rear inner cover.
6. Remove both control unit side covers.
7. Remove the screws **(26)** from the PQE/MIC enclosure cover.
8. Disconnect the video data coax cables (coming from the printhead) from connector VD1 **(15)**, VD2 **(14)** on the PQE card **(16)**.
9. Remove nuts and standoffs that attach the PQE card to the MIC.
10. Carefully separate the PQE card from the MIC and remove it from the PQE/MIC enclosure.

(continued on next page)

Table 561. PQE Card - Two-Beam Printhead (continued)



Installation

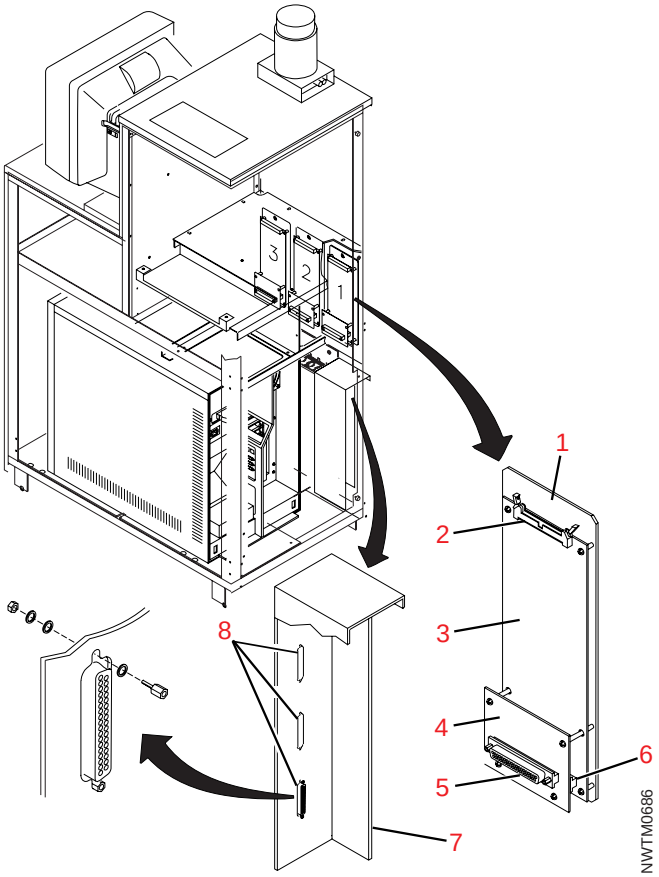
1. Reverse the removal procedure.
2. Carefully align the 150 pin connector **(19)** when putting the PQE card on the MIC.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. Print Print Pack to check printer operation.

Pre/Postprocessing Interface Cards

Table 562. Pre/Postprocessing Interface Cards



Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

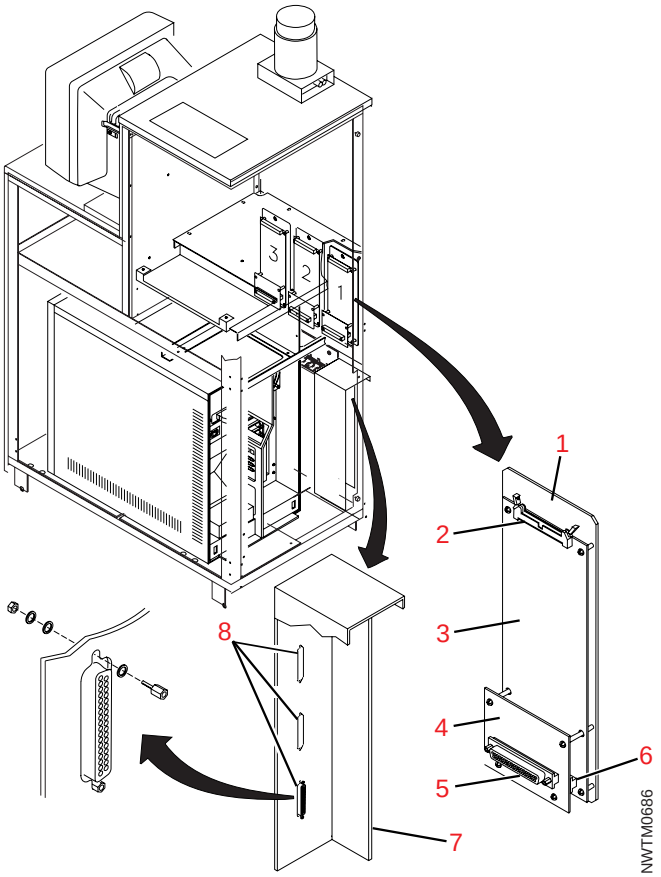
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the control unit rear cover.
4. Remove the control unit rear inner cover.
5. Set the power switch on the front of the RS/6000 controller to **Off**.
6. Disconnect the top **(2)** and bottom **(5)** cable connectors from the pre/postprocessing interface card assembly **(1)** you are replacing.

Note: If the card to be removed is an advanced function postprocessing interface card, the coupled interface card **(4)** will not be present.

7. Remove the mounting screw that holds the pre/postprocessing interface card assembly **(1)** to the vertical frame in the control unit.
8. Remove the card assembly.

(continued on next page)

Table 562. Pre/Postprocessing Interface Cards (continued)



Installation

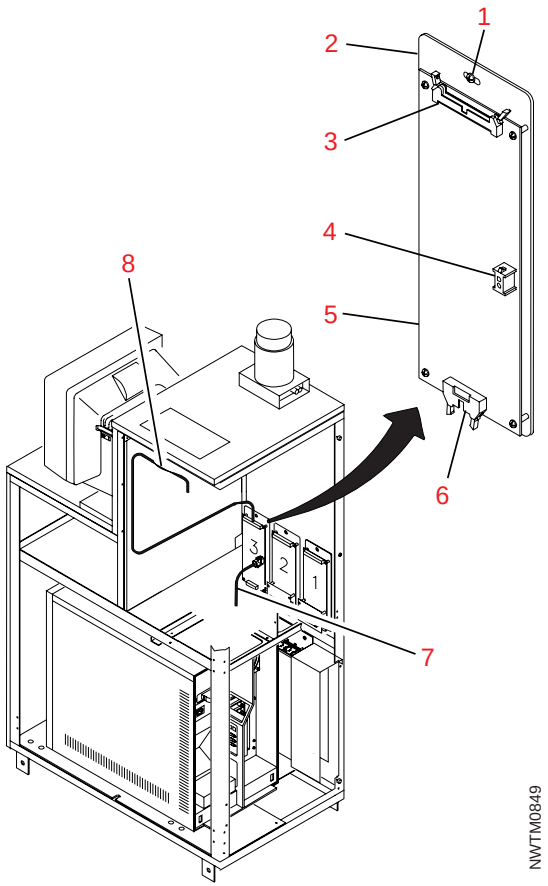
Reverse the removal procedure steps 6 through 8.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer.
3. To check the interface cards, use the ″Intelligent Interface Wrap Test″ or ″Coupled Interface Wrap Test″. (See Pre/Postprocessor Diagnostics.)
4. Perform an NPRO or run Print Pack to test the operation of the pre/postprocessor.

Side 1 / Side 2 Verification Control Card

Table 563. Side 1 / Side 2 Verification Control Card



Note: This procedure applies only to printer 2 of a duplex printing system.

Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the control unit side cover.
4. Disconnect cable connectors PJJ1 **(5)**, P2S2 **(6)**, P3S2 **(4)** from the verification control card **(5)**.
5. Remove the screw **(1)** and remove the card/plate assembly **(2)** from the control unit.
6. Remove the four mounting screws that hold the control card to the plate.

Installation

Reverse the steps of the removal procedure to install the verification control card.

Check

1. To check the verification control card, perform the verification sensor card adjustment procedures. (See page 3087.)
2. Run Print Pack to check the operation of Side 1 / Side 2 Verification.

RS/6000 Removal and Replacement Procedures

ESD Precautions

Cards, planars, diskette drives, and disk drives can be damaged by electrostatic discharge (ESD). To prevent damage to these components use the following precautions:

- Wear an ESD wrist strap when you handle these components.
- When you replace a component - with the component still in its antistatic bag touch the metal frame of the RS/6000.
- Do not remove the component from the antistatic bag until you are ready to install it.
- Hold the cards and planar by the edges.
- Hold the drives by the frame.
- Avoid touching solder joints or pins.
- If you must lay a component down while it is out of the antistatic bag, lay it on the bag. Before you pick it up again, touch the antistatic bag and the metal frame of the controller at the same time.
- For microcode update, see Updating Microcode.

Updating Microcode

Note: If installation instructions are provided with the new microcode, use those instructions instead of this procedure.

1. Set the mode switch to the Normal position and power on the controller.
2. Log on as a Customer Engineer.
3. Select **Analyze** and then **Service Actions**.
4. Select **Disk Operations** on the Service Actions window, and then select **Update Microcode**. If you are updating microcode, go to step 5.
5. Note the microcode level of the new disk drive in the **Update Microcode** window. Compare it with the level of the microcode diskettes you ordered with the disk drive.
   - If the microcode level of the new disk is equal to the level of the microcode diskettes, go to step 6.
   - If the microcode level of the new disk is lower than the level of the microcode diskettes, continue with the next step.
6. Select **Diskette** as the source of the update, in the **Update Microcode** window.
7. Insert the first microcode backup diskette in the diskette drive.
8. Select the **Update** pushbutton in the **Update Microcode** window.
9. Complete the update with the remaining diskettes, following the instructions on the Display/Touch Screen. When the last diskette has been read, the controller initiates a restart procedure to activate the microcode.
10. When the restart is complete:
    - If you have just installed a new hard drive, continue with step 11.
    - If you are only updating the microcode, continue with step 30.
11. Do one of the following:
    - If there is a valid configuration backup diskette, continue with step 23.
    - If there is no configuration backup diskette, continue with the next step.
12. From the main window menu bar, select **Configure**.
13. On the next menu that displays, select **Configure Printer**.

14. Select **Machine Sequence**, and enter the Machine Sequence number found on the rear of the control unit frame.
15. Select **Manufacturing Plant**, and enter the Manufacturing Plant data retained from a prior Configure Printer operation.
16. Set the **Printer Counter**, to the value in the usage meter on the rear the printer engine.
17. Select **Date and Time**; use the numeric keypad window to select the elements of the date (month, day, year) and time (hours, minutes, seconds).
18. Select **Configure Attachments** on the Configure pull down menu. Set all the configuration items according to the information recorded the last time that configuration actions were taken.
19. Select **Configure Pre/Postprocessors** on the Configure pull down menu. Set all the configuration items according to the information recorded the last time that configuration actions were taken.
20. Update the PM counters per printed logs. (See Using the PM Log.)
21. Define the customer's forms (see the Operator's Guide). Restore Forms can be used if a Save Forms operation was performed previously. (See Disk Operations.)
22. Go to step 29.
23. Insert the configuration diskette in the diskette drive.

Note: There are restrictions on when the Restore function can be used; see Disk Operations for those restrictions.

- Select **Analyze** then **Service Actions**.
- Select **Disk Operations** on the Service Actions window, then select **Restore Disk**.

24. Select the **OK** pushbutton in the **Restore Disk** window.
25. From the main window menu bar, select **Configure**.
26. On the next menu that appears, select **Configure Printer**.
27. Update the **Printer Counter** to the value in the usage meter on the rear the printer engine.
28. Select **Date and Time**; use the numeric keypad window to select the elements of the date (month, day, year) and time (hours, minutes, seconds).

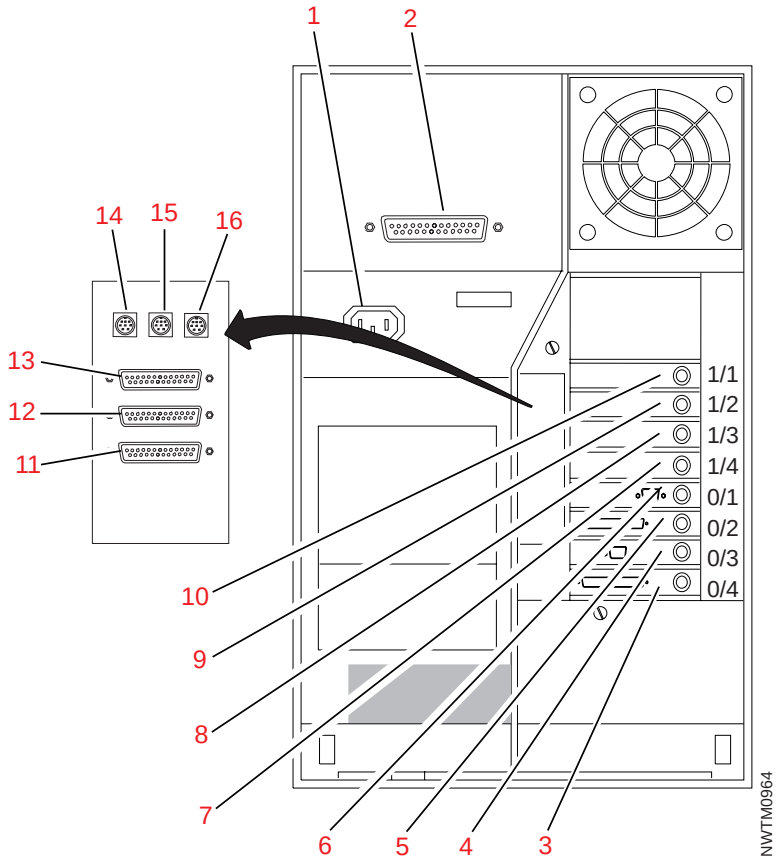
29. Do a restart to enable the configuration changes to be activated. Once the restart has completed:
    - If there is new configuration or forms data, continue with step 30.
    - If there is no new configuration or forms data to be added, go to Check.
30. From the main window menu bar, select **Configure**, and verify all the configuration items in all categories.
31. Select **Analyze**, then select **Service Actions**.
32. Select **Disk Operations** on the Service Actions window, then select **Back Up Disk**. The **Save to a Diskette** window appears.
33. Insert a DOS-formatted diskette in the diskette drive.
34. Select the **Continue** pushbutton on the **Save to a Diskette** window to save the new configuration files.
35. Leave the configuration backup diskette in the diskette drive to receive automatic backup every 24 hours or 1000 prints, whichever greater.

Check

1. Load forms in the printer.
2. Ensure that the forms are aligned.
3. Select **Analyze**, then **Service Actions**.
4. Select **Print**.
5. Select **Print Log** on the **Print** window.
6. Select **Print Pack**.
7. Select **Print** pushbutton.
8. Review the prints and correct any problems.
9. Enable the host attachments.
10. Notify the system operator that the printer is ready for printing.

7013 Model 595 Controller Removal

Table 564. 7013 Model 595 Controller



CAUTION:
<77> The RISC Controller weighs more than 45 kg (100 lb). If the entire controller must be lifted, use three or more persons.

Removal

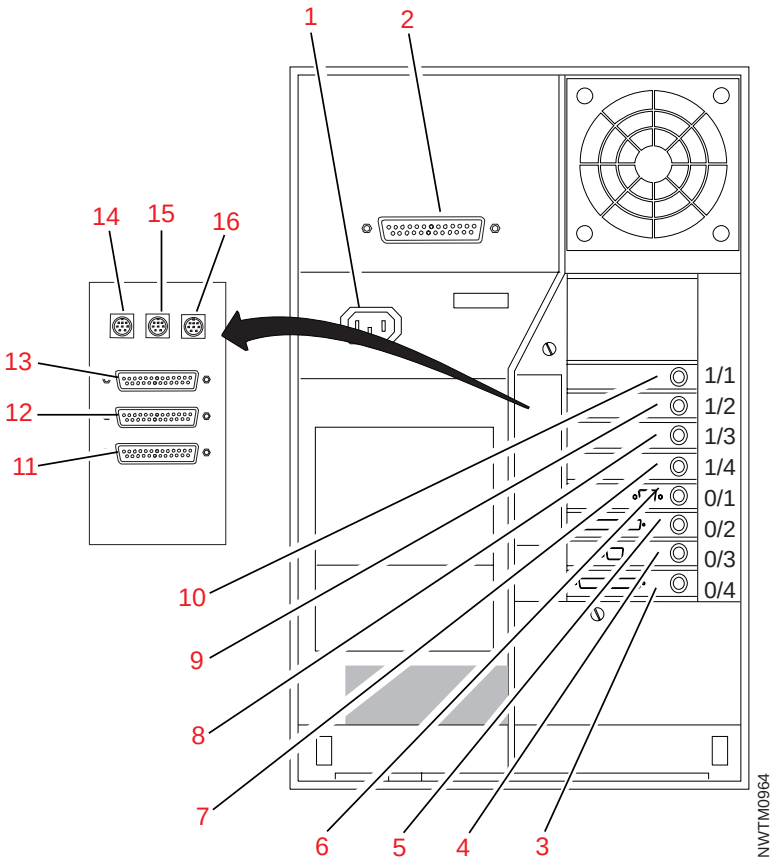
1. Request that the system operator stop activity on the printer. Disable all host attachments.

   If System/370 parallel channels are installed and there are other control units installed on the parallel channels, request the system operator to stop all activity on those channels.
2. Shutdown and power off the printer.
3. Open the control unit rear cover and remove the inner covers.
4. Open both control unit side covers.
5. Set the power switch on the front of the RS/6000 controller to **Off**.
6. Disconnect the cables from connectors **(1)**, **(3)**, **(4)**, **(5)**, **(6)**, **(7)**, **(12)**, and **(15)** at the rear of the controller and label them for reinstallation.

   If you are going to install a new controller, remove the SCSI terminator from connector **(2)** to install in the new controller if your controller uses SCSI.

(continued on next page)

Table 564. 7013 Model 595 Controller (continued)



7. If System/370 parallel channels were installed in slot 0/2 **(5)** or slot 0/4 **(3)**, disconnect the external channel cables from the channel tailgates and pull them clear of the control unit frame either across the floor or under a raised floor.

   If there are other control units installed on the parallel channels and the controller repair or replacement activity will take an extended period of time, you may temporarily restore channel activity by the following steps:

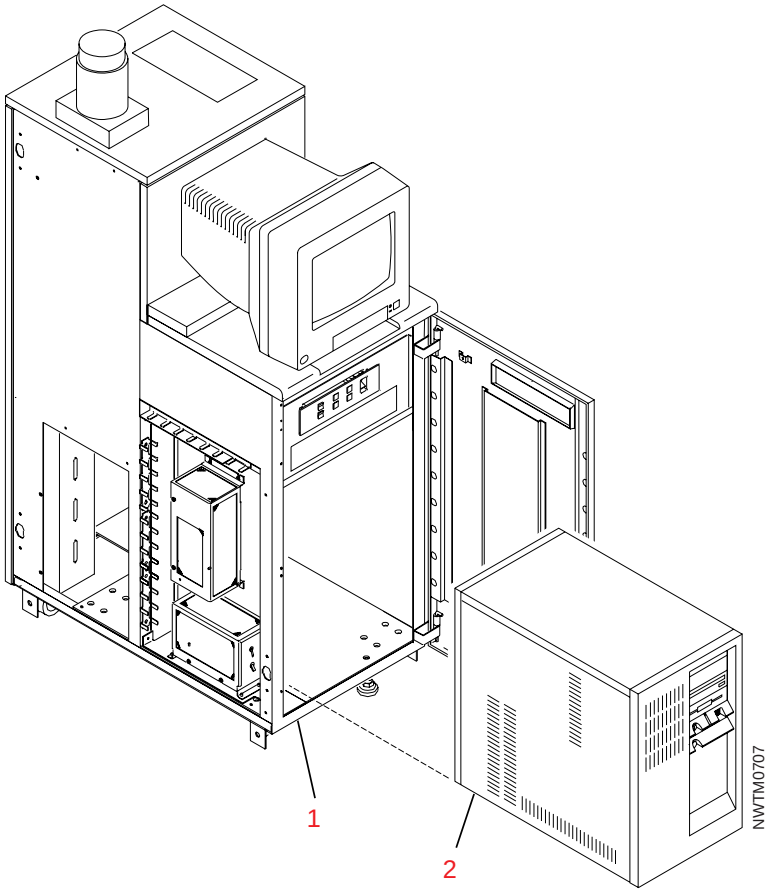
   a. Join the BUS IN cable connector block to the BUS OUT cable connector block, and join the TAG IN cable connector block to the TAG OUT cable connector block if the printer control unit is not the last control unit on the channel.

   b. Remove the terminator blocks from the BUS OUT and TAG OUT tailgate positions and plug them into the respective BUS IN and TAG IN cable connector blocks if the printer control unit is the last control unit on the channel.

   c. Request the system operator to resume parallel channel activity.

(continued on next page)

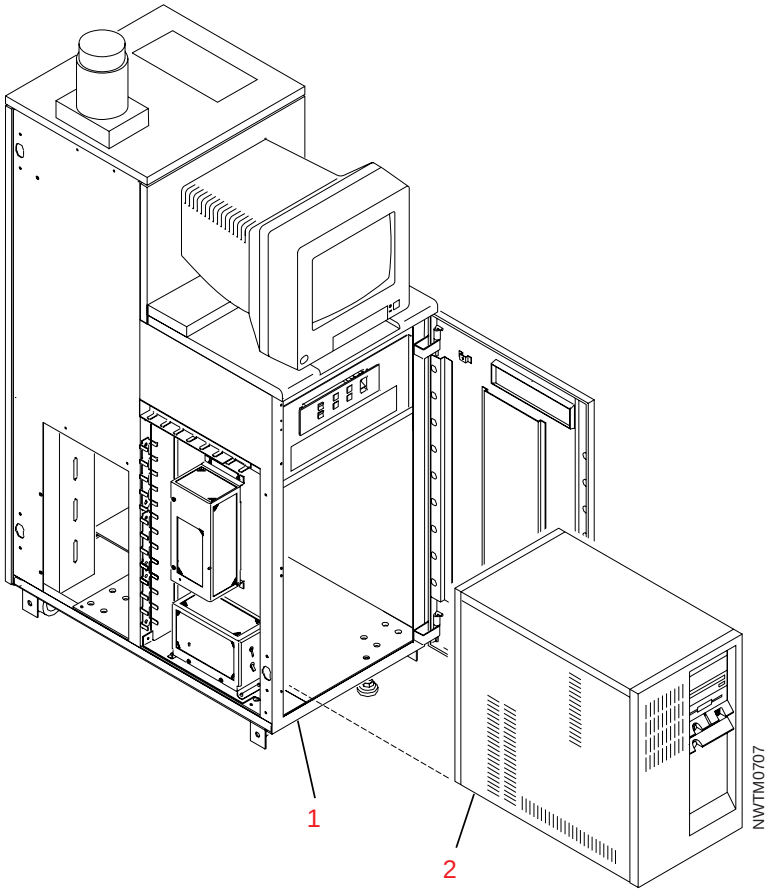
Table 564. 7013 Model 595 Controller (continued)



8. Pull all non-parallel channel cables disconnected from connector slots 0/2 and 0/4 clear of the control unit frame, either across the floor or pushed under a raised floor.
9. Disconnect any preprocessor or postprocessor external device cables connected to the pre/post tailgate and pull them clear of the control unit frame.
10. If an urge unit is installed in the input area of the printer and its power cable is plugged into connector JA10 on the control unit ac control box, disconnect the cable and pull it clear of the control unit frame.
11. Remove the controller from the control unit frame.

(continued on next page)

Table 564. 7013 Model 595 Controller (continued)



Installation

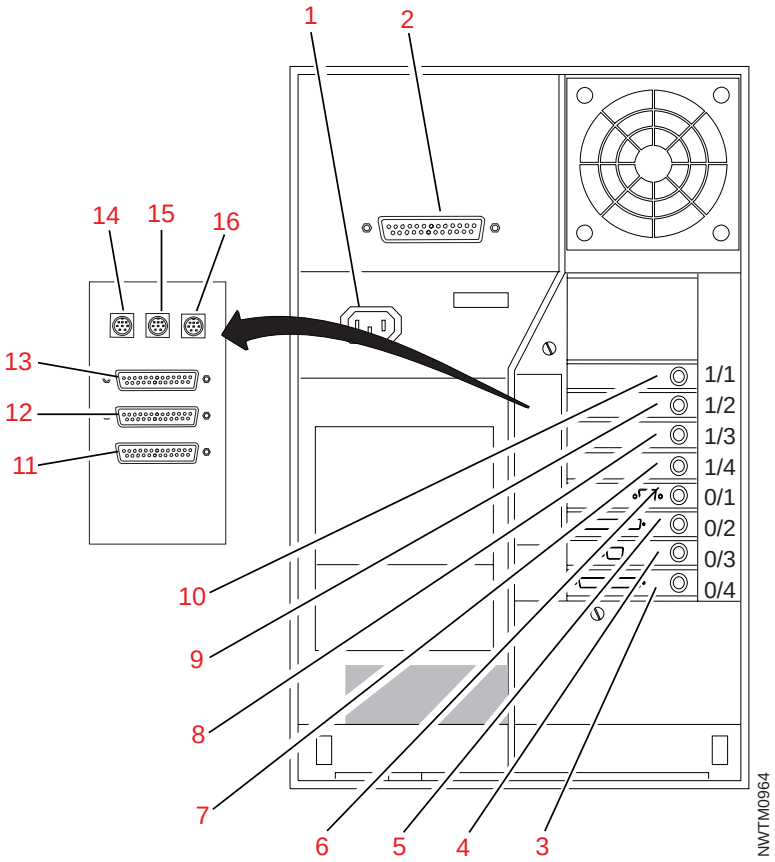
1. Reverse the removal procedure (steps 3 through 11) to install the controller.

Note: If parallel channels are installed and you joined the BUS IN and TAG IN cables to the BUS OUT and TAG OUT cables and resumed channel activity, you must again request the system operator to stop all channel activity while you return the channel cables to their normal configuration.

2. Set the power switch on the front of the RS/6000 controller to **On**.
3. Power on the printer system.
4. Run Print Pack to check print quality.

7013 Model 595 Hard Disk Drive

Table 565. 7013 Model 595 Hard Disk Drive

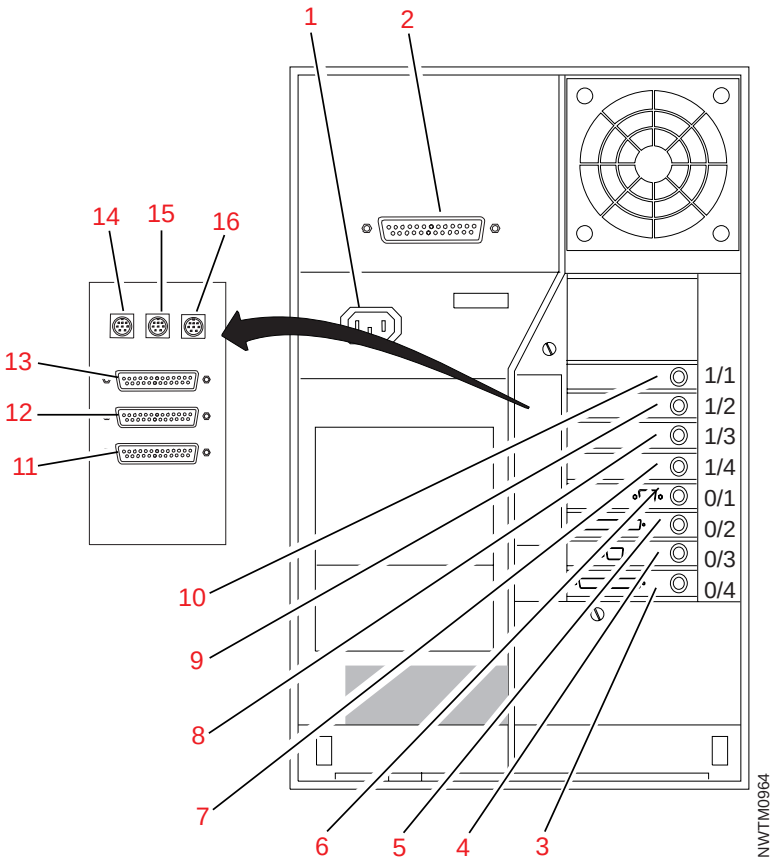


Parts Disposition - The hard drive contains copyrighted information and is the property of IBM. Please return all defective hard drives in accordance with the used parts return procedures.

The Model 595 controller contains one hard drive.
Note: If installation instructions are provided with the hard drive, use those instructions instead of this procedure.

(continued on next page)

Table 565. 7013 Model 595 Hard Disk Drive (continued)



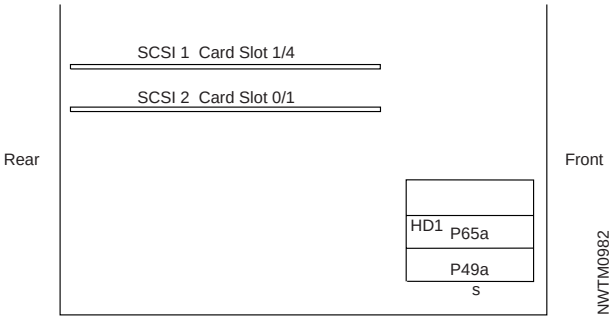
Attention: Use ESD procedures when working with ESD sensitive parts.

Hard Drive Removal

1. Remove the controller from the control unit frame and place it on a work surface in the vertical position. See 7013 Model 595 Controller Removal.
2. Loosen the thumb screw inside the rear cover of the RS/6000 in the middle, about two inches below the top and remove the front cover by pressing down on the top edge of the front cover and pulling away from the RS/6000. The cover pivots on the bottom edge of the RS/6000.
3. Remove the six pin battery connector P62 (orange, blue, white yellow and black wires) located below the yellow reset button and behind the panel. The battery must be left unplugged 15 minutes to allow time for the non-volatile memory to forget stored information. If this is not done, a 223-229 error is posted when the unit is powered up.
4. Remove the left side cover by taking hold of the left side cover at the front and rear near the top and pulling away from the RS/6000. The cover pivots on the bottom edge of the RS/6000.
5. Repeat the previous step for the right side cover.

(continued on next page)

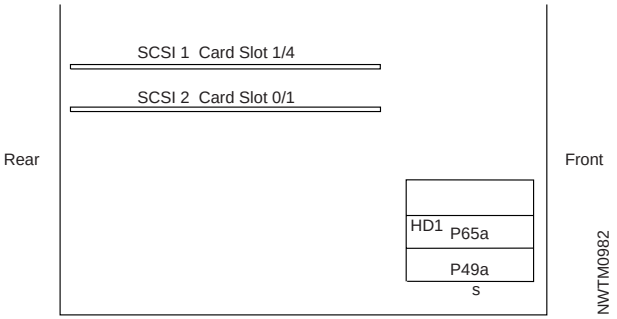
Table 565. 7013 Model 595 Hard Disk Drive (continued)



6. Disconnect the orange/brown power cables (P65A, P65B, P65C, and P65D) from the hard drive. (Cables to the hard drive are located inside the bottom left side of the controller.)
7. Disconnect the blue/black/red power cables (P49A and P49B) from the hard drive fans.
8. Disconnect the blue/black/red power cables from the hard drive fan.
9. Disconnect the blue/white SCSI cable from hard drive located in the HD1 position that goes to SCSI card 1 in slot 0/1. The cable must be connected to the same hard drive location upon reassembly.
10. Mark the drive assembly HD1 as indicated in the illustration. Slide the drive assembly out the right side of the RS/6000 by first loosening the screw(s) in the middle of the drive assembly on the left side using a short flat-blade screw driver. Push the drive out the far side.
11. Remove the screw holding the metal plate upon which the hard drive is mounted to the metal enclosure and remove the assembly.

(continued on next page)

Table 565. 7013 Model 595 Hard Disk Drive (continued)



Hard Drive Installation

1. Reverse the removal procedure.

Note: It may take up to a half hour for the printer screens to appear after installing new hard drives.

2. Power on the printer system.

   The following error indications may be posted on the RS/6000 during power up:

   - 020 - Fan connector P49a or P49b not plugged in
   - 888 - Power connector P65a, P65b, P65c, or P65d not plugged into one of the hard drives
   - 570, 552, 233 - SCSI cables not plugged in correctly
   - 223/229 - Battery not left unplugged long enough.

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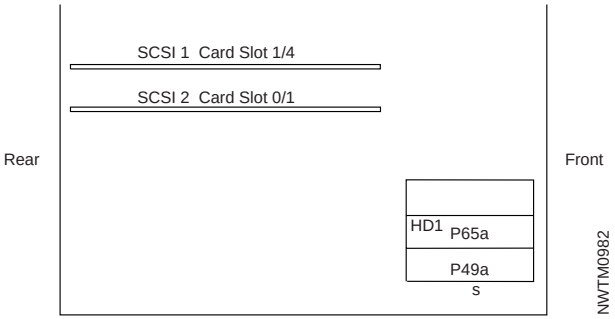
Table 565. 7013 Model 595 Hard Disk Drive (continued)



3. To update printer configuration data:
   a. Select **Configure** from the Display/Touch Screen main window menu.
   b. Select **Configure Printer.**
   c. Only if the disk drive being installed is a replacement drive, select in turn **Machine Sequence** and the **Manufacturing Plant** configuration items and enter the Machine Sequence number found on the rear of the control unit frame and the Manufacturing Plant data retained from a prior Configure Printer operation.
   d. Select the **Date and Time** configuration item.
   e. Use the numeric keypad window that appears to select the elements of the date (month, day, year) and time (hours, minutes, seconds).
   f. Select the **OK** key on the keypad window, then select the **OK** pushbutton on the **Configure Printer** window. The **Restart** window appears.
   g. Select the **Restart** pushbutton and the configuration change becomes effective.

Check

Go to Updating Microcode to update or verify the microcode level and configure the system.

7025 Removal Procedures

For Hard Drive Replacement Procedure, refer to page 2282.

For ESCON Card Replacement Procedure, refer to page 2285.

For Parallel Channel Card Replacement Procedure, refer to page 2290.

For all other replacement activity, refer to the “Removal and Replacement Procedures” chapter in the **RS/6000 7025 F50 Series** Service Guide - SA38–0541.

For options/features, refer to the chapter “Installing and Removing Options” in the **RS/6000 7025 F50 Series** User’s Guide - SA38–0540.

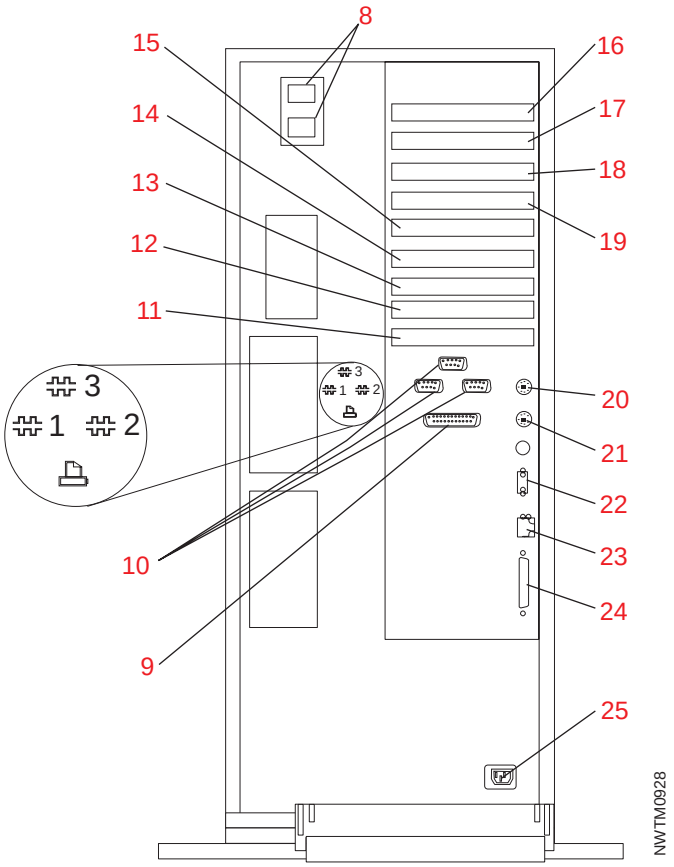
Redirect Systems Management Services (SMS) Screen

After you have installed or replaced a card in the controller, a Systems Management Services (SMS) window may appear on the Display/Touch Screen before the normal printer windows. The (SMS) window contains two icons for a short time. This does not interfere with normal printer operations.

If you wish, use the following procedure to stop the SMS window from appearing; refer to the RS/6000 Controller.

7025 Controller Removal

Table 566. 7025 Controller Removal



Removal

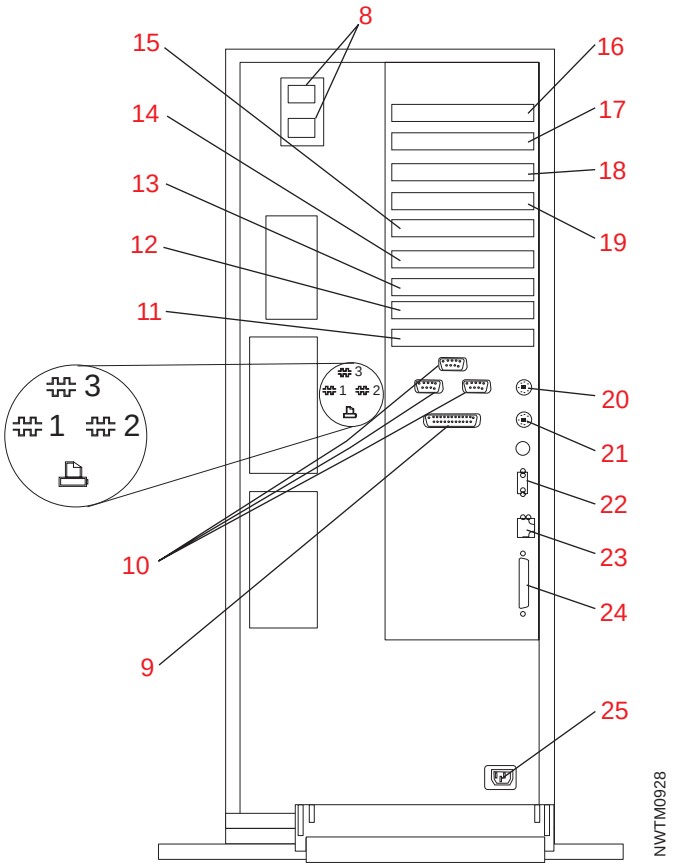
1. Request that the system operator stop activity on the printer. Disable all host attachments.

   If System/370 parallel channels are installed and there are other control units installed on the parallel channels, request the system operator to stop all activity on those channels.
2. Shutdown and power off the printer.
3. Open the control unit rear cover and remove the inner covers.
4. Open both control unit side covers.
5. Set the power switch on the front of the RS/6000 controller to **Off**.
6. Disconnect the cables from connectors **(8)** (if SSA cables are attached), **(10)** (S2), **(11)**, **(13)**, **(16)**, **(17)**, **(18)**, **(20)**, **(21)**, and **(25)** at the rear of the controller and label them for reinstallation.

   If you are going to install a new controller, remove the SCSI terminator from connector **(24)** to install in the new controller if your controller uses SCSI.

(continued on next page)

Table 566. 7025 Controller Removal (continued)



7. If System/370 parallel channels were installed in slot 6 **(19)** or slot 8 **(17)**, disconnect the external channel cables from the channel tailgates and pull them clear of the control unit frame either across the floor or under a raised floor.

   If there are other control units installed on the parallel channels and the controller repair or replacement activity will take an extended period of time, you may temporarily restore channel activity by the following steps:

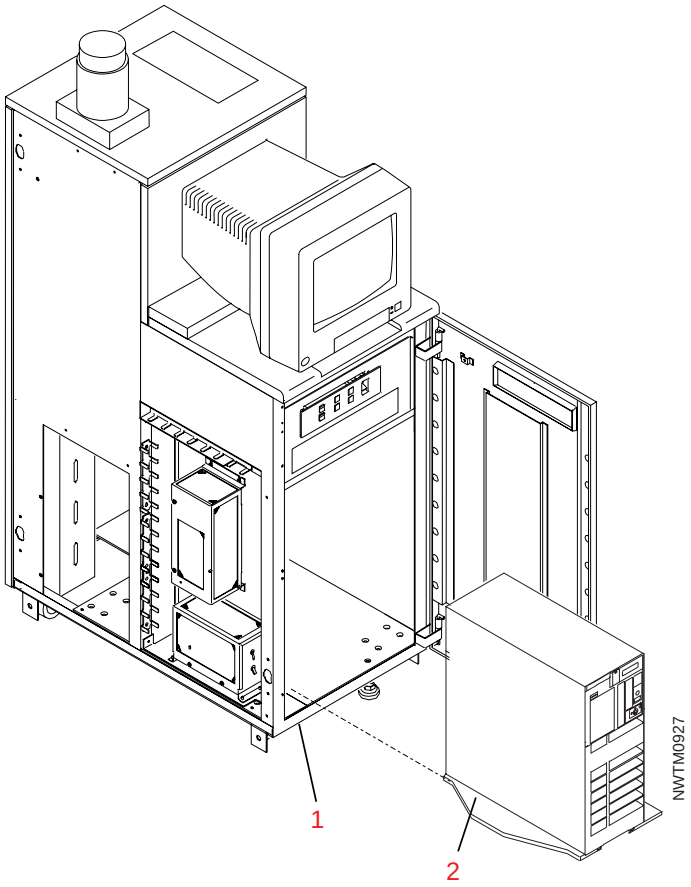
   a. Join the BUS IN cable connector block to the BUS OUT cable connector block, and join the TAG IN cable connector block to the TAG OUT cable connector block if the printer control unit is not the last control unit on the channel.

   b. Remove the terminator blocks from the BUS OUT and TAG OUT tailgate positions and plug them into the respective BUS IN and TAG IN cable connector blocks if the printer control unit is the last control unit on the channel.

   c. Request the system operator to resume parallel channel activity.

(continued on next page)

Table 566. 7025 Controller Removal (continued)



8. Pull all non-parallel channel cables disconnected from connector slots 6 and 8 clear of the control unit frame, either across the floor or pushed under a raised floor.
9. Disconnect any preprocessor or postprocessor external device cables connected to the pre/post tailgate and pull them clear of the control unit frame.
10. If an urge unit is installed in the input area of the printer and its power cable is plugged into connector JA10 on the control unit ac control box, disconnect the cable and pull it clear of the control unit frame.
11. Remove the controller from the control unit frame.

Installation

Reverse the removal procedure (steps 3 through 11) to install the controller.

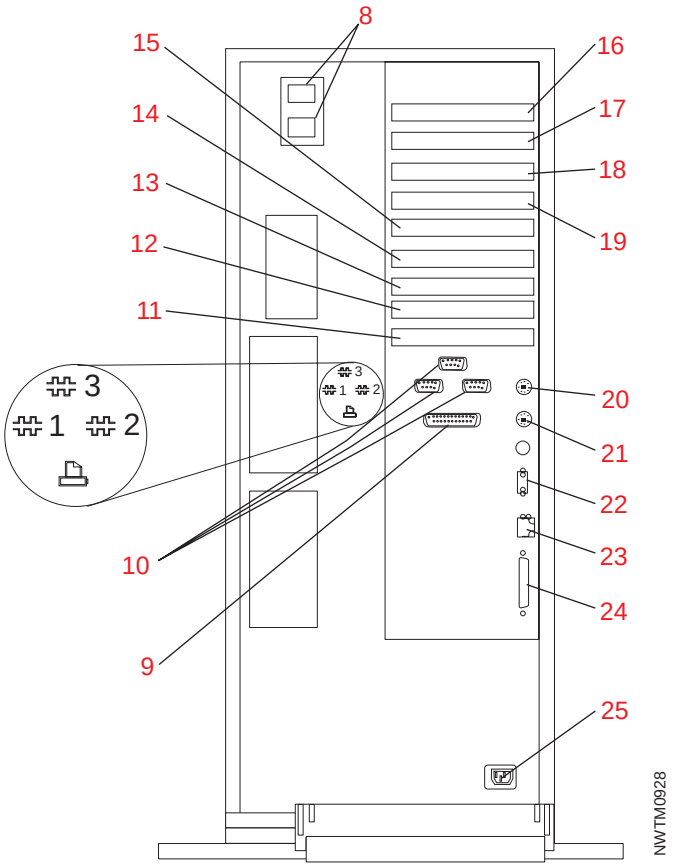
Note: If parallel channels are installed and you joined the BUS IN and TAG IN cables to the BUS OUT and TAG OUT cables and resumed channel activity, you must again request the system operator to stop all channel activity while you return the channel cables to their normal configuration.

Check

1. Set the power switch on the front of the RS/6000 controller to **On**.
2. Power on the printer system.
3. Run Print Pack to check print quality.

7025 Hard Disk Drive

Table 567. 7025 Hard Disk Drive



Note: If installation instructions are provided with the hard drive, use those instructions instead of following this procedure.

Parts Disposition - The hard drive contains copyrighted information and is the property of IBM. Please return all defective hard drives in accordance with the used parts return procedures.

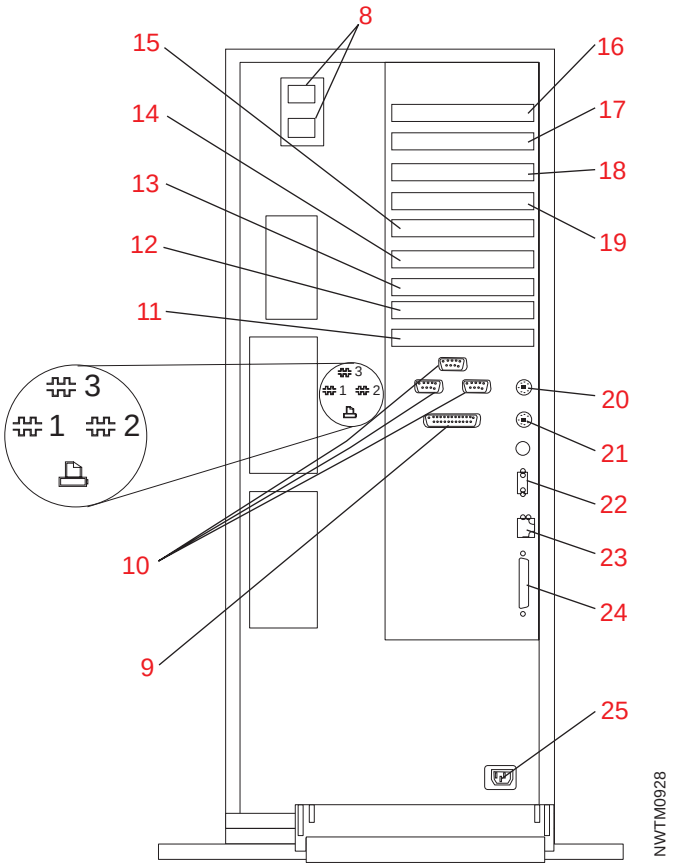
Attention: Use ESD procedures when working with ESD sensitive parts.

Hard Drive Removal

1. Shutdown and power off the printer.
2. The hard drives may be replaced without removing the RS/6000 controller from the control unit. If you wish to remove the RS/6000 controller from the control unit, go to 7025 Controller Removal.
3. Remove the defective hard drive. Refer to the “Installing Options” chapter in the RS/6000 Type F50 Series:User’s Guide, SA38-0540.

(continued on next page)

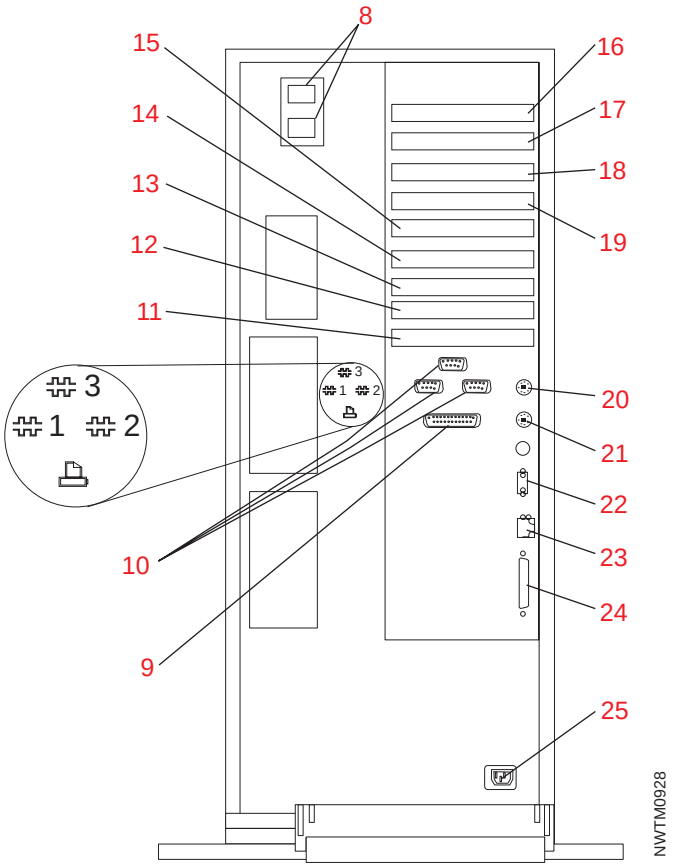
Table 567. 7025 Hard Disk Drive (continued)



4. After installing the new hard drive:
   a. Power on the printer.
   b. After the printer has successfully powered up, perform the shutdown procedure.
   c. Power on the printer.
5. If error indications are posted on the RS/6000 during power up:
   - Remove the battery from the RS/6000 controller system board. The battery must be left unplugged 15 minutes to allow time for the non-volatile memory to forget stored information. Refer to the “Removal and Replacement Procedures” chapter in the RS/6000 Type F50 Series:Service Guide, SA38-0541.

(continued on next page)

Table 567. 7025 Hard Disk Drive (continued)



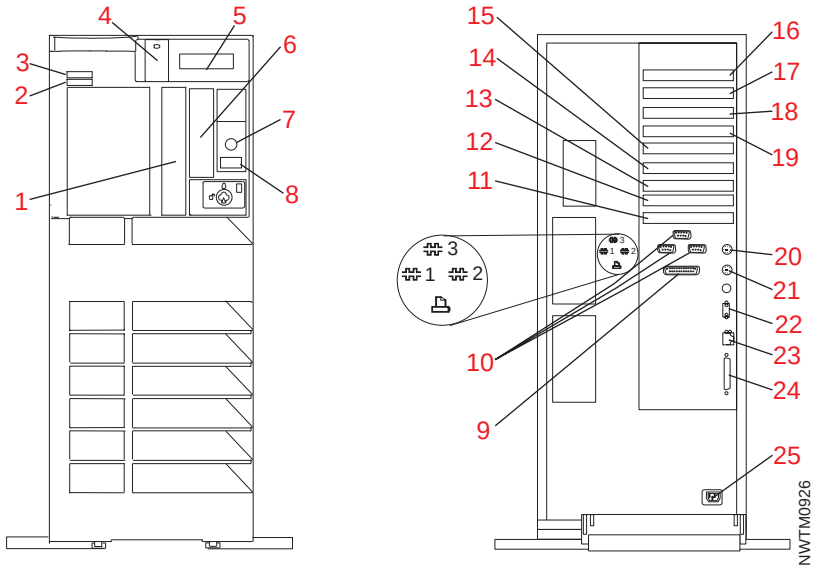
6. To update printer configuration data:
   a. Select **Configure** from the Display/Touch Screen main window menu.
   b. Select **Configure Printer.**
   c. Only if the disk drive being installed is a replacement drive, select in turn **Machine Sequence** and the **Manufacturing Plant** configuration items and enter the Machine Sequence number found on the rear of the control unit frame and the Manufacturing Plant data retained from a prior Configure Printer operation.
   d. Select the **Date and Time** configuration item.
   e. Use the numeric keypad window that appears to select the elements of the date (month, day, year) and time (hours, minutes, seconds).
   f. Select the **OK** key on the keypad window, then select the **OK** pushbutton on the **Configure Printer** window. The **Restart** window appears.
   g. Select the **Restart** pushbutton and the configuration change becomes effective.

Check

Go to Updating Microcode to update or verify the microcode level and configure the system.

7025 ESCON Serial Channel Adapter Card

Table 568. 7025 ESCON Serial Channel Adapter Card



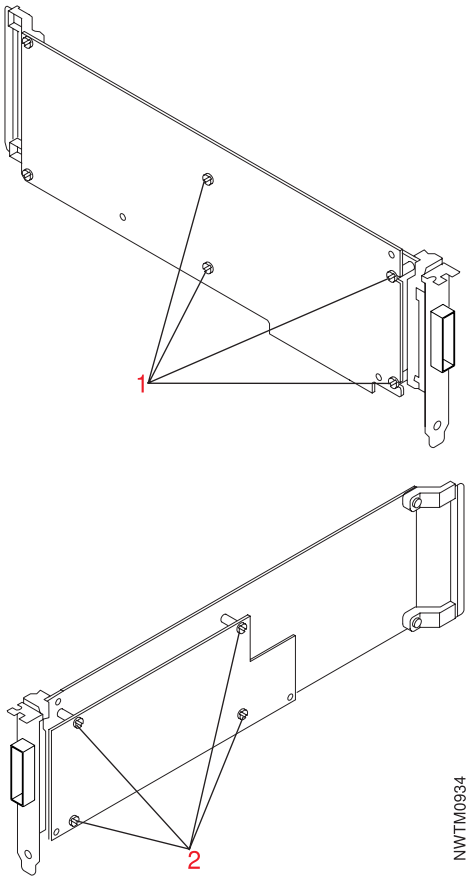
Attention: Use ESD procedures when working with ESD sensitive parts.

ESCON Serial Channel Adapter Card Removal

1. Shutdown and power off the printer.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Open all control unit covers.
4. Disconnect all cables from the rear of the controller.
5. Open the RS/6000 controller right side cover. It is not necessary to remove the controller from the control unit.
6. See the “Removal and Replacement Procedures” chapter in the 7025 F50 Series Service Guide, SA38-0541 for cover install/removal procedures.
7. Remove the ESCON card assembly from slot 6 **(19)** or slot 8 **(17)** of the controller.

(continued on next page)

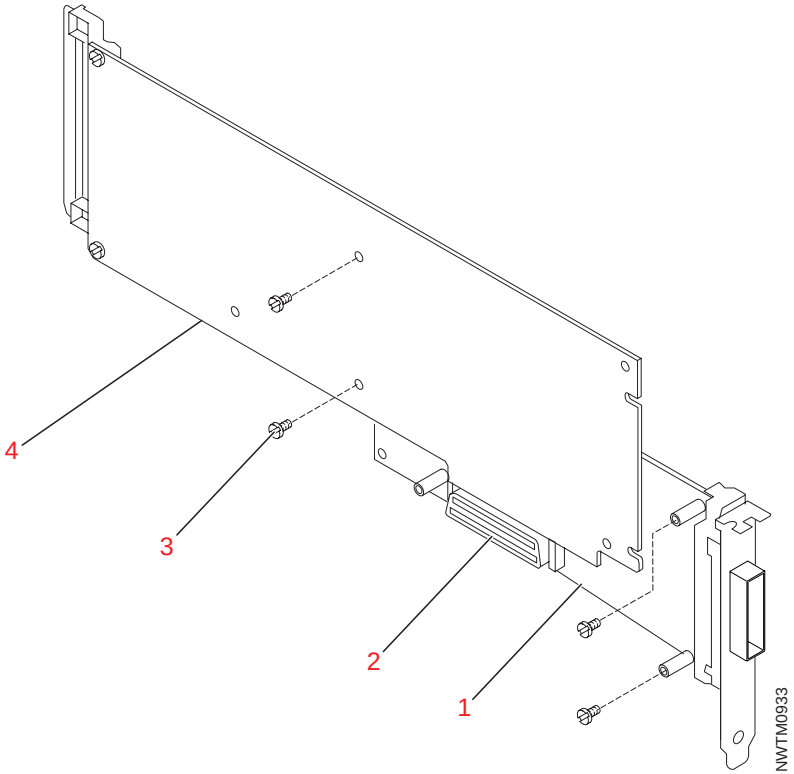
Table 568. 7025 ESCON Serial Channel Adapter Card (continued)



8. Loosen the four screws **(1)** on the co-processor card side of the assembly and the four screws **(2)** on the adapter card side of the assembly.

(continued on next page)

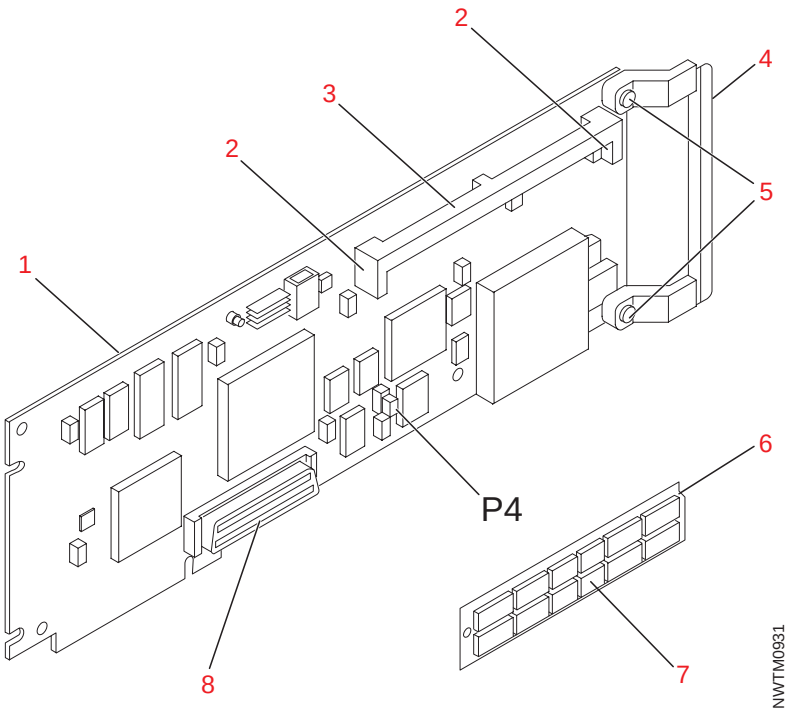
Table 568. 7025 ESCON Serial Channel Adapter Card (continued)



9. Remove the four screws **(3)** through the co-processor card **(4)** from the four standoffs on the adapter card **(1)**.
10. Gently pull the co-processor card and adapter card apart.

(continued on next page)

Table 568. 7025 ESCON Serial Channel Adapter Card (continued)

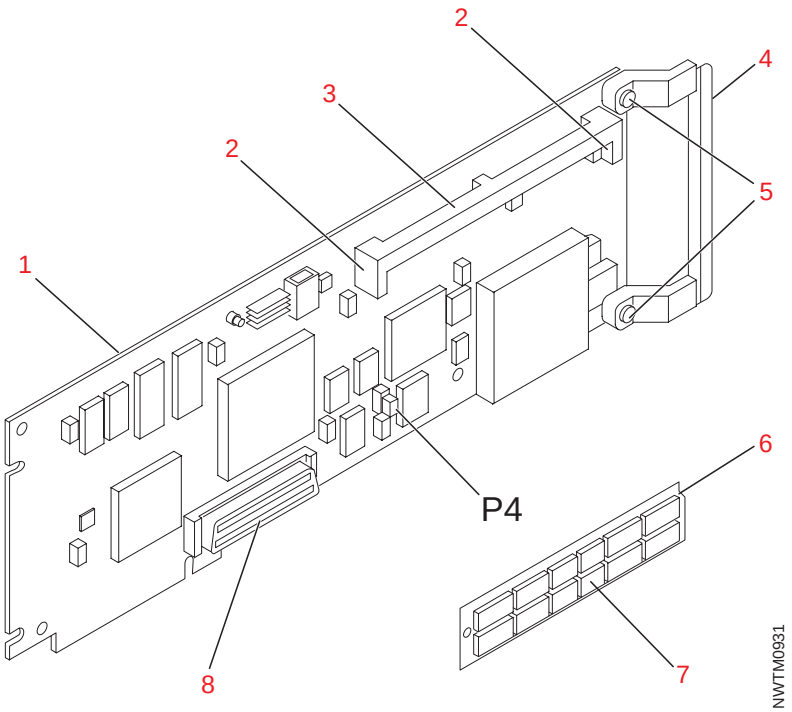


ESCON Serial Channel Adapter Card Installation

1. Remove the retainer **(4)** from the end of the old ARTIC co-processor card **(1)** by removing the two screws **(5)**. Keep the retainer to install on the new card.
2. Remove the retainer from the end of the new ARTIC co-processor card.
3. Install the retainer **(4)**, removed from the old ARTIC co-processor card, onto the end of the new ARTIC co-processor card with the two screws **(5)** removed in step 1.
4. Remove the 4 MB SIMM card from the old ARTIC co-processor card.

(continued on next page)

Table 568. 7025 ESCON Serial Channel Adapter Card (continued)

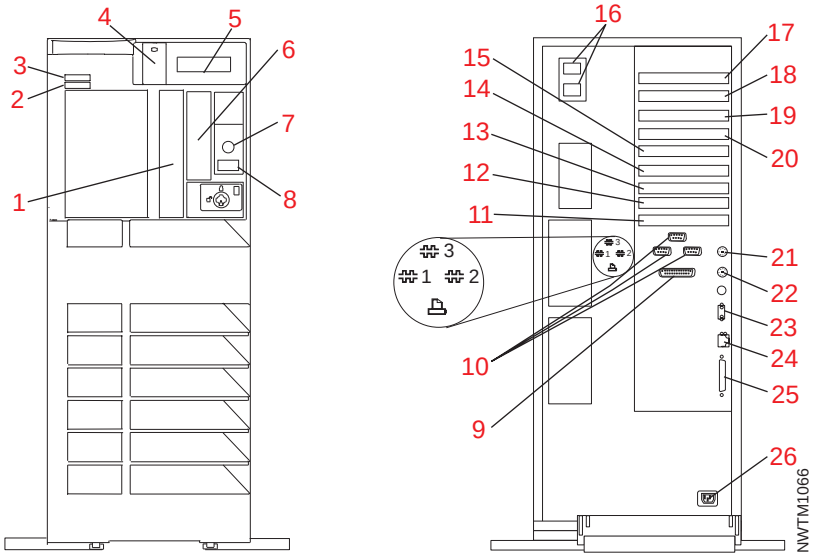


ESCON Serial Channel Adapter Card Installation (Cont'd)

5. Plug the 4 MB SIMM card into the new ARTIC co-processor card using the following procedure:
   a. Hold the SIMM card **(7)** (as shown) with the notch **(6)** on the right, facing the retainer on the co-processor card **(1)**.
   b. Insert the SIMM card at an angle (approximately 45°) in the connector **(3)** on the co-processor card.
   c. Place your thumbs on the top corners on the SIMM card and press the SIMM card towards the co-processor card until it snaps into the two retainer clips **(2)**.
6. Verify that the jumper plug on P4 on the ARTIC co-processor card is installed between pins 1 and 2.
7. Reverse the removal procedure to assembly the ESCON serial channel adapter card assembly and to install it in the controller.
8. Run the ESCON diagnostics.

7025 PCI Parallel Channel Adapter Card

Table 569. 7025 PCI Parallel Channel Adapter Card



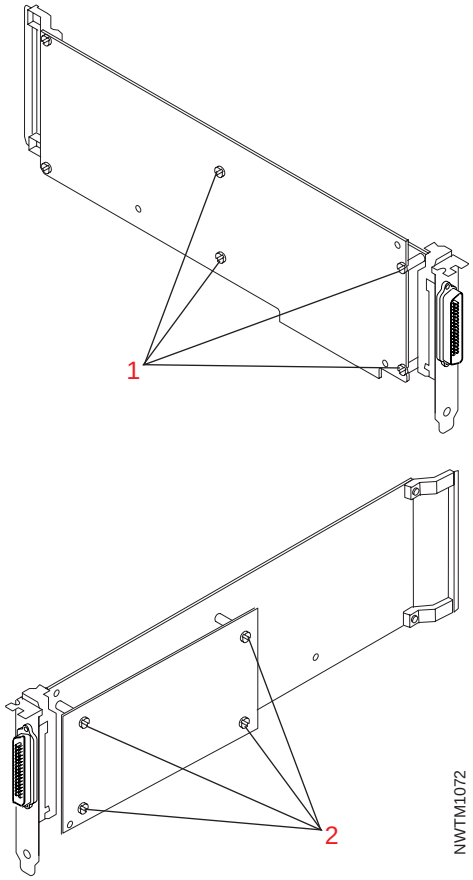
Attention: Use ESD procedures when working with ESD sensitive parts.

PCI Parallel Channel Adapter Card Removal

1. Shutdown and power off the printer.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Open all control unit covers.
4. Disconnect all cables from the rear of the controller.
5. Open the RS/6000 controller right side cover. It is not necessary to remove the controller from the control unit.
6. See the “Removal and Replacement Procedures” chapter in the 7025 F50 Series Service Guide, SA38-0541 for cover install/removal procedures.
7. Remove the PCI parallel channel adapter card assembly from slot 6 **(20)** or 8 **(18)** of the controller.

(continued on next page)

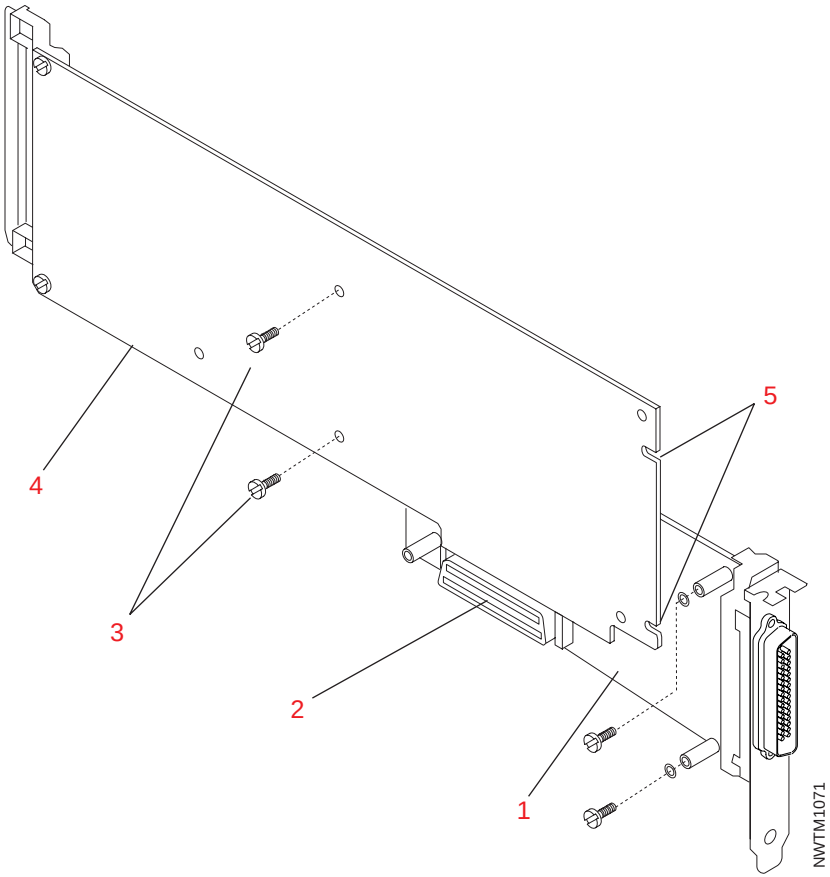
Table 569. 7025 PCI Parallel Channel Adapter Card (continued)



8. Loosen the four screws **(1)** on the co-processor card side of the assembly and the four screws **(2)** on the adapter card side of the assembly.

(continued on next page)

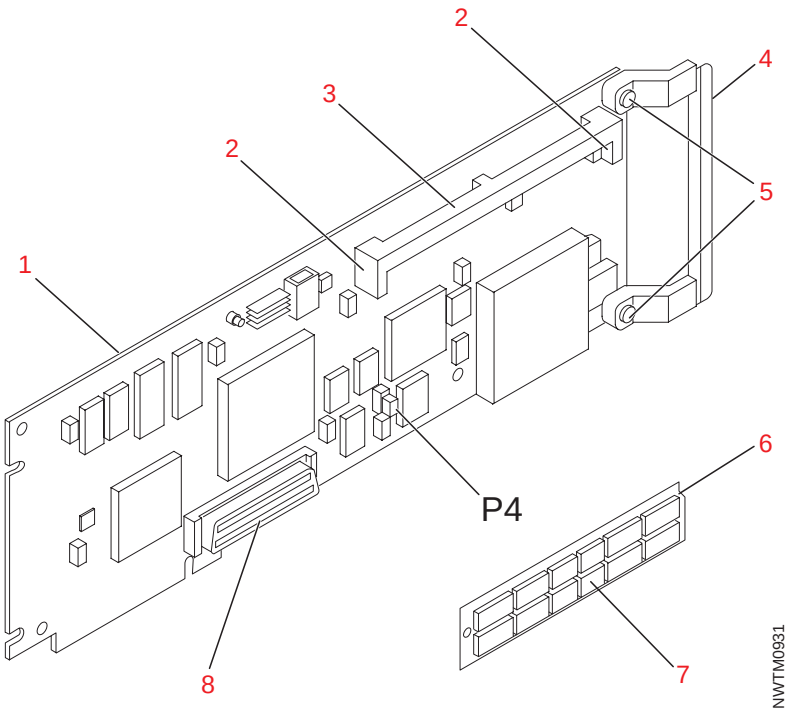
Table 569. 7025 PCI Parallel Channel Adapter Card (continued)



9. Remove the two screws **(3)** through the co-processor card **(4)** from the two standoffs on the adapter card **(1)**.
10. Gently pull the co-processor card and adapter card apart.

(continued on next page)

Table 569. 7025 PCI Parallel Channel Adapter Card (continued)

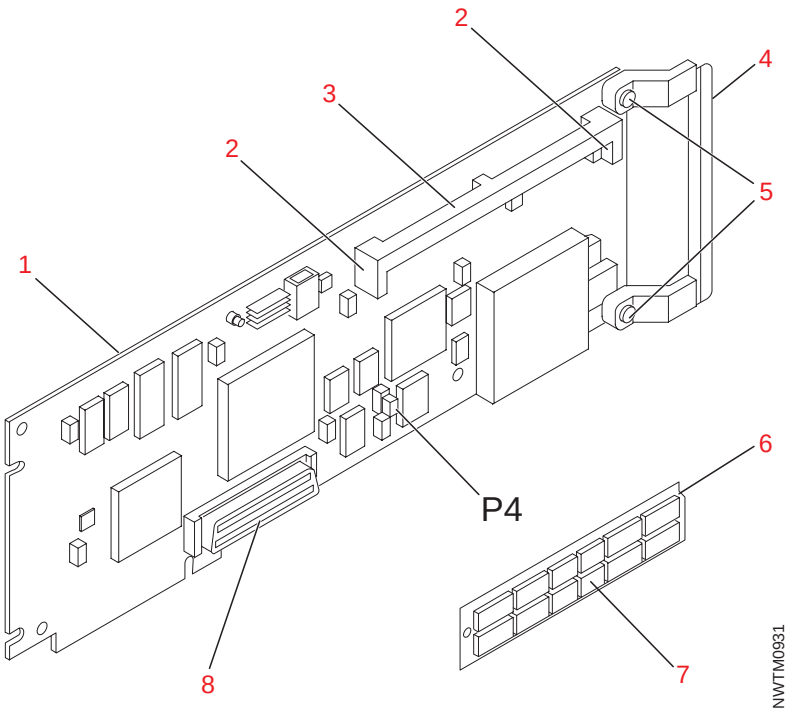


PCI Parallel Channel Adapter Card Installation

1. Remove the retainer **(4)** from the end of the old ARTIC co-processor card **(1)** by removing the two screws **(5)**. Keep the retainer to install on the new card.
2. Remove the retainer from the end of the new ARTIC co-processor card.
3. Install the retainer **(4)**, removed from the old ARTIC co-processor card, onto the end of the new ARTIC co-processor card with the two screws **(5)** removed in step 1.
4. Remove the 4 MB SIMM card from the old ARTIC co-processor card.

(continued on next page)

Table 569. 7025 PCI Parallel Channel Adapter Card (continued)



PCI Parallel Channel Adapter Card Installation (Cont'd)

5. Plug the 4 MB SIMM card into the new ARTIC co-processor card using the following procedure:
   a. Hold the SIMM card **(7)** (as shown) with the notch **(6)** on the right, facing the retainer on the co-processor card **(1)**.
   b. Insert the SIMM card at an angle (approximately 45°) in the connector **(3)** on the co-processor card.
   c. Place your thumbs on the top corners on the SIMM card and press the SIMM card towards the co-processor card until it snaps into the two retainer clips **(2)**.
6. Verify that the jumper plug on P4 on the ARTIC co-processor card is installed between pins 1 and 2.
7. Reverse the removal procedure to assembly the ESCON serial channel adapter card assembly and to install it in the controller.
8. Run the parallel channel diagnostics.

7043 Removal Procedures

For Hard Drive Replacement Procedure, refer to page 2299.

For microcode update, see Updating Microcode.

For ESCON Card Replacement Procedure, refer to page 2302.

For Parallel Channel Card Replacement Procedure, refer to page 2307.

For all other replacement activity, refer to the “Removal and Replacement Procedures” chapter in the **RS/6000 7043 43P Series** Models 140 and 240 Service Guide - SA38–0512.

For options/features, refer to the chapter “Installing and Removing Options” in the **RS/6000 7043 43P Series** Models 140 and 240 User’s Guide - SA38–0511.

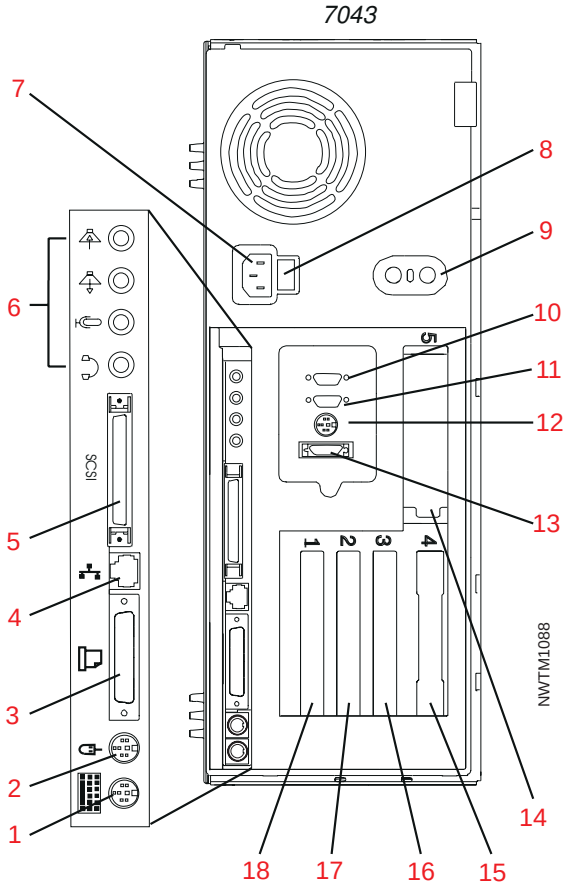
Redirect Systems Management Services (SMS) Screen

After you have installed or replaced a card in the controller, a Systems Management Services (SMS) window may appear on the Display/Touch Screen before the normal printer windows. The (SMS) window contains two icons for a short time. This does not interfere with normal printer operations.

If you wish, use the following procedure to stop the SMS window from appearing; refer to the RS/6000 Controller.

7043 Controller Removal

Table 570. 7043 Controller Removal



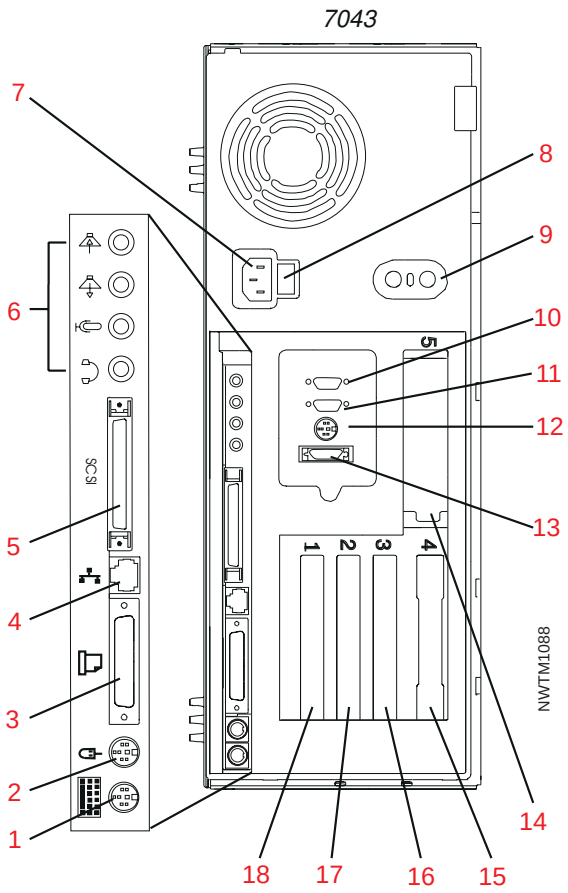
Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.

   If System/370 parallel channels are installed and there are other control units installed on the parallel channels, request the system operator to stop all activity on those channels.
2. Shutdown and power off the printer.
3. Open the control unit rear cover, and remove the inner covers.
4. Open both control unit side covers.
5. Set the power switch on the front of the RS/6000 controller to **Off**.
6. Disconnect the cables from connectors **(2)**, **(7)**, **(11)**, **(15)**, **(16)**, **(17)**, and **(18)** at the rear of the controller and label them for reinstallation.

(continued on next page)

Table 570. 7043 Controller Removal (continued)



7. If System/370 parallel channels were installed in slot 2 **(17)** or slot 4 **(15)**, disconnect the external channel cables from the channel tailgates and pull them clear of the control unit frame either across the floor or under a raised floor.

   If there are other control units installed on the parallel channels and the controller repair or replacement activity will take an extended period of time, you may temporarily restore channel activity by the following steps:

   a. Join the BUS IN cable connector block to the BUS OUT cable connector block, and join the TAG IN cable connector block to the TAG OUT cable connector block if the printer control unit is not the last control unit on the channel.

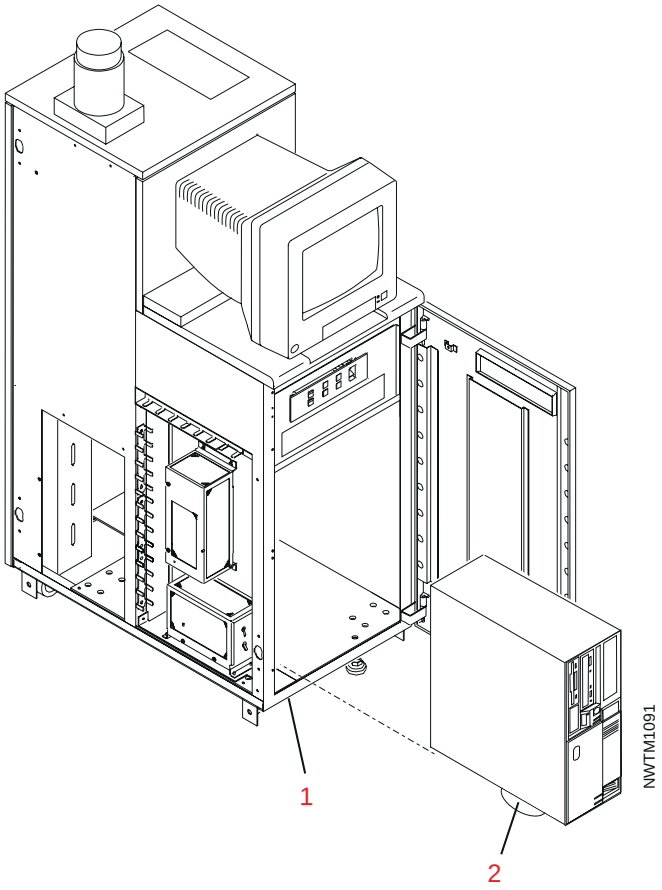
   b. Remove the terminator blocks from the BUS OUT and TAG OUT tailgate positions and plug them into the respective BUS IN and TAG IN cable connector blocks if the printer control unit is the last control unit on the channel.

   c. Request the system operator to resume parallel channel activity.

8. Pull all non-parallel channel cables disconnected from connector slots 2 **(17)** and 4 **(15)** clear of the control unit frame, either across the floor or pushed under a raised floor.

(continued on next page)

Table 570. 7043 Controller Removal (continued)



9. Disconnect any preprocessor or postprocessor external device cables connected to the pre/post tailgate and pull them clear of the control unit frame.
10. If an urge unit is installed in the input area of the printer and its power cable is plugged into connector JA10 on the control unit ac control box, disconnect the cable and pull it clear of the control unit frame.
11. Remove the controller from the control unit frame.

Installation

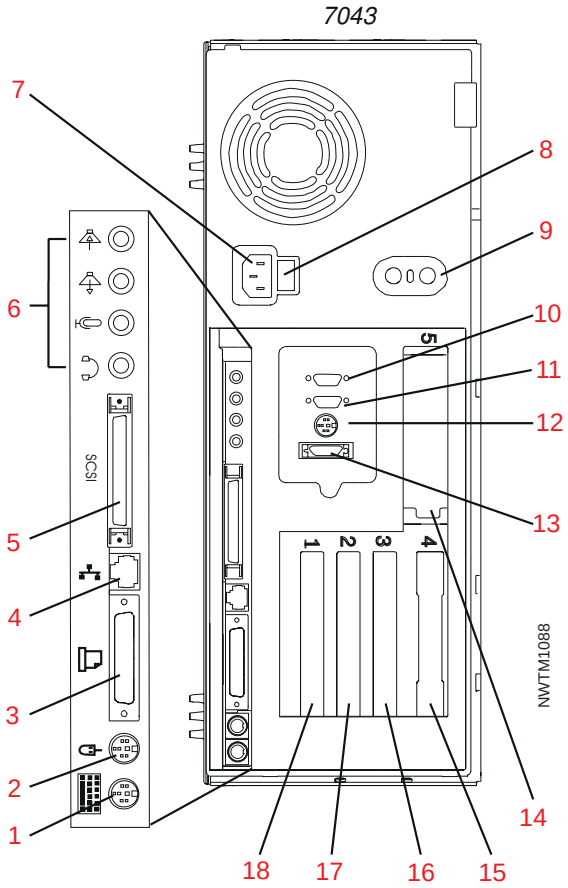
1. Reverse the removal procedure (steps 3 through 11).

Note: If parallel channels are installed and you joined the BUS IN and TAG IN cables to the BUS OUT and TAG OUT cables and resumed channel activity, you must again request the system operator to stop all channel activity while you return the channel cables to their normal configuration.

2. Set the power switch on the front of the RS/6000 controller to **On**.
3. Power on the printer system.
4. Run Print Pack to check print quality.

7043 Hard Disk Drive

Table 571. 7043 Hard Disk Drive



Note: If installation instructions are provided with the hard drive, use those instructions instead of following this procedure.

Attention: The hard drive contains microcode. When ordering a new hard drive, use the FRU number printed on the existing hard drive.

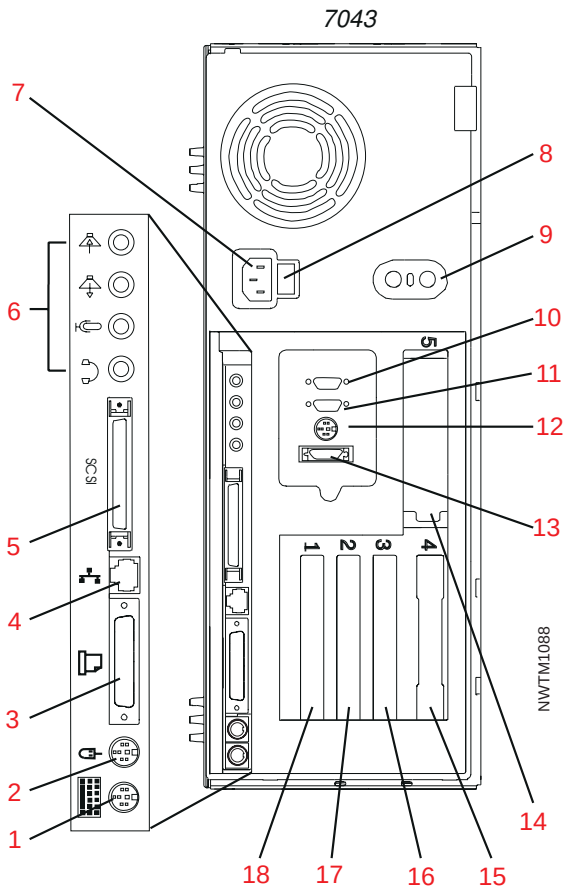
Attention: Use ESD procedures when working with ESD sensitive parts.

Hard Drive Removal

1. Shutdown and power off the printer.
2. Remove the RS/6000 controller from the control unit. See 7043 Controller Removal

(continued on next page)

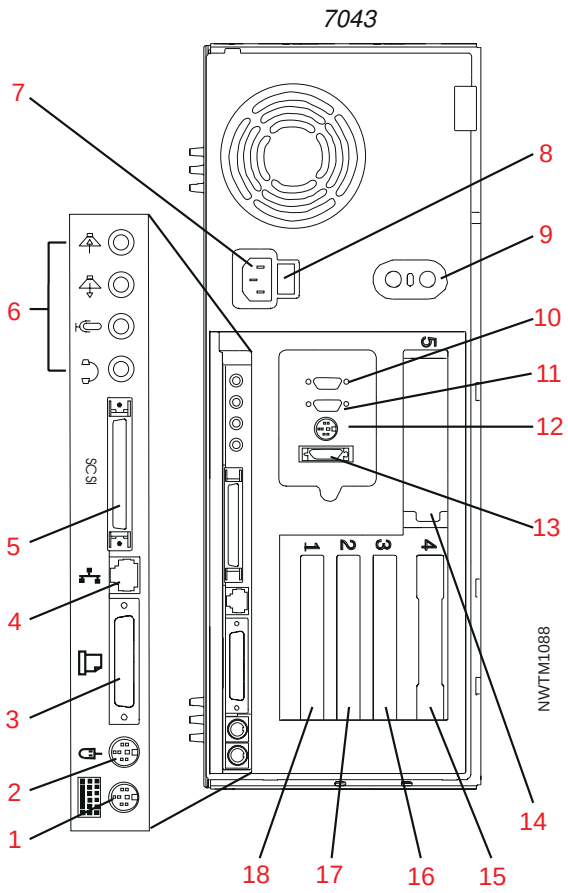
Table 571. 7043 Hard Disk Drive (continued)



3. Remove the defective hard drive. Refer to the “Installing and Removing Options” chapter in the RS/6000 Type 43P Series: Models 140 and 240 User’s Guide, SA38-0511.
4. After installing the new hard drive:
   a. Power on the printer.
   b. After the printer has successfully powered up, perform the shutdown procedure.
   c. Power on the printer.
5. If error indications are posted on the RS/6000 during power up:
   - Remove the battery from the RS/6000 controller system board. The battery must be left unplugged 15 minutes to allow time for the non-volatile memory to forget stored information. Refer to the “Removal and Replacement Procedures” chapter in the RS/6000 Type 43P Series: Models 140 and 240, SA38-0512

(continued on next page)

Table 571. 7043 Hard Disk Drive (continued)



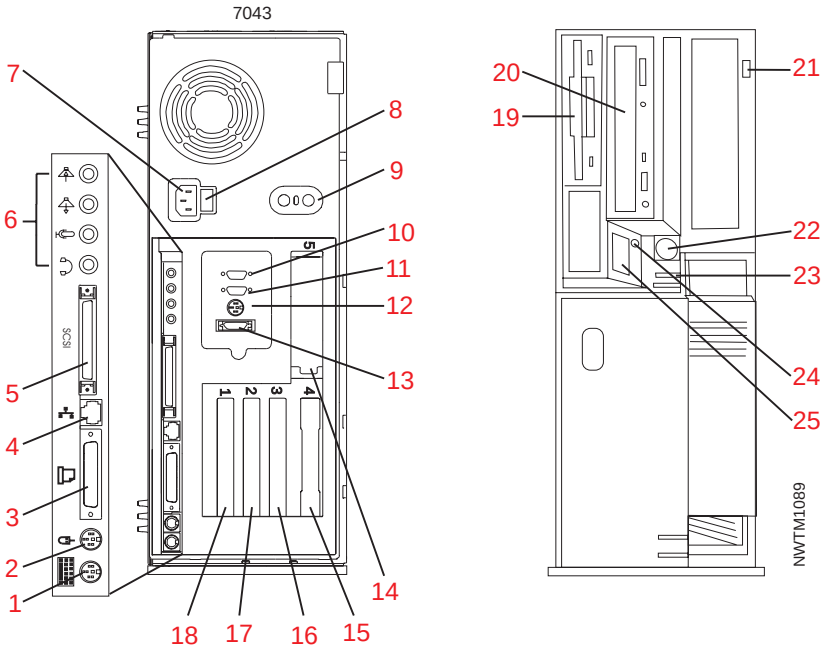
6. To update printer configuration data:
   a. Select **Configure** from the Display/Touch Screen main window menu.
   b. Select **Configure Printer.**
   c. Only if the disk drive being installed is a replacement drive, select in turn **Machine Sequence** and the **Manufacturing Plant** configuration items and enter the Machine Sequence number found on the rear of the control unit frame and the Manufacturing Plant data retained from a prior Configure Printer operation.
   d. Select the **Date and Time** configuration item.
   e. Use the numeric keypad window that appears to select the elements of the date (month, day, year) and time (hours, minutes, seconds).
   f. Select the **OK** key on the keypad window, then select the **OK** pushbutton on the **Configure Printer** window. The **Restart** window appears.
   g. Select the **Restart** pushbutton and the configuration change becomes effective.

Check

Go to Updating Microcode to update or verify the microcode level and configure the system.

7043 ESCON Serial Channel Adapter Card

Table 572. 7043 ESCON Serial Channel Adapter Card



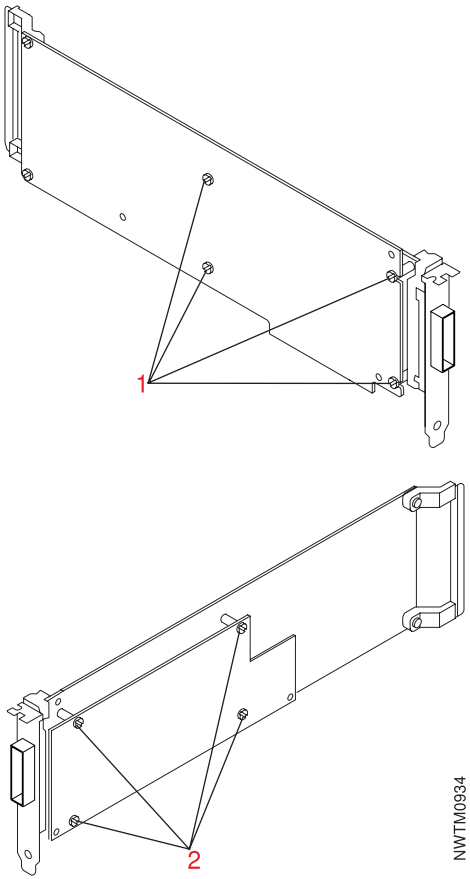
Attention: Use ESD procedures when working with ESD sensitive parts.

ESCON Serial Channel Adapter Card Removal

1. Shutdown and power off the printer.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Open all control unit covers.
4. Disconnect all cables from the rear of the controller.
5. Remove the controller from the control unit.
6. Open the RS/6000 controller cover.
7. Remove the ESCON serial channel adapter card assembly from slot 2 **(17)** or 4 **(15)** of the controller.

(continued on next page)

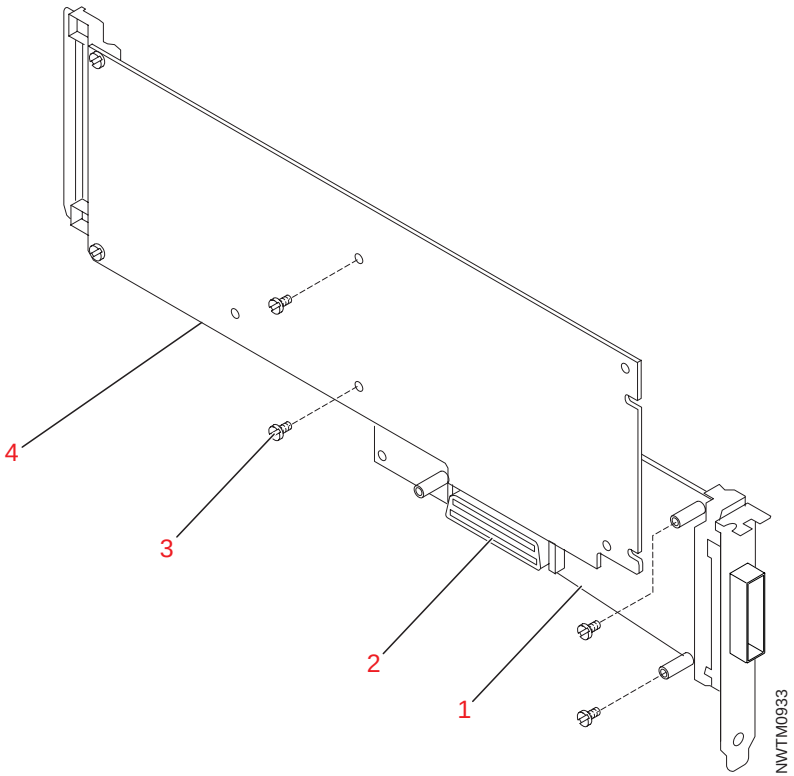
Table 572. 7043 ESCON Serial Channel Adapter Card (continued)



8. Loosen the four screws **(1)** on the co-processor card side of the assembly and the four screws **(2)** on the adapter card side of the assembly.

(continued on next page)

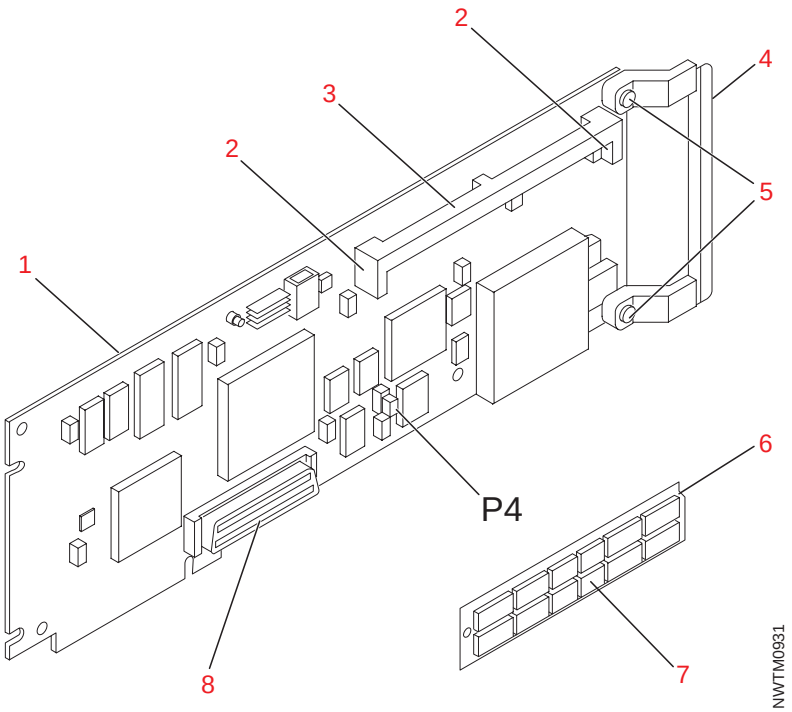
Table 572. 7043 ESCON Serial Channel Adapter Card (continued)



9. Remove the four screws **(3)** through the co-processor card **(4)** from the four standoffs on the adapter card **(1)**.
10. Gently pull the co-processor card and adapter card apart.

(continued on next page)

Table 572. 7043 ESCON Serial Channel Adapter Card (continued)

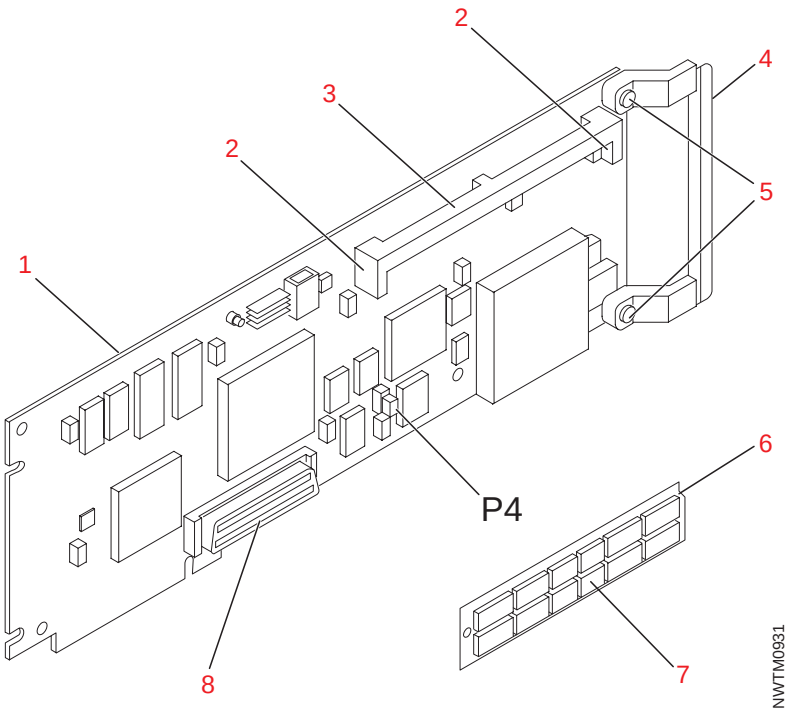


ESCON Serial Channel Adapter Card Installation

1. Remove the retainer **(4)** from the end of the old ARTIC co-processor card **(1)** by removing the two screws **(5)**. Keep the retainer to install on the new card.
2. Remove the retainer from the end of the new ARTIC co-processor card.
3. Install the retainer **(4)**, removed from the old ARTIC co-processor card, onto the end of the new ARTIC co-processor card with the two screws **(5)** removed in step 1.
4. Remove the 4 MB SIMM card from the old ARTIC co-processor card.

(continued on next page)

Table 572. 7043 ESCON Serial Channel Adapter Card (continued)

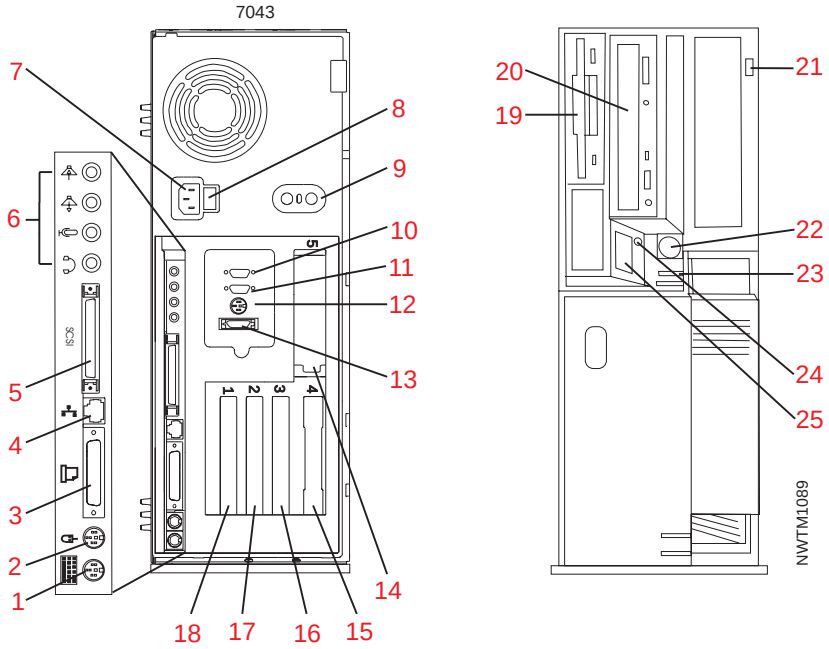


ESCON Serial Channel Adapter Card Installation (Cont'd)

5. Plug the 4 MB SIMM card into the new ARTIC co-processor card using the following procedure:
   a. Hold the SIMM card **(7)** (as shown) with the notch **(6)** on the right, facing the retainer on the co-processor card **(1)**.
   b. Insert the SIMM card at an angle (approximately 45°) in the connector **(3)** on the co-processor card.
   c. Place your thumbs on the top corners on the SIMM card and press the SIMM card towards the co-processor card until it snaps into the two retainer clips **(2)**.
6. Verify that the jumper plug on P4 on the ARTIC co-processor card is installed between pins 1 and 2.
7. Reverse the removal procedure to assembly the ESCON serial channel adapter card assembly and to install it in the controller.
8. Run the ESCON diagnostics.

7043 PCI Parallel Channel Adapter Card

Table 573. 7043 PCI Parallel Channel Adapter Card



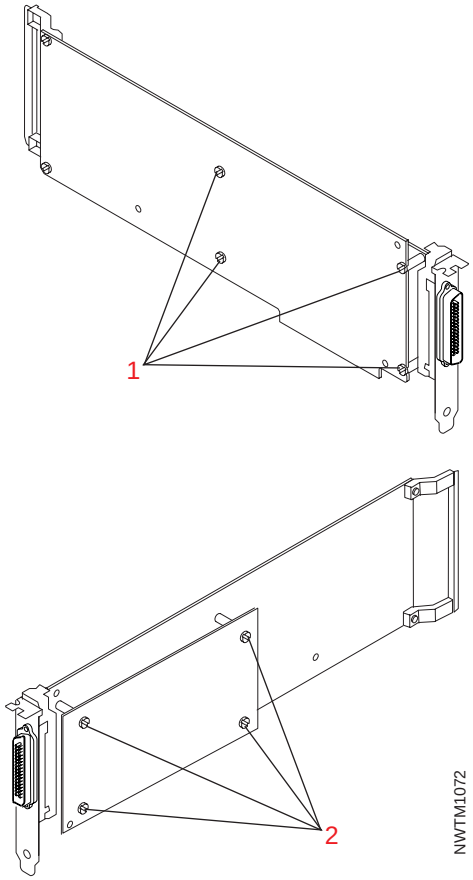
Attention: Use ESD procedures when working with ESD sensitive parts.

PCI Parallel Channel Adapter Card Removal

1. Shutdown and power off the printer.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Open all control unit covers.
4. Disconnect all cables from the rear of the controller.
5. Open the RS/6000 controller right side cover. It is not necessary to remove the controller from the control unit.
6. Remove the PCI parallel channel adapter card assembly from slot 2 **(17)** or 4 **(15)** of the controller.

(continued on next page)

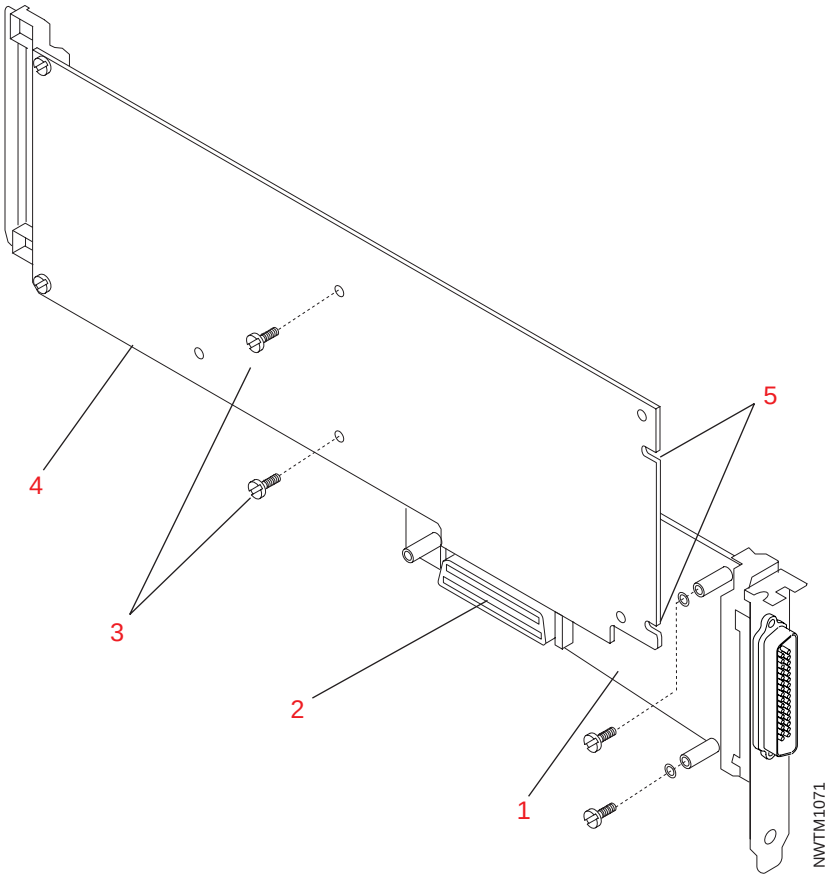
Table 573. 7043 PCI Parallel Channel Adapter Card (continued)



7. Loosen the four screws **(1)** on the co-processor card side of the assembly and the four screws **(2)** on the adapter card side of the assembly.

(continued on next page)

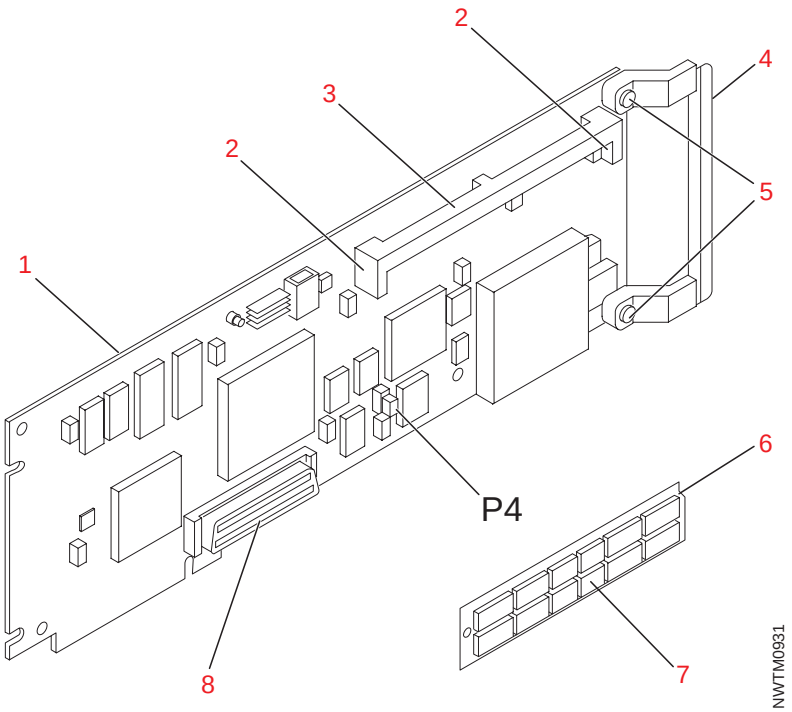
Table 573. 7043 PCI Parallel Channel Adapter Card (continued)



8. Remove the two screws **(3)** through the co-processor card **(4)** from the two standoffs on the adapter card **(1)**.
9. Gently pull the co-processor card and adapter card apart.

(continued on next page)

Table 573. 7043 PCI Parallel Channel Adapter Card (continued)

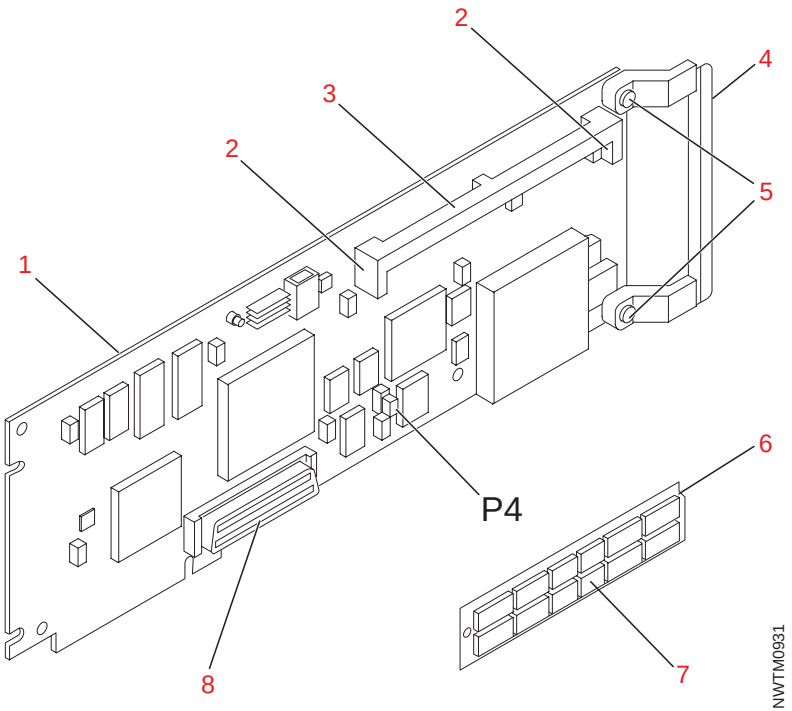


PCI Parallel Channel Adapter Card Installation

1. Remove the retainer **(4)** from the end of the old ARTIC co-processor card **(1)** by removing the two screws **(5)**. Keep the retainer to install on the new card.
2. Remove the retainer from the end of the new ARTIC co-processor card.
3. Install the retainer **(4)**, removed from the old ARTIC co-processor card, onto the end of the new ARTIC co-processor card with the two screws **(5)** removed in step 1.
4. Remove the 4 MB SIMM card from the old ARTIC co-processor card.

(continued on next page)

Table 573. 7043 PCI Parallel Channel Adapter Card (continued)



PCI Parallel Channel Adapter Card Installation (Cont'd)

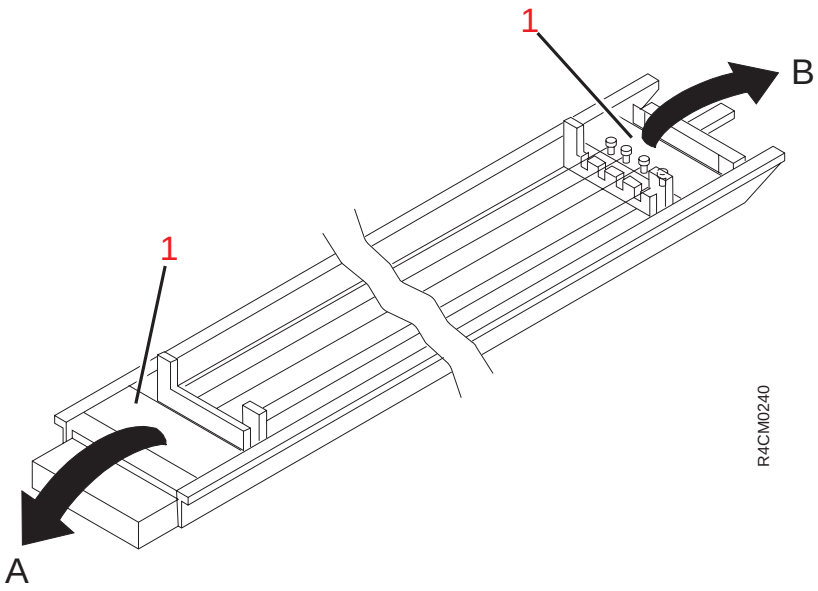
5. Plug the 4 MB SIMM card into the new ARTIC co-processor card using the following procedure:
   a. Hold the SIMM card **(7)** (as shown) with the notch **(6)** on the right, facing the retainer on the co-processor card **(1)**.
   b. Insert the SIMM card at an angle (approximately 45°) in the connector **(3)** on the co-processor card.
   c. Place your thumbs on the top corners on the SIMM card and press the SIMM card towards the co-processor card until it snaps into the two retainer clips **(2)**.
6. Verify that the jumper plug on P4 on the ARTIC co-processor card is installed between pins 1 and 2.
7. Reverse the removal procedure to assembly the ESCON serial channel adapter card assembly and to install it in the controller.
8. Run the parallel channel diagnostics.

Coronas & High Voltage Power Supply

Charge Corona 2313
Charge Corona to PC Drum Gap 2316
Transfer Corona, Preclean Corona, and Precharge Coronas 2320
Preclean Corona to PC Drum Gap 2323
Corona Cleaning Brushes 2324
High Voltage Power Supply 2328
High Voltage Power Supply Fan (B604) 2329
Mag Brush Bias Voltage 2330
PC Drum Surface Voltage 2331
  Electrostatic Voltmeter 2336
Transfer, Preclean & Precharge Corona Voltage 2339
Corona Voltage Settings 2343
Mag Brush Bias Voltage Setting 2343

Charge Corona

Table 574. Charge Corona



Special Tools

- Corona brush (PN 06F0423)
- Lint free cloth (PN 2108930)0)

Note: Before you remove the charge corona wire, ensure that the replacement wire is not bent. A bent wire causes an irregular flow of electricity, which results in an abnormal surge of high voltage. This causes the corona to arc.

Wire Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Pull the charge corona out of its housing.
3. Place the corona on a clean, flat work surface.
4. Remove the two corona wire covers **(1)** by lifting them in the directions **(A)** and **(B)**.
   Note: Go to the Charge Corona Cleaning Procedure if the corona wire only needs cleaning.

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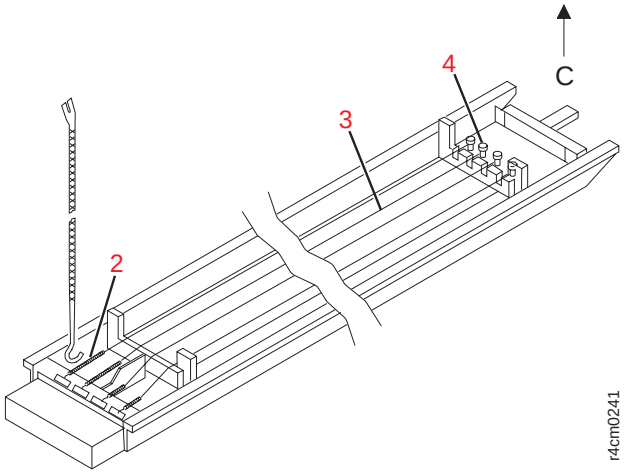
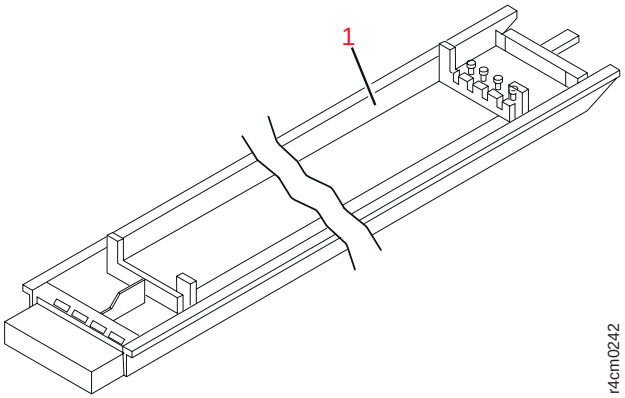
Table 574. Charge Corona (continued)





5. Use a spring hook to pull on the spring **(2)** to relieve the tension on the wire **(3)** and lift the ring out in the **(C)** direction.
6. Remove the spring **(2)** with wire **(3)** and ring **(4)** attached and discard it.
7. Repeat this procedure for each corona wire.

Cleaning

1. Use the corona brush to clean the corona assembly and wire. Brush back and forth several times the full length of the corona assembly and wire.
2. Moisten a clean cloth with water and remove dust and corrosion from the inner and outer surfaces of the corona frame **(1)**.
3. Soak the tip of a lint-free cloth with water and wipe the corona wire with the cloth.

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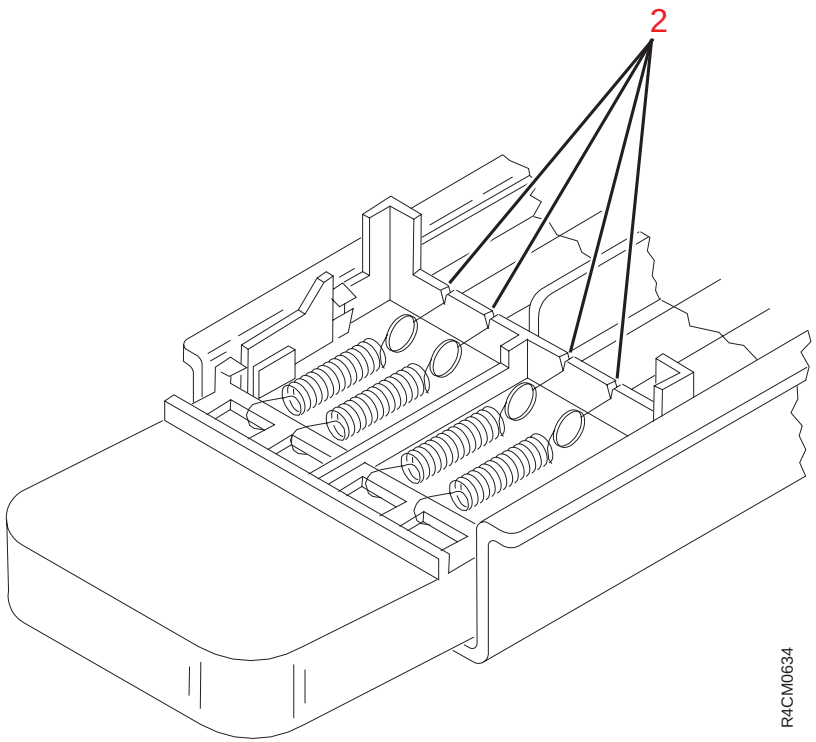
Table 574. Charge Corona (continued)



Installation

Reverse the removal procedure.

Notes:

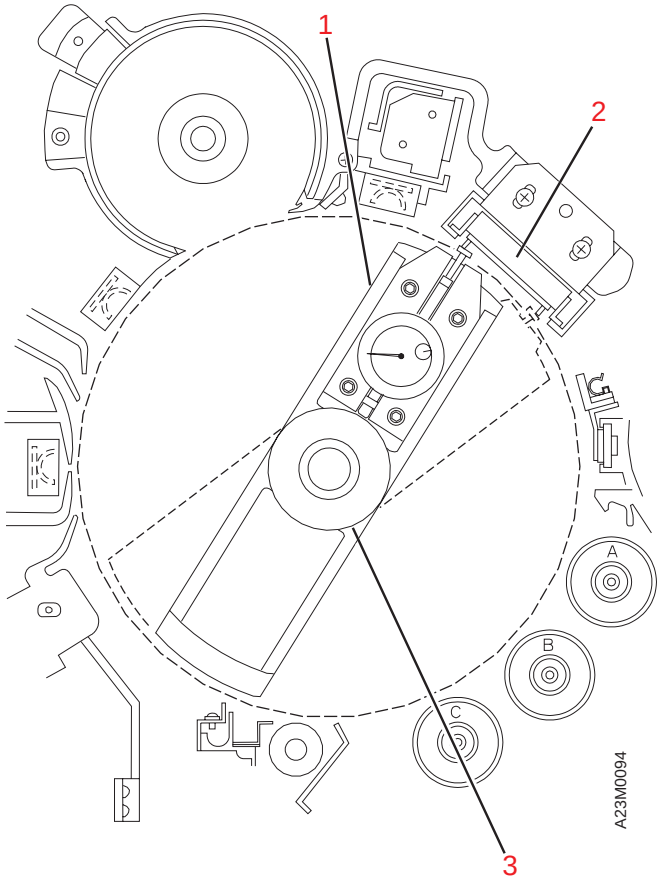
1. When you replace the corona wire covers, ensure that the flat cover is at the plug end (rear) of the assembly.
2. The charge corona wires must be in the v-slots **(2)** on the base of the corona. If you do not install the wires correctly, print quality problems may occur.

Check

Run Print Pack to check the print quality.

Charge Corona to PC Drum Gap

Table 575. Charge Corona to PC Drum Gap



Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Drum clearance gauge (PN 06F1029)

Check

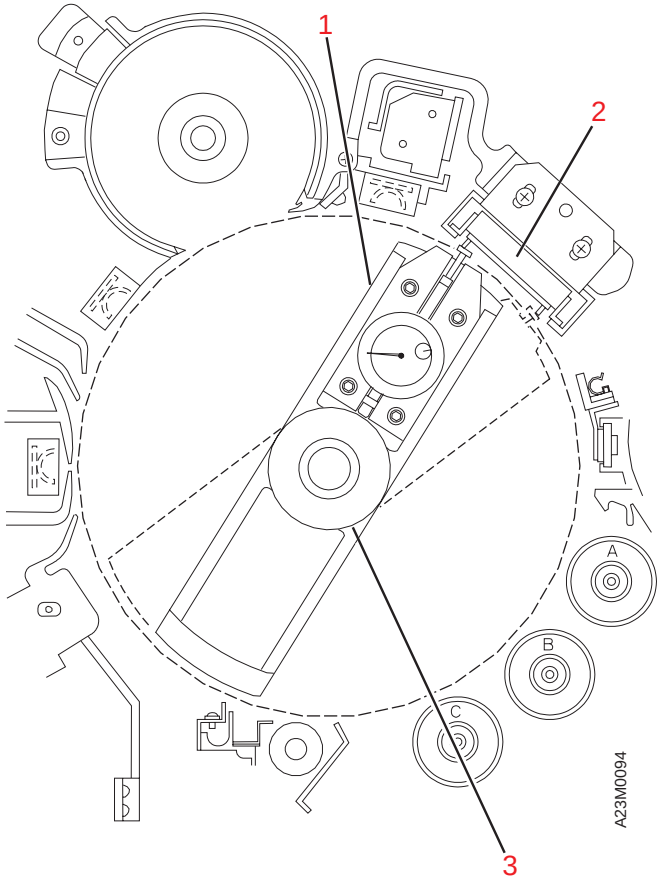
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the PC Drum Removal procedure and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Calibrate the Drum Clearance Gauge.
5. Put the drum gauge **(1)** on the drum shaft **(3)**.

(continued on next page)

Table 575. Charge Corona to PC Drum Gap (continued)



6. Using the drum gauge, measure the clearance between white plastic tips at the front and rear of the charge corona frame and the PC drum.

Note: You will have to pull the frame out part way to make the measurement at the rear of the drum.

7. Using the drum gauge, ensure that the gap between the charge corona **(2)** and the PC drum is correct. See PC Drum & Developer Clearances/Gaps.
8. Use the drum gauge to measure the gap at the rear of the charge corona. Record the measurement.
9. Measure the gap at the front of the charge corona. If this gap is within ±0.4 mm (0.016 in.) of the rear gap measurement and if both gaps are within the range specified in the tables, no adjustment is needed.
10. Remove the drum gauge.
11. Install the PC Drum.

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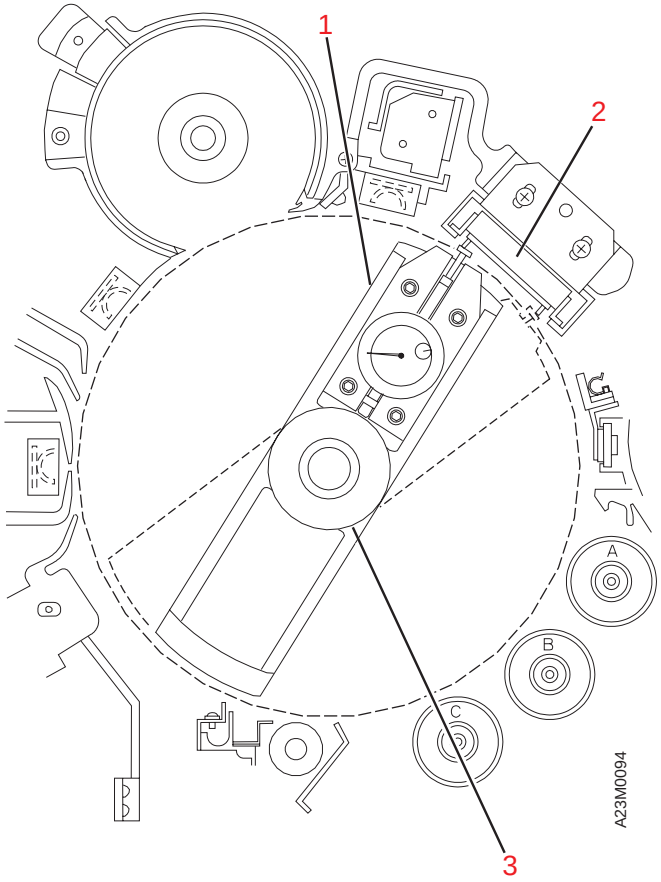
Table 575. Charge Corona to PC Drum Gap (continued)



Adjustment

1. Using the drum gauge, measure the clearance between white plastic tips at the **rear of the charge corona** frame and the PC drum.

Note: Pull the frame out part way to make the measurement at the rear of the drum.

If the rear clearance is correct according to the tables, do not adjust the rear housing.

2. Measure the charge corona at the front.

   If the front to rear difference is greater than ±0.2 mm (0.008 in.), adjust the front housing so that the gap in the front is the same as the gap measured in the rear.

3. To adjust the gap, perform steps 1 through 5.
4. Loosen the two screws on the front of the charge corona housing to move the housing up or down.
5. Remove the Fine Filter Case to gain access to the two screws on the rear of the charge corona housing.
6. Loosen the two screws on the rear of the charge corona housing.

   To avoid binding or twisting of the corona housing, it may be necessary to loosen the two front corona housing screws slightly. This is not necessary if only a small movement is needed in the next step.

7. Move the housing up or down to adjust the gap to the correct setting . See PC Drum & Developer Clearances/Gaps.

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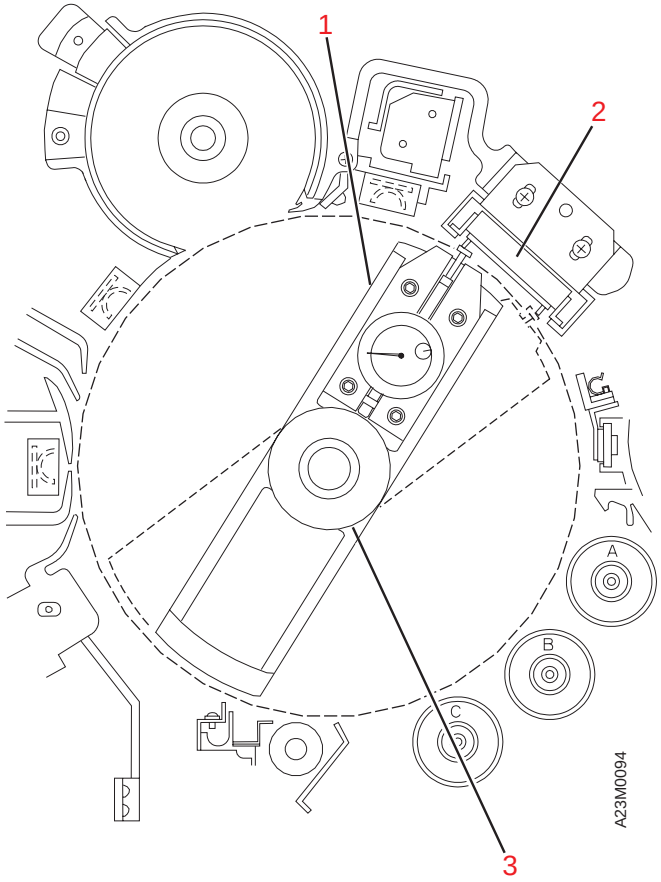
Table 575. Charge Corona to PC Drum Gap (continued)



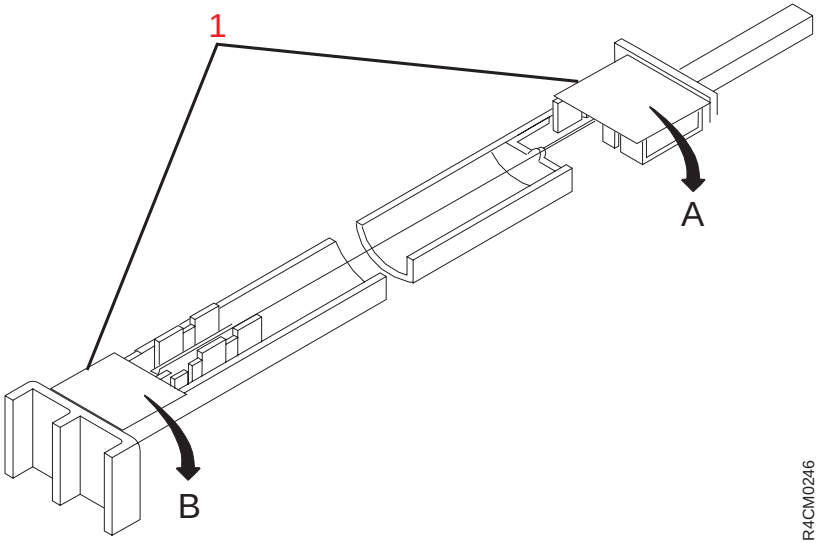
8. Ensure that the front and rear gaps are within 0.2 mm (0.008 in.) of each other. If they are not, repeat this procedure.
9. Replace the Fine Filter Case.
10. Remove the drum gauge.
11. Install the PC Drum.
12. Perform the PC Drum Surface Voltage Adjustment

Check

Run Print Pack to check the print quality.

Transfer Corona, Preclean Corona, and Precharge Coronas

Table 576. Transfer, Preclean, and Precharge Coronas



The transfer corona, preclean corona, and precharge corona are identical assemblies.

The transfer corona is in the transfer station; the preclean corona is to the left of the cleaner; the precharge corona is to the right of the cleaner.

Before you remove any corona wire, ensure that the replacement wire is not bent. A bent wire causes an irregular flow of electricity, which results in an abnormal surge of high voltage. This causes the corona to arc.

Special Tools

- Corona brush (PN 06F0423)
- Lint free cloth (PN 2108930)

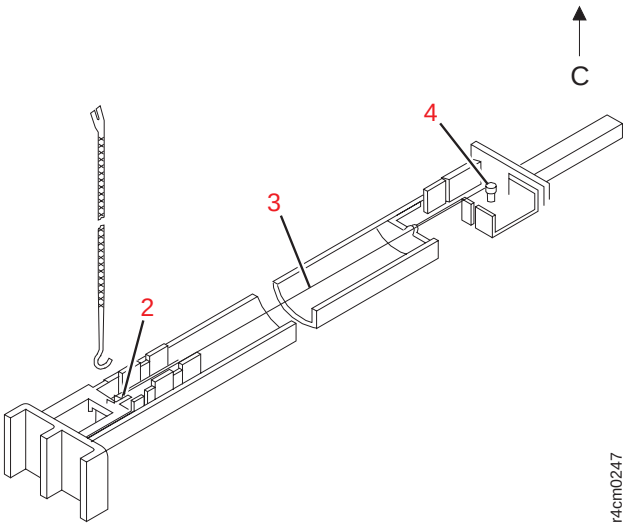
Wire Removal

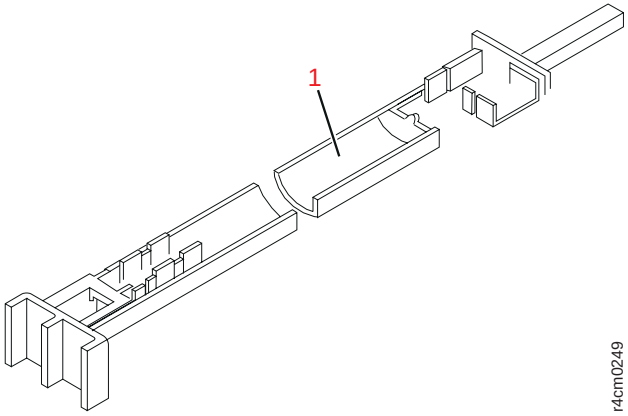
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Pull the corona out of its housing.
3. Place the corona frame on a clean, flat work surface.
4. Remove the two corona wire covers **(1)** by lifting them in the directions **(A)** and **(B)** shown.

Note: Go to Transfer Preclean & Precharge Corona Cleaning if the corona wire only needs cleaning.

(continued on next page)

Table 576. Transfer, Preclean, and Precharge Coronas (continued)





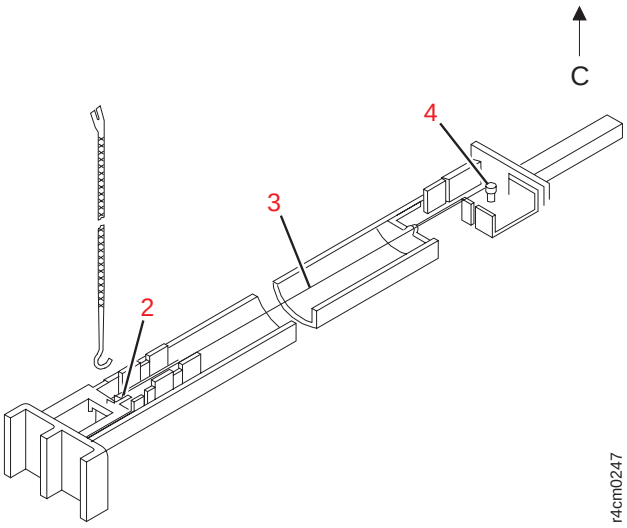
5. Use a spring hook to pull on the spring **(2)** to relieve the tension on the wire **(3)** and lift the ring out in the **(C)** direction.
6. Remove spring **(2)**, wire **(3)** and ring **(4)** assembly and discard it.
7. Repeat this procedure for each corona assembly.

Cleaning

1. Use the corona brush to clean the corona assembly and wire. Brush back and forth several times the full length of the corona assembly and wire.
2. Moisten a clean cloth with water and remove dust and corrosion from the inner and outer surfaces of the corona frame **(1)**.
3. Soak the tip of a lint-free cloth with water and wipe the corona wire with the cloth.

(continued on next page)

Table 576. Transfer, Preclean, and Precharge Coronas (continued)



Installation

Reverse the removal procedure.

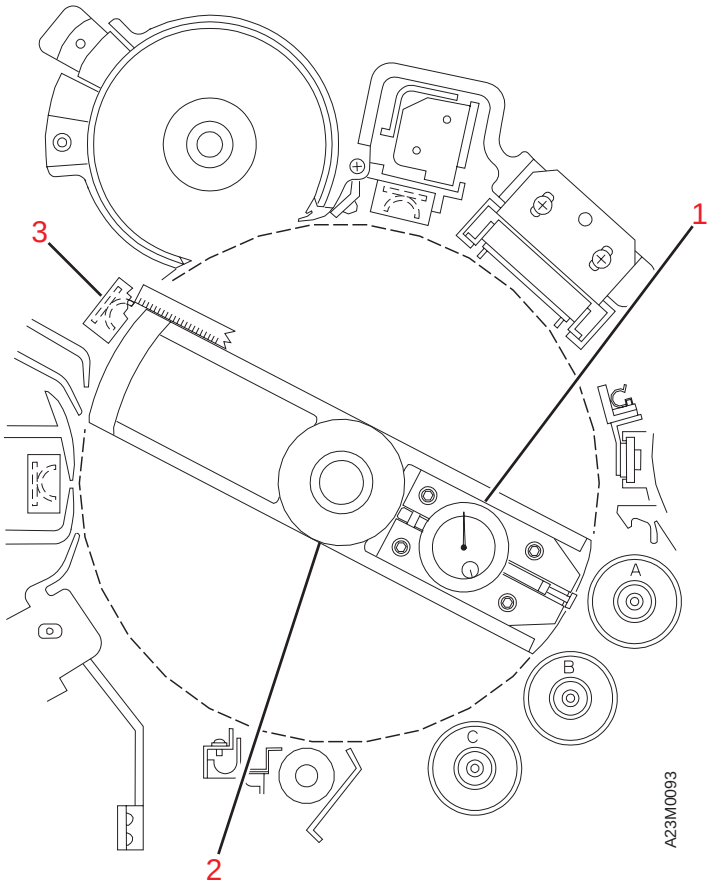
Note: The corona wires must be in the v-slots on the base of the corona. If you do not install the wires correctly, print quality problems may occur.

Check

Run Print Pack to check the print quality.

Preclean Corona to PC Drum Gap

Table 577. Preclean Corona to PC Drum Gap



Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Drum clearance gauge (PN 06F1029)
- Drum bag or empty box

Check

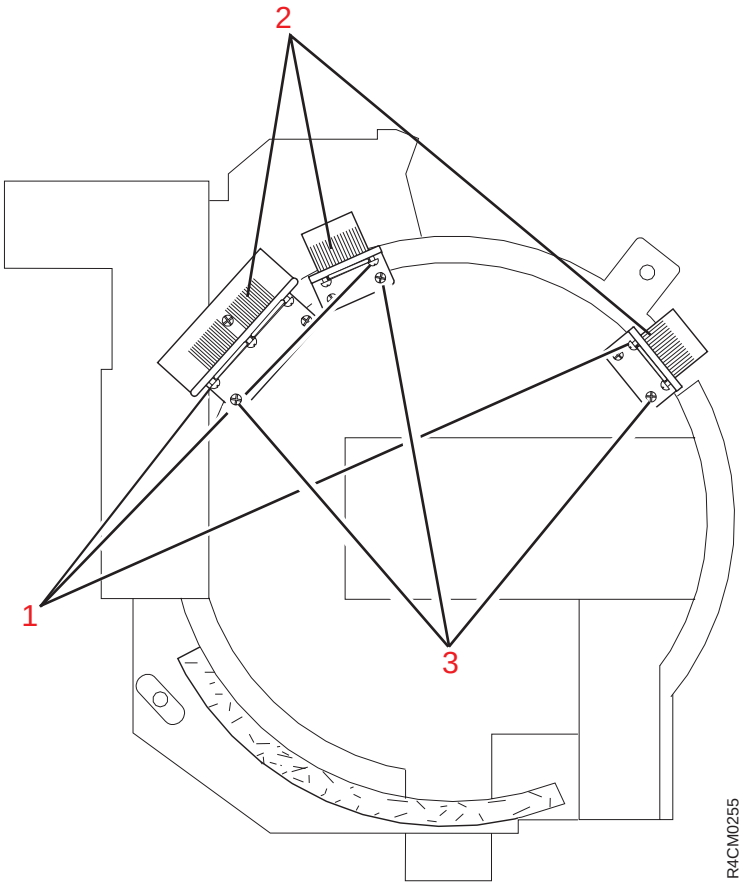
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box. See PC Drum Removal.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Put the drum gauge **(1)** on the drum shaft **(2)**.
5. Use a 150 mm (6 in.) ruler to ensure that the gap (front and rear) between the preclean corona **(3)** and the edge of the drum gauge opposite the dial indicator is correct. See PC Drum & Developer Clearances/Gaps.
6. Remove the drum gauge.
7. Install the PC Drum.

Corona Cleaning Brushes

Table 578. Corona Cleaning Brushes



Charge, Precharge, and Preclean Corona Cleaning Brushes

The charge, precharge, and preclean corona cleaning brushes are inside the drum cover on a bracket, and are adjustable.

Removal

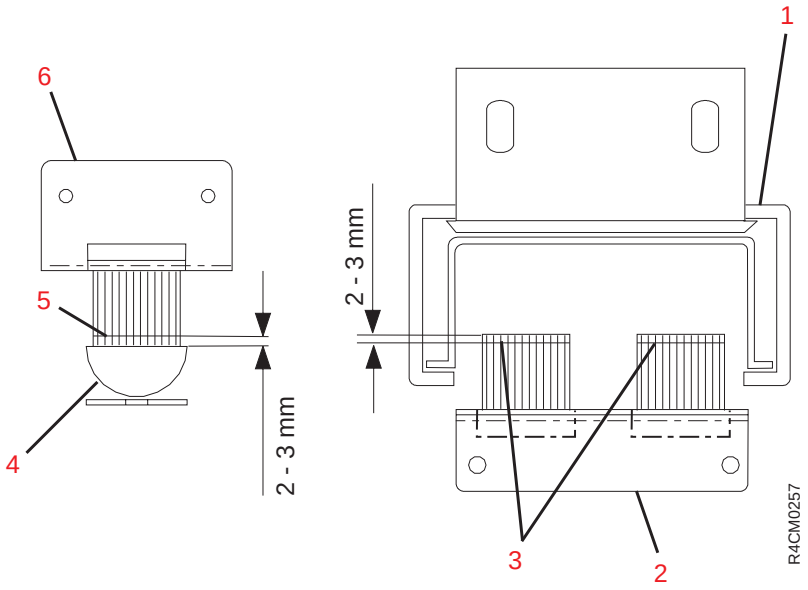
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Remove the PC drum cover.
3. Remove the seven screws **(1)** to remove the four cleaning brushes **(2)**.
4. If you are going to install new cleaning brushes, discard the old brushes.

Installation

1. Reverse the removal procedure.
2. Adjust the new cleaning brushes.

(continued on next page)

Table 578. Corona Cleaning Brushes (continued)



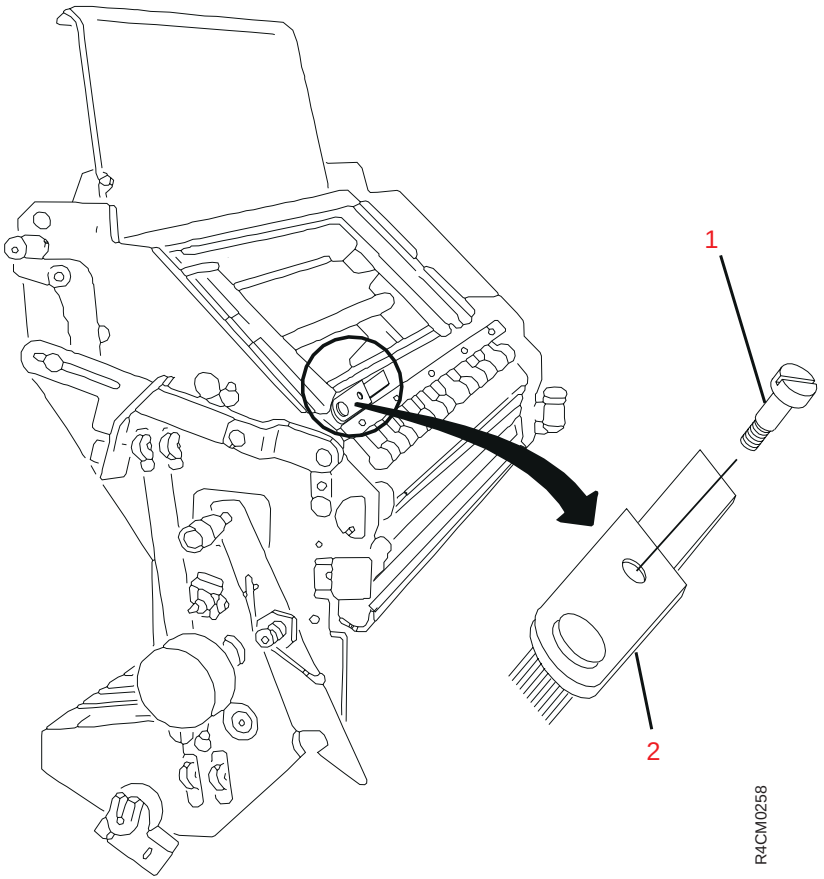
Adjustment

Pull the coronas out to expose the wires and to ensure that the charge corona cleaning brushes have a 2 ±3 mm (0.08 ±0.12 in.) overlap of the corona wires. Adjust the individual brushes as needed.

1. Remove the drum cover.
2. Loosen the two screws **(3)** to adjust each brush.
3. Move the brush holder up or down to get the 2 to 3 mm (0.08 to 0.12 in.) overlap.
4. Replace the drum cover.
5. Check the brush gap to the corona wires.
6. If necessary, repeat the procedure.

(continued on next page)

Table 578. Corona Cleaning Brushes (continued)



Transfer Corona Cleaning Brush

The transfer corona cleaning brush is on top of the transfer corona.

Removal

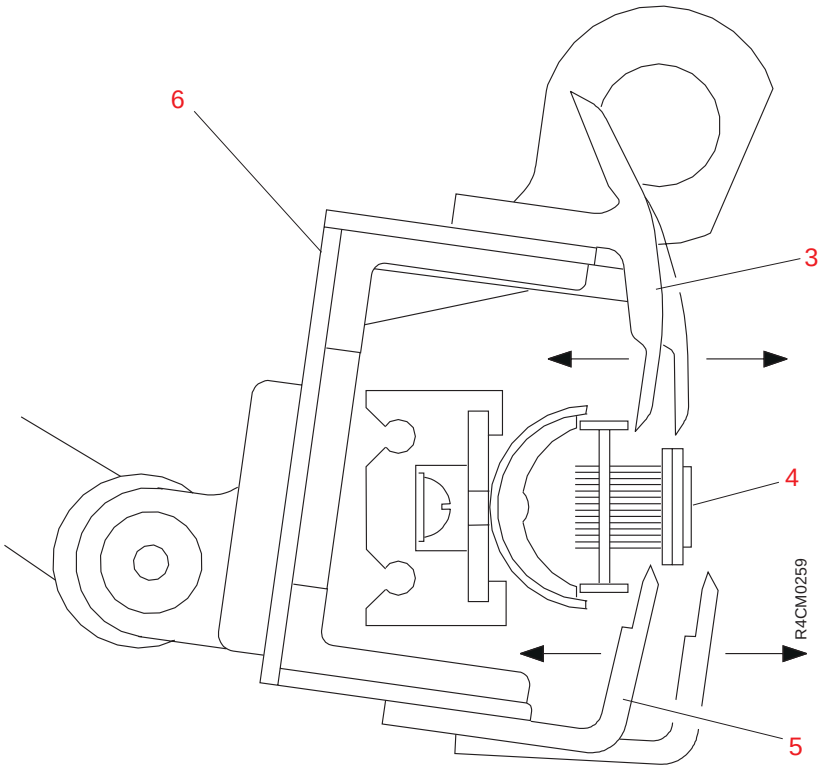
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Remove the screw **(1)**.
3. Remove the cleaning brush **(2)**.
4. If you are going to install a new cleaning brush, discard the old brush.

Installation

Reverse the removal procedure.

(continued on next page)

Table 578. Corona Cleaning Brushes (continued)

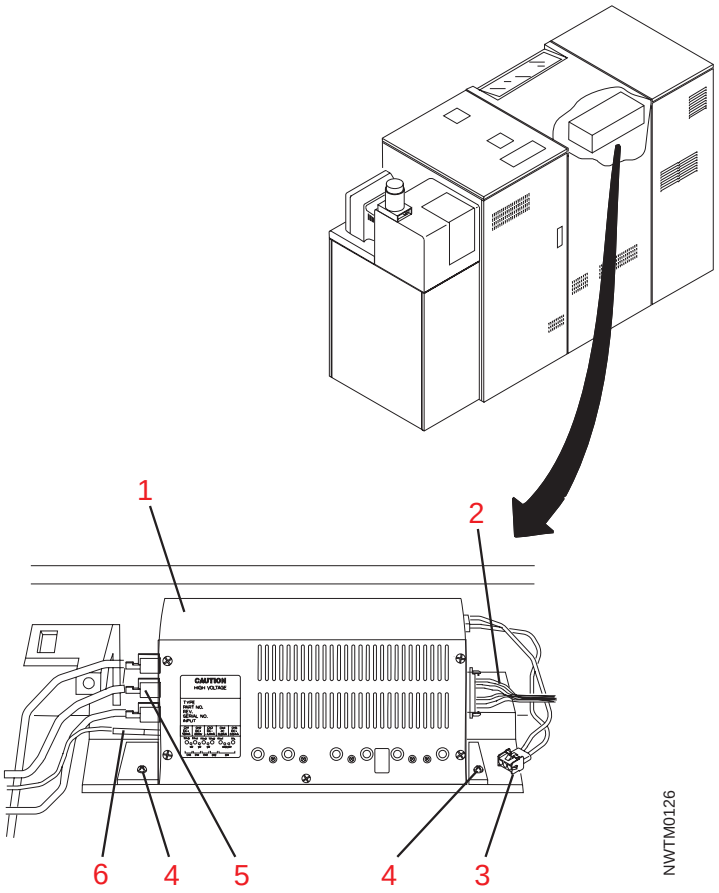


Transfer Corona Cleaning Brush Adjustment

1. Ensure that the upper retractor **(3)** and lower retractor **(5)** do not make contact with the transfer corona cleaning brush **(4)** when the retractor frame is moved. Run Driver Routine 11 to move the retractors to their most extended position.
2. If an adjustment is necessary, adjust the brush mounting bracket for equal clearance to the upper and lower retractors.

High Voltage Power Supply

Table 579. High Voltage Power Supply



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the transfer station center rear cover.
4. Remove the printer right top cover.
5. Disconnect connectors JP115 **(2)** and JP116 **(3)** from the right side of the high voltage power supply **(1)** as viewed from the rear.
6. Disconnect the high voltage connectors CH1, CH2, CH3, CH4, and CH5 **(5)**.
7. Disconnect the ground connector **(6)**.
8. Remove the two screws **(4)** and remove the high voltage power supply **(1)**.

Installation

Reverse the removal procedure.

Check

Whenever you replace the high voltage power supply, you must perform all of the corona adjustments under Transfer, Preclean & Precharge Corona Voltage.

High Voltage Power Supply Fan (B604)

Table 580. High Voltage Power Supply Fan (B604)

Removal

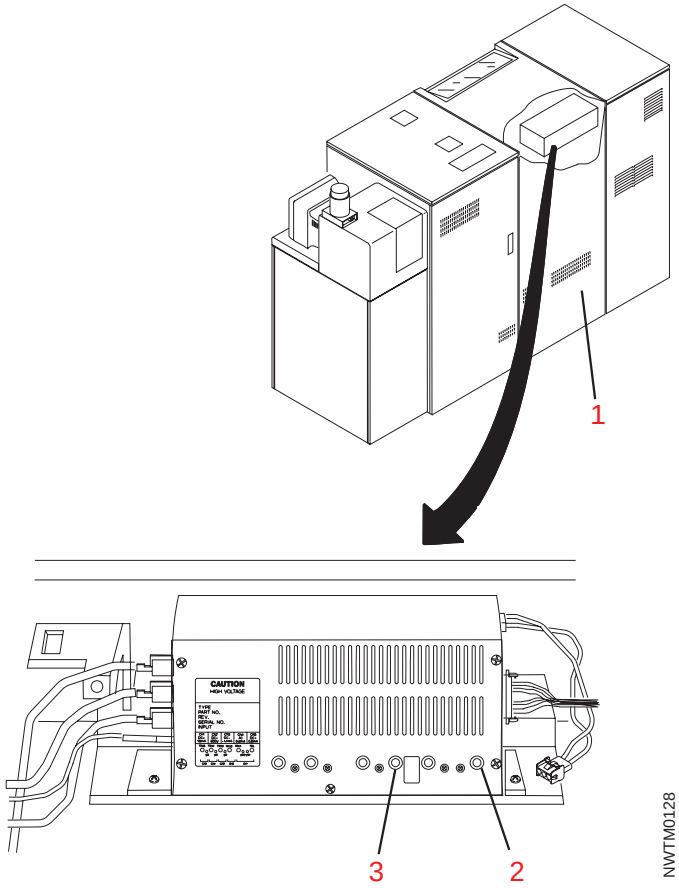
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer center rear cover.
4. Disconnect the fan connector and remove the two screws holding the fan, remove the fan.

Installation

Reverse the removal procedure.

Mag Brush Bias Voltage

Table 581. Mag Brush Bias Voltage



Note: The mag brush bias voltage is not adjustable. If the bias voltage is not correct, replace the high voltage power supply.

Special Tools Required:

Digital voltmeter

Check

1. Open the printer center rear cover **(1)**.
2. Remove the transfer station center rear cover.
3. Set the Toner Control Program to the standard values before you check or adjust the drum surface voltage. See Read From or Write to Toner Control Program Memory (Position 2).

   After the drum surface voltage is correctly adjusted, return the Toner Control Program to it's original settings.
4. Set the contrast switch on the printer control panel to **4**.
5. Check the developer mix usage counters. See Mag Brush Bias Voltage Setting for the correct voltage.
6. Set the digital voltmeter (DVM) for dc voltage.
7. Connect the DVM **+** lead to the CH2 **(3)** test point on the high voltage power supply.
8. Connect the DVM **−** lead to the TPL **(2)** test point.
9. While you run print samples, check for the correct voltage as shown in Mag Brush Bias Voltage Setting.
10. If the mag brush bias voltage is not within specification, replace the high voltage power supply.

PC Drum Surface Voltage

Table 582. Photoconductor (PC) Drum Surface Voltage

Note: You **must** perform this procedure each time you replace the PC drum.

Theory

Charge corona voltage is varied by contrast switch settings and developer mix age to give different drum surface voltages.

Special Tools Required:

- Electrostatic voltmeter (ESV) and probe (PN 03F5634)
- AC power supply for ESV (PN 06F1904)
- ESV probe holder (PN 06F0256)
- Lint free cloth (PN 2108930)

Two 9-volt batteries are needed if 115 V ac 60 Hz power cannot be used.

ESV Check

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Before you make the following measurements, ensure that the charge corona assembly is clean and that the corona wires are in good condition. If the wires are excessively dirty or damaged, replace them before you make any adjustments.
3. Ensure that the Charge Corona to PC Drum Gap is correct.
4. Set the Toner Control Program to the standard values before you check or adjust the drum surface voltage. See Read From or Write to Toner Control Program Memory (Position 2).

   After the drum surface voltage is correctly adjusted, return the Toner Control Program to it's original settings.
5. Do the ESV zero adjustment procedure and the ESV Holder and Probe Installation .
6. Set the contrast on the printer control panel to **4**.

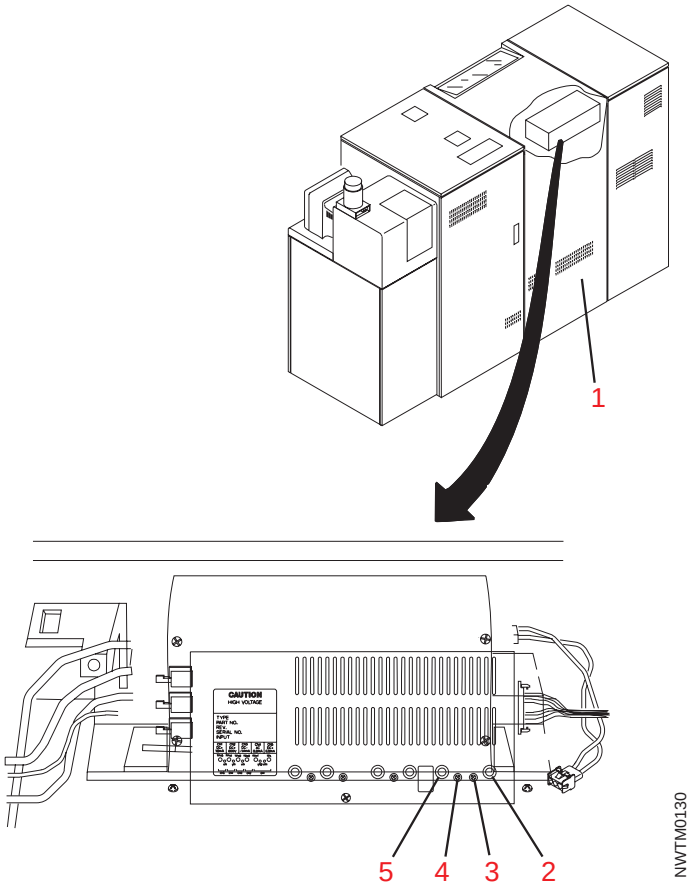
(continued on next page)

Table 582. Photoconductor (PC) Drum Surface Voltage (continued)

7. Measure and record the drum surface voltage at the front, center, and rear of the drum by performing the following steps:
   a. Install the ESV probe at the appropriate position.
   b. Install the PC drum cover and close the machine covers to ensure that no ambient light reaches the PC drum. Bright lights can discharge the PC drum and give false voltage readings.
   c. **Power on the ESV.**
8. Run approximately 50 blank pages.
9. **Power off the ESV.**
10. Check the developer mix usage counters. The voltages should be as shown in PC Drum Surface Voltage Settings.
    - If the difference between the front and the rear measurement is less than 60 V dc, but one of the measurements is out of range, perform the PC Drum Surface Voltage Adjustment.
    - If the difference between the front and the rear measurement is greater than 60 V dc, ensure that the following assemblies are clean:
      – Erase lamp filters
      – Precharge corona
      – Charge corona.
    - If the difference between the front and the rear measurement is still greater than 60 V dc, go to Charge Corona to PC Drum Gap and complete the procedures described there.

(continued on next page)

Table 583. PC Drum Surface Voltage Adjustment



PC Drum Surface Voltage Adjustment

1. Set the Toner Control Program to the standard values before you check or adjust the drum surface voltage. See Read From or Write to Toner Control Program Memory (Position 2).

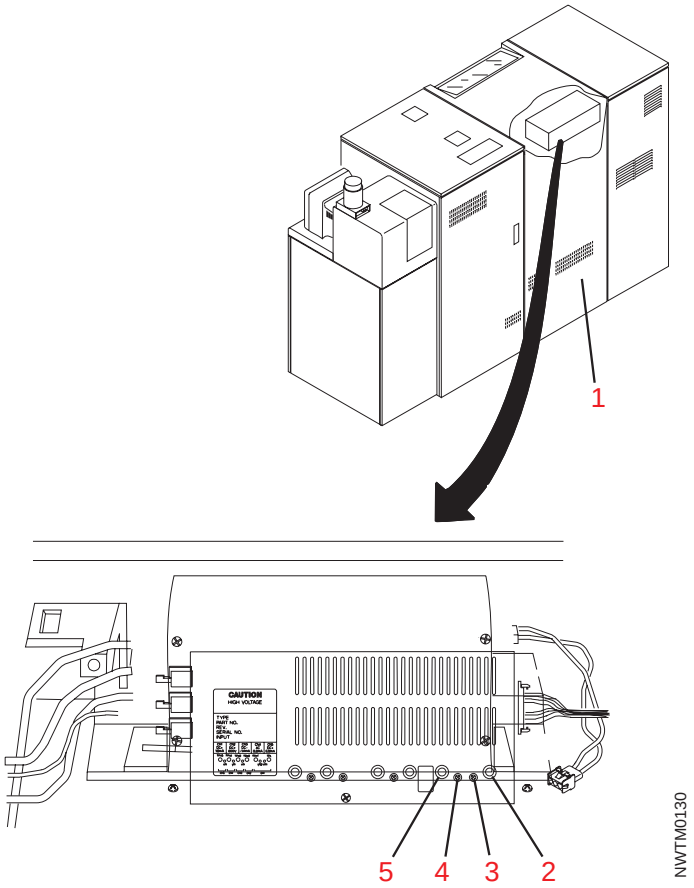
   After the drum surface voltage is correctly adjusted, return the Toner Control Program to it's original settings.
2. Open the cover **(1)**.
3. Remove the transfer station center rear cover **(3)**.
4. Perform the PC Drum Removal Procedure and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

5. Set the diagnostic function switch to position **3**.
6. Either power on the printer or raise the reset switch.
7. Key in **C7** on the maintenance panel.
8. Press the **Enter** key.
9. The maintenance panel will display **0FC7**.
10. Connect the DVM + lead to CH1 TPH **(5)** test point on the high voltage power supply.

(continued on next page)

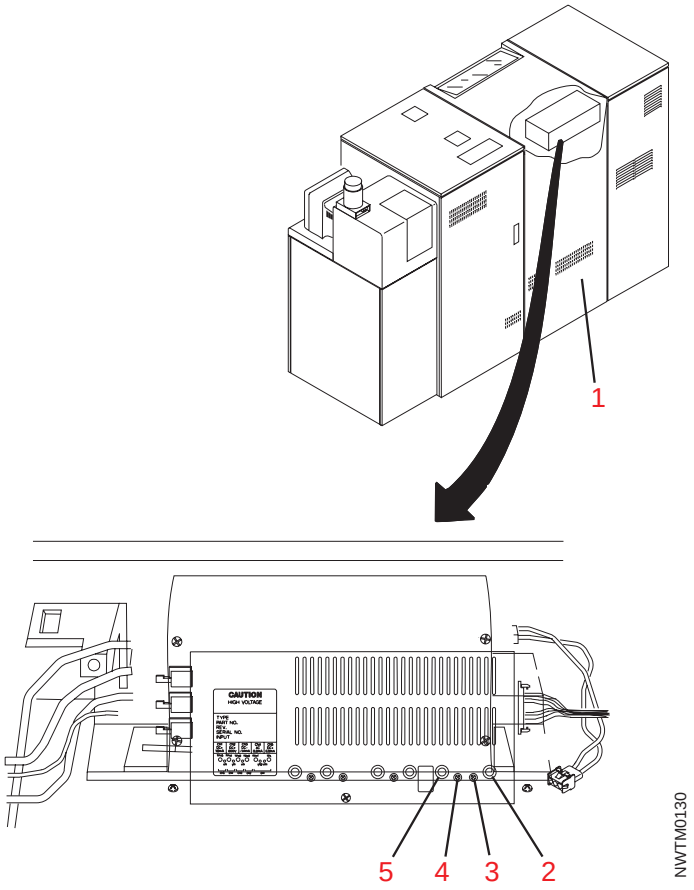
Table 583. PC Drum Surface Voltage Adjustment (continued)



11. Connect the DVM - lead to the TPL **(2)** test point on the high voltage power supply.
12. Adjust CH1 VR1 **(2)** to **0.40 ±0.02 V dc**.
13. Press the **Enter** key on the maintenance panel again.
14. The maintenance panel will display **0NC7**.
15. Adjust CH1 VR2 **(4)** to **1.0 ±0.02 V dc**.
16. Set the diagnostic function switch to position **0**.
17. Either power on the printer or raise the reset switch.
18. Reinstall the PC drum.
19. Do steps 2 through 7 under “ESV Check” on page 2331.
20. Adjust the PC drum surface voltage to the correct voltage by turning the VR1 potentiometer **(3)**. Turning the potentiometer clockwise increases the voltage. See PC Drum Surface Voltage Settings for the correct values.
21. If you cannot obtain the correct voltage by adjusting VR1, ensure that the following assemblies are clean:
    - Erase lamp filters
    - Precharge corona
    - Charge corona.
22. Ensure that the precharge corona is adjusted correctly. See Transfer, Preclean & Precharge Corona Voltage.

(continued on next page)

Table 583. PC Drum Surface Voltage Adjustment (continued)



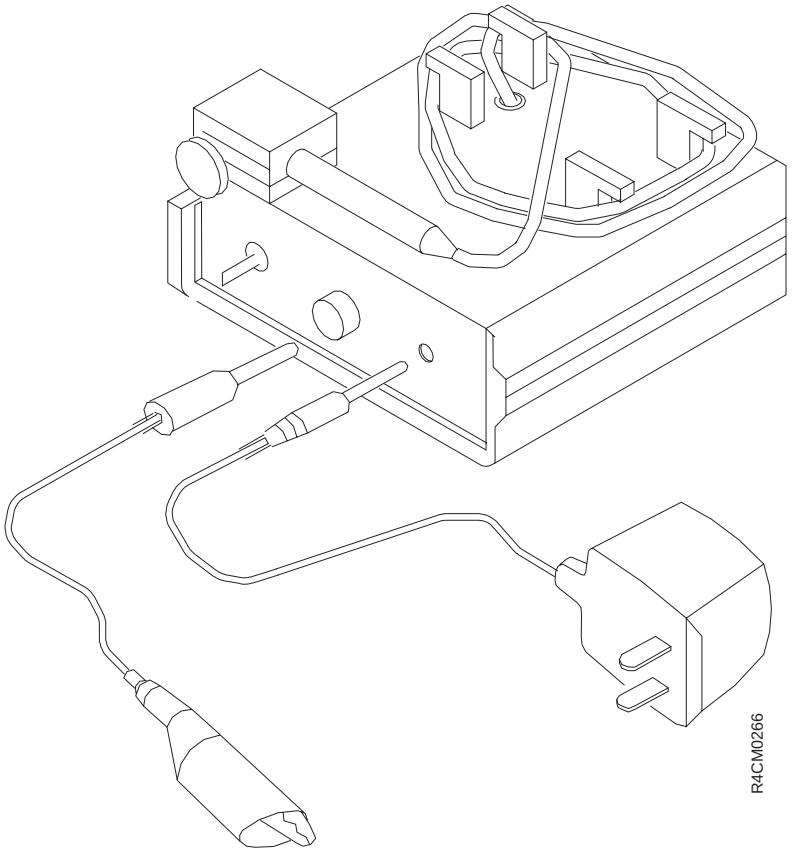
23. Recheck the surface voltage. If it is still not within specifications, replace the following parts, one at a time, until the surface voltage is within specifications:
    - Secondary erase lamp
    - PC drum
    - Charge corona
    - High voltage power supply
    - YS011 card

Check

Run Print Pack to check the print quality.

Electrostatic Voltmeter

Table 584. Electrostatic Voltmeter (ESV) Check



DANGER

<4> High-voltage is present on the electrostatic voltmeter (ESV) probe. Power-off the ESV before touching the probe or probe block.

ESV Zero Adjustment

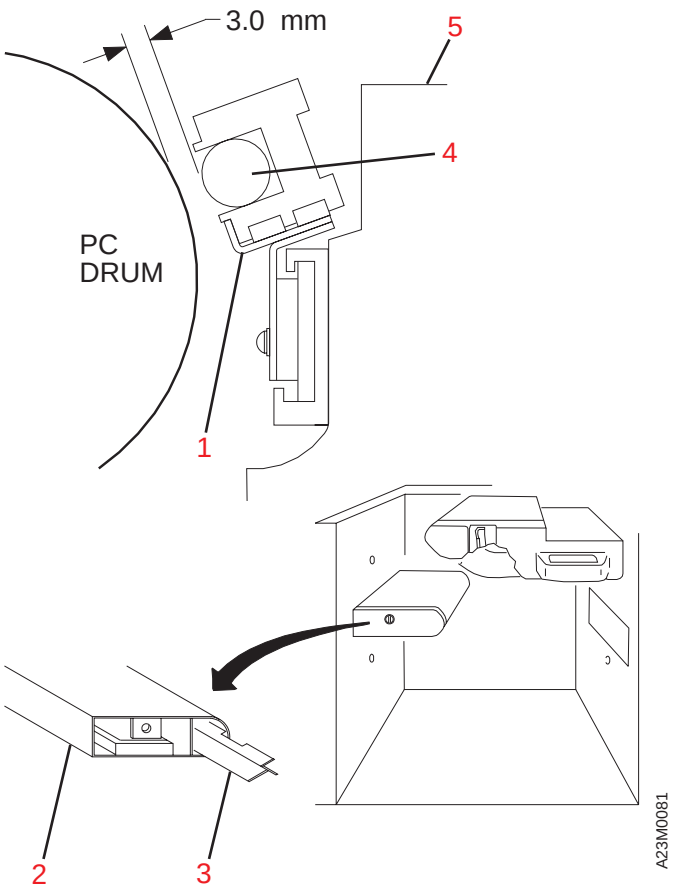
1. Connect the ac power supply to the ESV. If the ac power supply is not available, use two 9-volt batteries to power the ESV.
2. Ensure that the ESV probe is installed in the storage bracket on the top of the ESV.
3. Insert the minus lead into the ESV.
4. Attach the other end of this cable to machine ground.
5. **Power on the ESV.**

Note: If you are using batteries, they will last approximately 20 minutes.

6. Turn the zero control until the ESV displays **00.0**.
7. **Power off the ESV.**

(continued on next page)

Table 584. Electrostatic Voltmeter (ESV) Check (continued)



CAUTION:
<55> Disable the channels and/or attachments, and ensure that the Control Unit's Local/Remote switch is in the Local position to prevent the host system from remotely powering up the printer.

There are two possible types of ESV holders that you may install in the printer.

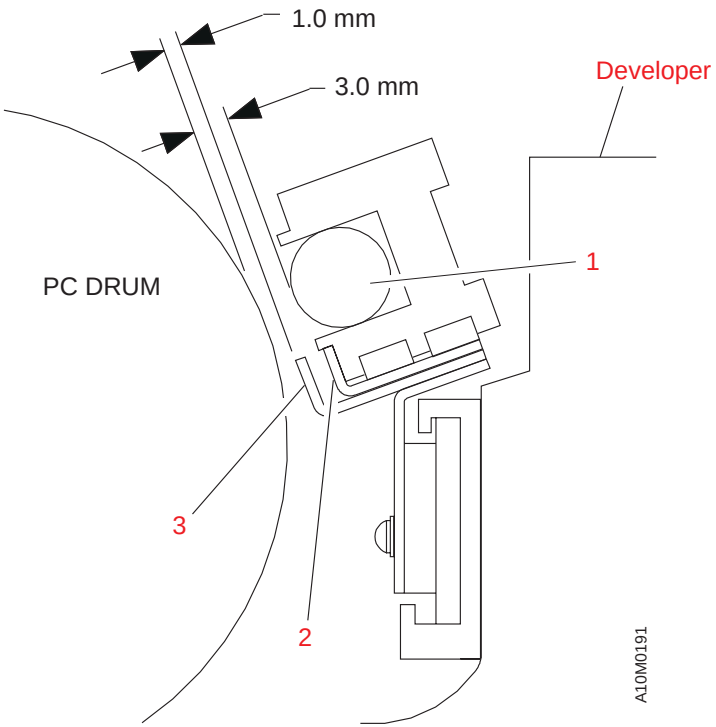
- The ESV holder shown in ESV Holder (with air defelector) and Probe (End View) includes an air deflector, which you install to eliminate toner contamination problems when the drum cooling fans are installed in the printer. This ESV holder remains installed at all times.
- The other ESV holder is shown in ESV Holder and Probe Installation and is stored in the maintenance panel enclosure.

Electrostatic Probe Installation

1. Remove the PC drum cover.
2. If the ESV holder is the type shown in ESV Holder and Probe Installation , do the following:
   a. Remove the ESV holder **(3)** from the maintenance panel enclosure **(2)**.
   b. Install the ESV holder **(1)** as shown. (When you are finished with ESV adjustment, remove the holder and store it in the maintenance panel area **(2)**.
3. Use a lint-free cloth to clean the ESV holder.

(continued on next page)

Table 584. Electrostatic Voltmeter (ESV) Check (continued)



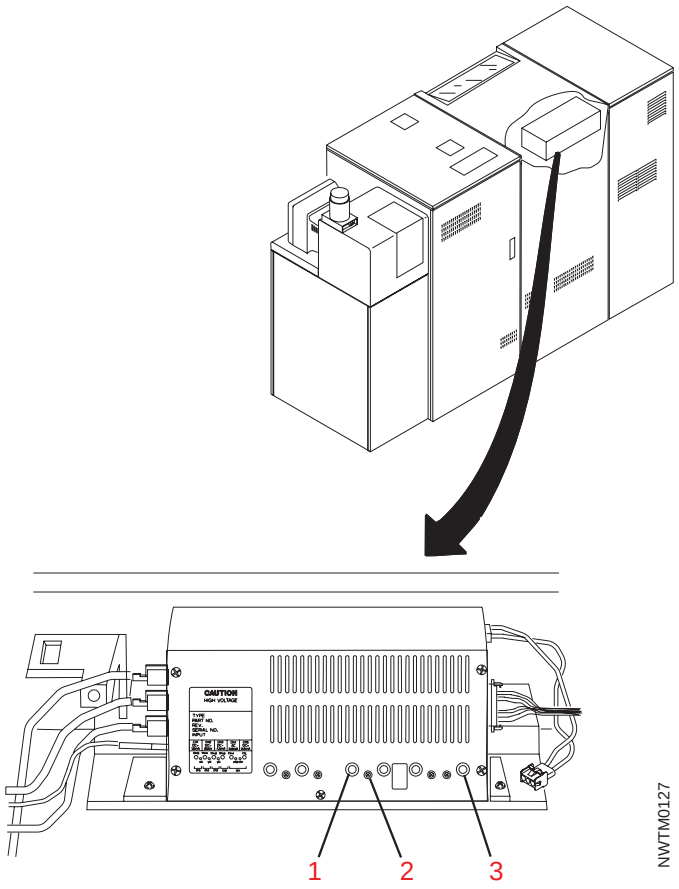
DANGER

<1> Ensure that the PC drum cover is replaced to prevent exposure to the laser beam.

4. The ESV holder has three rectangular windows. Install the probe block in the center window of the ESV holder **(1)**. A magnet is bonded to the probe block for attaching to the ESV holder. Ensure that no dirt holds the probe block away from the holder, and that the probe block is fully seated in the window.
5. Replace the PC drum cover.

Transfer, Preclean & Precharge Corona Voltage

Table 585. Transfer, Preclean & Precharge Corona Voltage



DANGER

<3> High-voltage is present on coronas during these adjustments.

Special Tools Required:

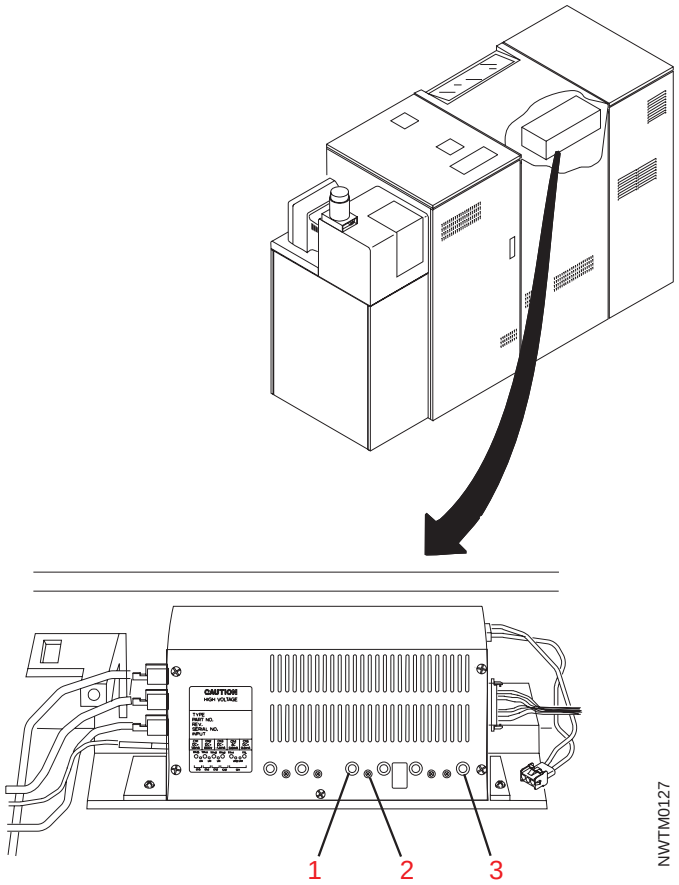
Digital voltmeter

Transfer Corona Check

1. Remove the transfer station center rear cover.
2. Set the digital voltmeter (DVM) for dc voltage.
3. Connect the DVM + lead to the CH3 test point **(1)** on the high voltage power supply.
4. Connect the DVM **–** lead to the TPL test point **(3)**.
5. Check the DVM while running any print sample. The voltage reading should be as shown in Corona Voltage Settings.

(continued on next page)

Table 586. Transfer, Preclean, and Precharge Corona Voltage



Transfer Corona Voltage Adjustment

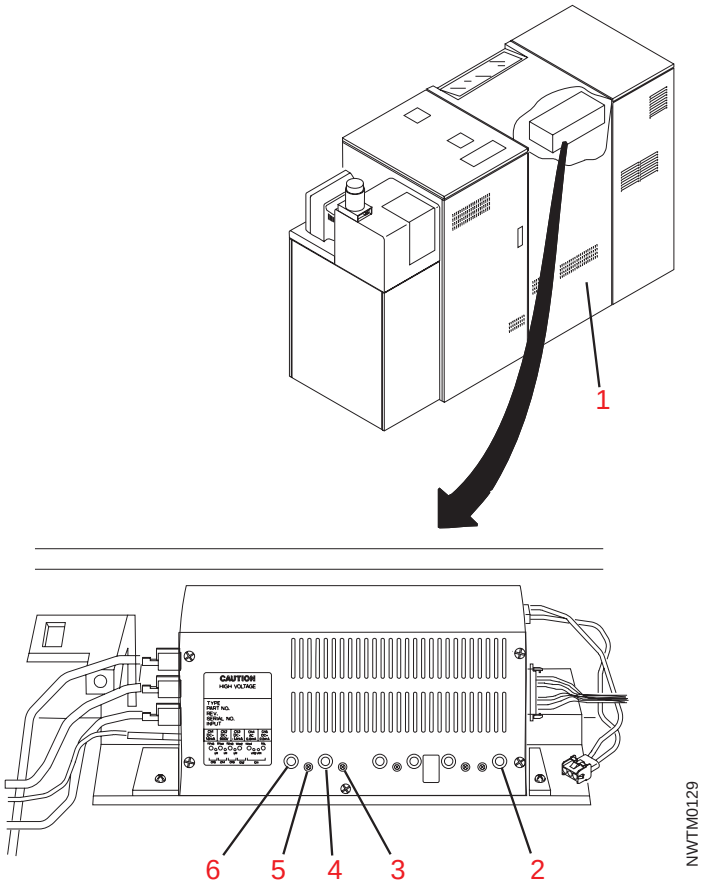
1. Remove the transfer station center rear cover.
2. Set the digital voltmeter (DVM) for dc voltage.
3. While you run any print sample, adjust the CH3 VR **(2)** to voltage as shown in Corona Voltage Settings. Turning the trimmer pot clockwise increases the voltage.

Check

Run Print Pack to check the print quality.

(continued on next page)

Table 586. Transfer, Preclean, and Precharge Corona Voltage (continued)



Preclean Corona Check

1. Remove the transfer station center rear cover.
2. Set the digital voltmeter (DVM) for dc voltage.
3. Connect the DVM **+** lead to the CH4 **(4)** test point on the high voltage power supply.
4. Connect the DVM **−** lead to the TPL **(2)** test point.
5. Check the DVM while running any print sample. The voltage reading should be as shown in Corona Voltage Settings.

Preclean Corona Adjustment

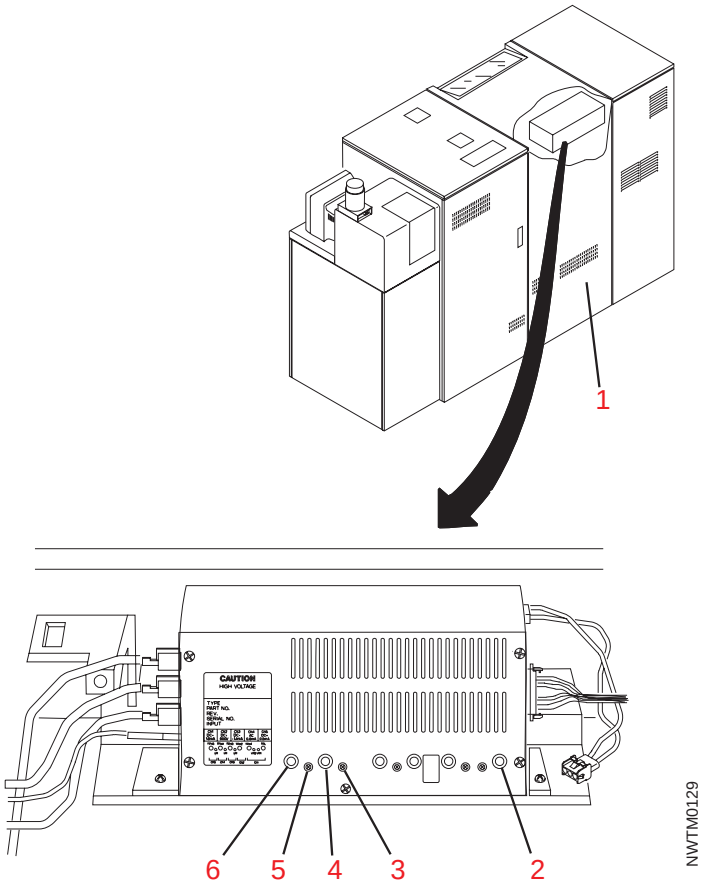
1. Set the digital voltmeter (DVM) for ac voltage.
2. While you run any print sample, adjust the CH4 VR **(3)** to voltage setting as shown in Corona Voltage Settings. Turning the trimmer pot clockwise increases the voltage.

Check

Run Print Pack to check the print quality.

(continued on next page)

Table 586. Transfer, Preclean, and Precharge Corona Voltage (continued)



Precharge Corona Check

1. Remove the transfer station center rear cover.
2. Set the digital voltmeter (DVM) for dc voltage.
3. Connect the DVM **+** lead to the CH5 **(6)** test point on the high voltage power supply.
4. Connect the DVM **−** lead to the TPL **(2)** test point.
5. Check the DVM while you run any print sample. The voltage setting should be as shown in Corona Voltage Settings.

Precharge Corona Adjustment

1. Set the digital voltmeter (DVM) for ac voltage.
2. While you run any print sample, adjust the CH5 VR **(5)** to the voltage setting shown in Corona Voltage Settings. Turning the trimmer pot clockwise increases the voltage.

Check

Run Print Pack to check the print quality.

Corona Voltage Settings

Table 587. Corona Voltage/Tolerance Chart

Corona	Voltage	Tolerance	Test Point
Transfer	1.0 V dc	±0.02 V dc	CH3
Preclean	1.9 V ac	±0.02 V ac	CH4
Precharge	0.3 V dc	±0.02 V dc	CH5

Mag Brush Bias Voltage Setting

All Voltage readings are taken with the Contrast set at 4.

Dev Mix Counter (kft)	Toner PN 70X7425 - Non-Japan printers	Toner PN 1402822 - Non-Japan printers	Japan – All Toners
0–50	4.0±0.3 V	4.0 ±0.3 V	3.5 ±0.3 V
51–1200	3.5 ±0.3 V	4.0 ±0.3 V	3.5 ±0.3 V
1201–	3.0±0.3 V	4.0 ±0.3 V	3.5 ±0.3 V

PC Drum Surface Voltage Settings

All Voltage readings are taken with the Contrast set at 4.

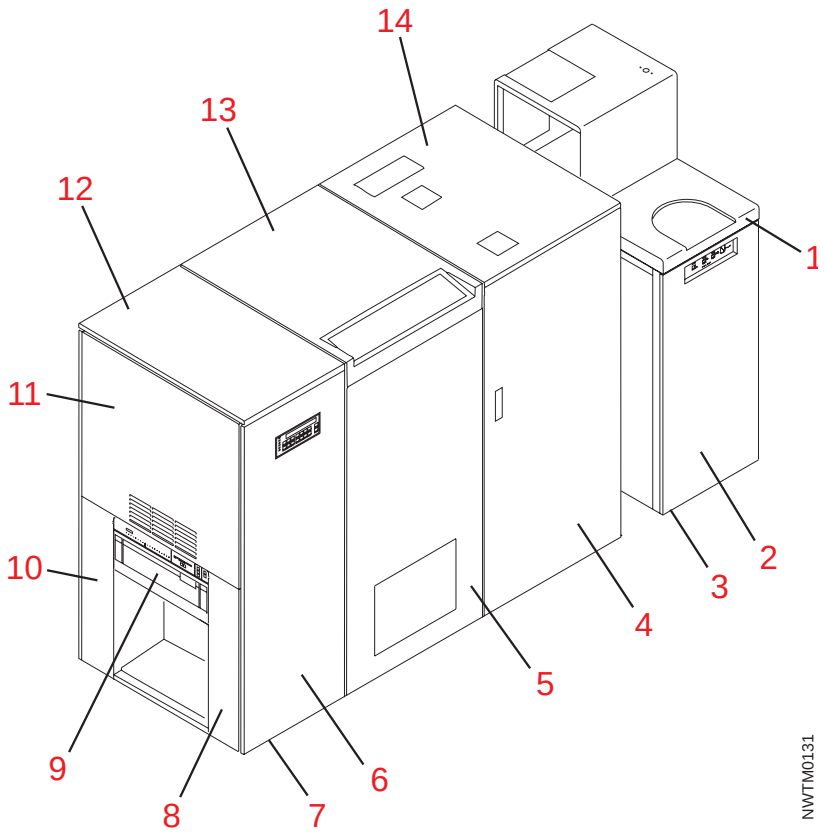
Dev Mix Counter (kft)	Toner PN 70X7425 - Non-Japan printers	Toner PN 1402822 - Non-Japan printers	Toner PN 70X7425 - Japan printers	Toner PN 1402822 - Japan printers
0–10	650±20 V	700±20 V	600±20 V	600±20 V
11–50	700±20 V	700±20 V	600±20 V	650±20 V
51–400	650±20 V	750±20 V	600±20 V	700±20 V
401–1200	650±20 V	800±20 V	600±20 V	700±20 V
1201–	600±20 V	800±20 V	600±20 V	700±20 V

Covers

External Covers 2345
Internal Service Covers 2347
Printer Operator Panel 2351

External Covers

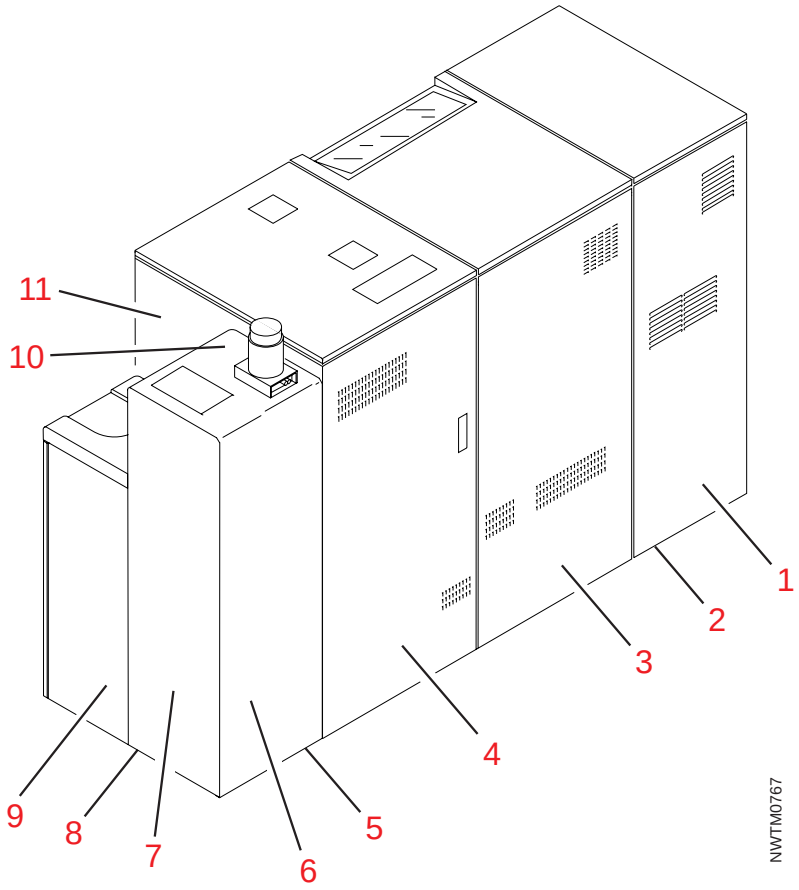
Table 588. External Covers
Control Unit and Printer Front Covers



(1) Control unit shelf (The control unit attached to printer 1 in a duplex system does not have the cutout for the Display/Touch Screen.)
(2) Control unit front cover
(3) Cover release
(4) Printer right front cover
(5) Printer center front cover
(6) Printer left front cover
(7) Cover release
(8) Stacker lower right end cover
(9) Stacker gate cover
(10) Stacker lower left end cover
(11) Stacker end cover
(12) Printer left top cover
(13) Printer center top cover
(14) Printer right top cover

Table 588. External Covers (continued)

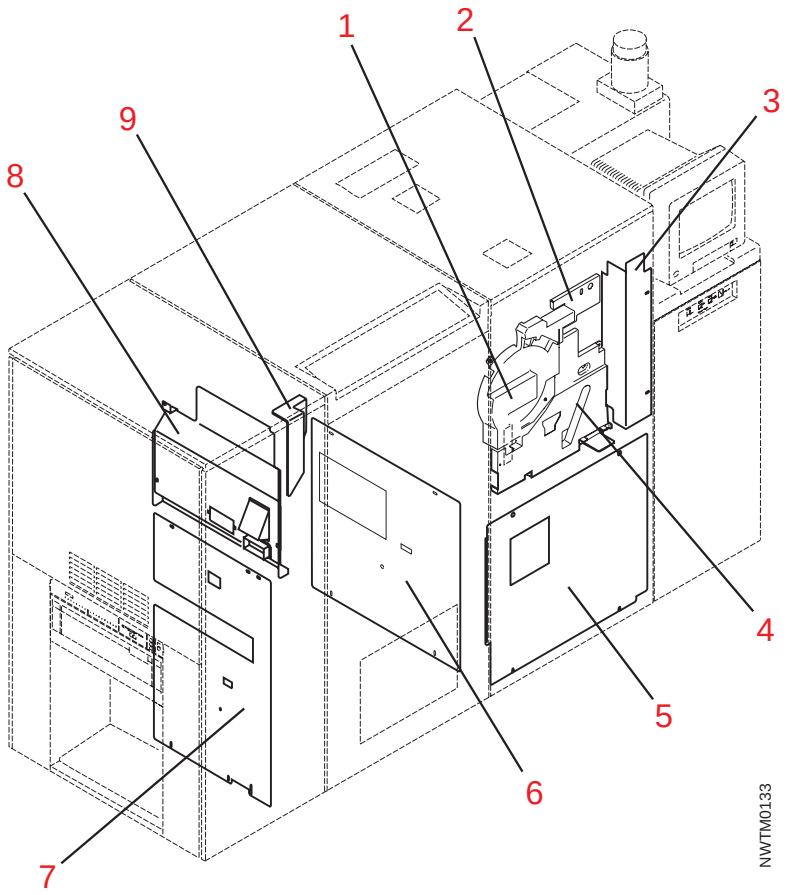
Control Unit and Printer Rear Covers



(1) Printer right rear cover
(2) Cover release
(3) Printer center rear cover
(4) Printer left rear cover
(5) Printer lower right end cover
(6) Control unit rear cover
(7) Cover release
(8) Control unit right side cover
(9) Control unit left side cover
(10) Control unit top cover
(11) Printer upper right end cover

Internal Service Covers

Table 589. Internal Service Covers
Front Service Access Covers

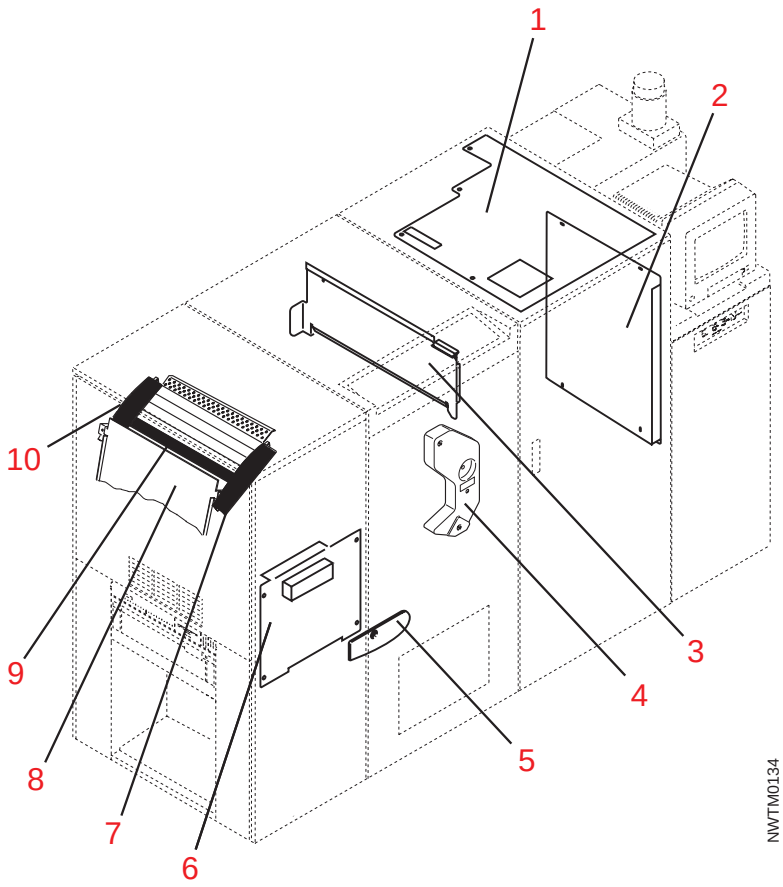


(1) Photoconductor (PC) drum cover
(2) Toner inlet cover
(3) Mirror motor amplifier cover
(4) Developer cover
(5) AC power supply cover
(6) Input bin right side cover
(7) Input bin left side cover
(8) Fuser right side cover
(9) Auto load bridge front cover

(continued on next page)

Table 589. Internal Service Covers (continued)

Front Service Access Covers

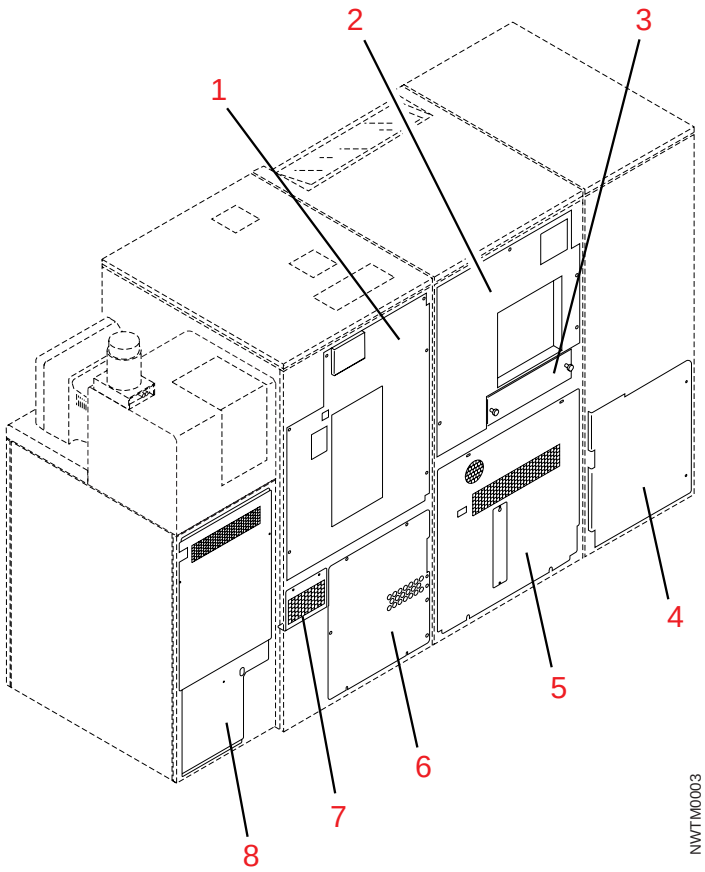


(1) Printhead cover
(2) Printer right end cover
(3) Erase lamp shield
(4) Transfer station cover
(5) Maintenance panel cover
(6) Fuser cover
(7) Preheat platen front end cover
(8) Hot roll shield
(9) Fuser heat shield
(10) Preheat platen rear end cover

(continued on next page)

Table 589. Internal Service Covers (continued)

Rear Service Access Covers

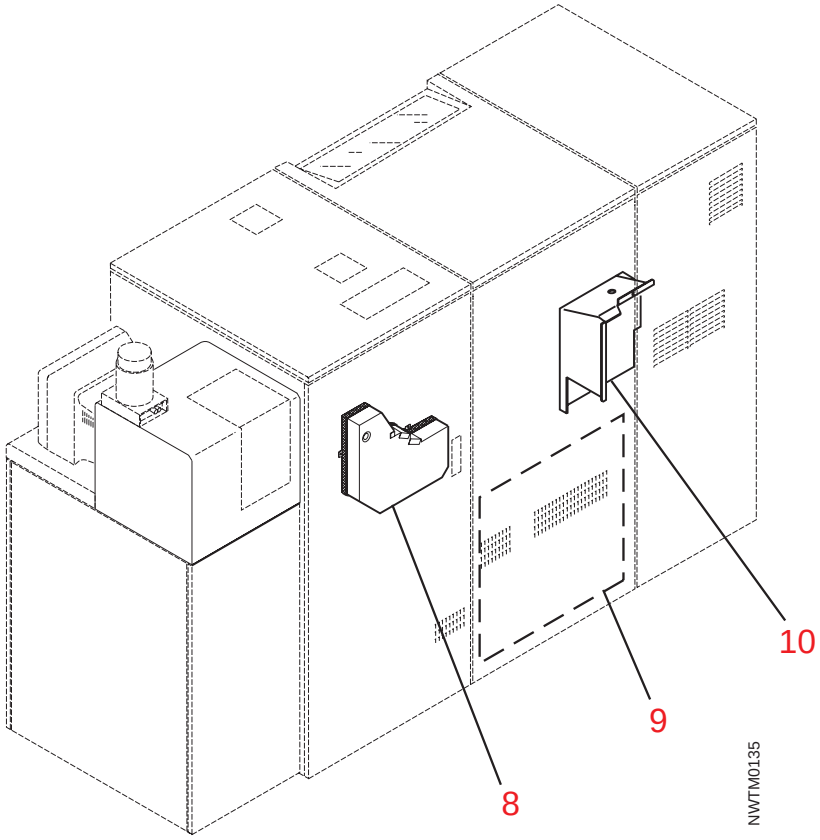


(1) Rear process cover
(2) Transfer station center rear cover
(3) Fuser oil filter cover
(4) Fuser logic cover
(5) B1 board cover
(6) Blower cover
(7) Fan cover
(8) Control unit rear inner cover

(continued on next page)

Table 589. Internal Service Covers (continued)

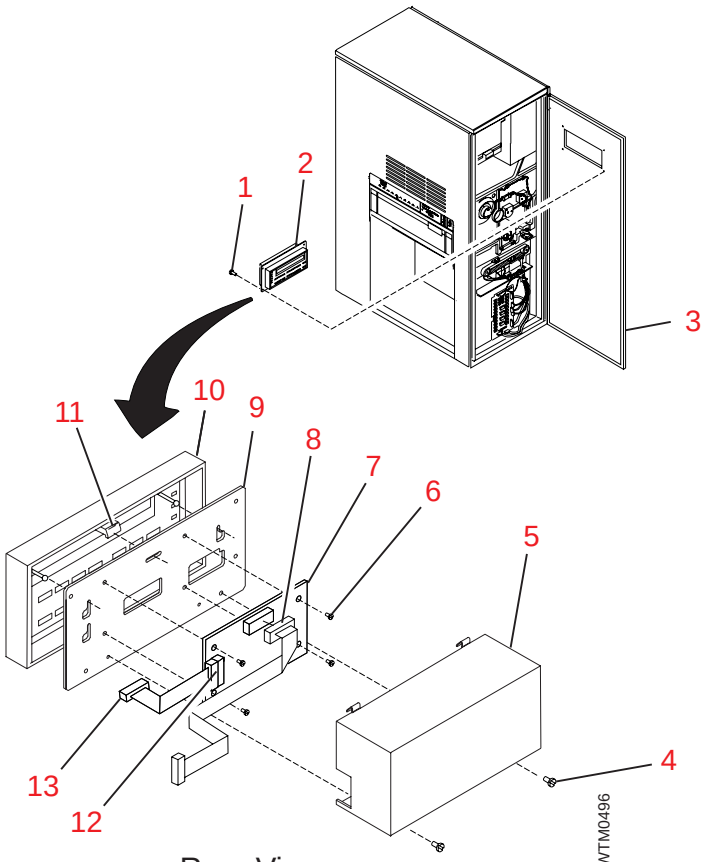
Rear Service Access Covers



(8) Developer belt cover
(8) Input bin center cover
(10) Oil pump assembly cover

Printer Operator Panel

Table 590. Printer Operator Panel



Rear View

Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover **(3)**.
4. Loosen the two screws **(4)** at the bottom of the operator panel rear cover **(5)**.
5. Remove the cover by lifting it up off of the mounting plate **(9)**.
6. Unplug connector PJ6004 **(8)** from the buffer card **(7)**.
7. Remove the cable from the cable restraint on the left side of the operator panel. Leave the restraint open to expose the upper left mounting screw.
8. Remove the four screws **(1)** from the mounting plate **(9)** and remove the operator panel assembly **(2)** from the printer cover.
9. Unplug connector PE02 **(13)** from the operator panel card.
10. Locate the plastic tab **(11)** that holds the operator panel in place on the mounting plate and push it out of the slot in the mounting plate **(9)**.
11. Slide the panel **(10)** down and remove from the mounting plate **(9)**.

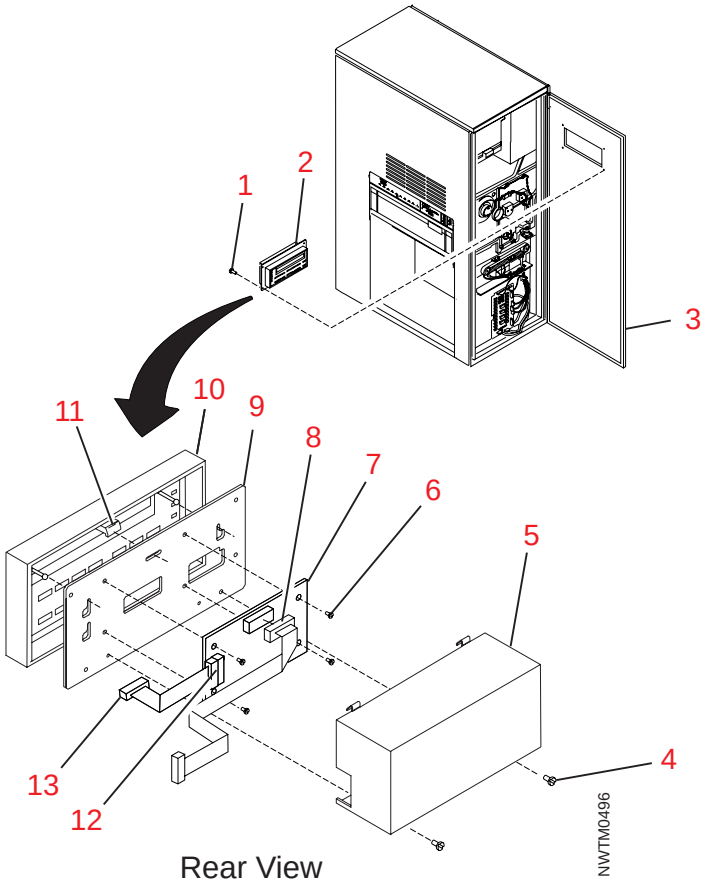
Installation

Reverse the removal procedure.

(continued on next page)

Table 590. Printer Operator Panel (continued)

Printer Operator Panel



Rear View

Buffer Card

1. Open the printer left front cover **(3)**.
2. Loosen the two screws **(4)** at the bottom of the operator panel rear cover **(5)**.
3. Remove the cover by lifting it up off of the mounting plate **(9)**.
4. Unplug connector PE01 **(12)** and PJ6004 **(8)** from the buffer card.
5. Remove four screws **(6)** and remove the buffer card from the mounting plate **(9)**.

Installation

Reverse the removal procedure.

Developer

Developer Removal 2355
Developer Installation & Checks 2360
Bias Contact Brushes 2361
Bias Contact Plate Assembly 2362
Conveyor Roll 2363
Conveyor Roll Rotation Sensor (S113) 2368
Developer Belts 2369
  Mag Brush Motor Drive Belt 2372
  Toner Control Belt 2374
  Toner Feed Belt 2376
  Toner Supply Belt 2378
Developer Cooling Fans (B108 and B109) 2380
Developer Cooling Fans (B110, B111, and B112) 2382
Developer Drain Lever Sensor (S112) 2383
Developer Front Seal 2385
Developer Rear Seal 2386
Developer Run Switch (S107) 2387
Mag Brush Motor (M101) 2389
Mag Brush Rolls A, B, C 2392
Scavenger Roll 2396
Toner Control Card (PCxxx) 2402
Toner Control Motor (M103) 2407
Toner Control Shaft 2410
Toner Control Sensor (L101) 2412
Toner Empty Sensor (S106) 2414
Toner Feed Gate 2417
Toner Feed Motor (M102) 2419
Toner Feed Scraper Blade 2421
Toner Feed Shaft 2425

Toner Hopper Paddle 2428
Toner Inlet and Toner Supply Motor (M112) 2431
Toner Supply Switch (S121) 2438
Developer Adjustments 2440
Conveyor Roll Angle 2440
Conveyor Roll Lift Plate 2441
Developer Housing Vacuum Seal Gap 2444
Developer to PC Drum Gap 2446
Initialize Mag Brush Rolls Position 2451
Mag Brush Rolls to Doctor Blade Gap 2453
Mag Brush C to Scraper Gap 2459
Mag Brush A to Scraper Gap 2462
Mag Brush Angle 2464

Developer Removal

Table 591. Developer

Developer Removal Special Tools

- Drum bag or empty drum box
- Drum clearance gauge (P/N 06F1029)
- Drum shaft extension (P/N 06F1025)
- Lint free cloth (P/N 2108930)
- Vacuum cleaner (P/N 9900735)
- Gauge 0.8 mm 2 each (PN 45G2080)
- Gauge 0.9 mm 2 each (PN 45G2040)
- Gauge 1.0 mm 2 each (PN 45G2039)

Removal Procedure

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Clear the area in front of the printer for the developer rail assembly.
3. Read and save the values in developer mix usage values from counters FFIE and FFIF. To read the developer mix usage values, perform the following procedure from the maintenance panel:
   a. Set the diagnostic switch to **2** .
   b. Key in **3** and press **Enter**.
   c. Key in **01** and press **Enter**.
   d. Key in **FF1E** and press **Enter** to read the low-order byte.
   e. Press **Enter** to read the high-order byte, **FF1F**.

   You will reenter these values into the usage counters at the end of this procedure.
   Note: The developer mix usage counter is automatically reset to zero when you move the developer drain lever from the open to the closed position with power on.
4. Remove the developer mix. See ″Replace Developer Mix″ in the Operator’s Guide for procedure.
5. Shutdown and power off the printer.
6. Perform PC Drum Removal Procedure.
7. Remove the drum shaft extension and store it in the control unit.
8. Remove the toner inlet cover, developer cover, and mirror motor amplifier cover.

Table 591. Developer (continued)

(continued on next page)

9. If the Enhanced Toner Loading Feature is installed, remove the toner supply motor cover **(6)**.

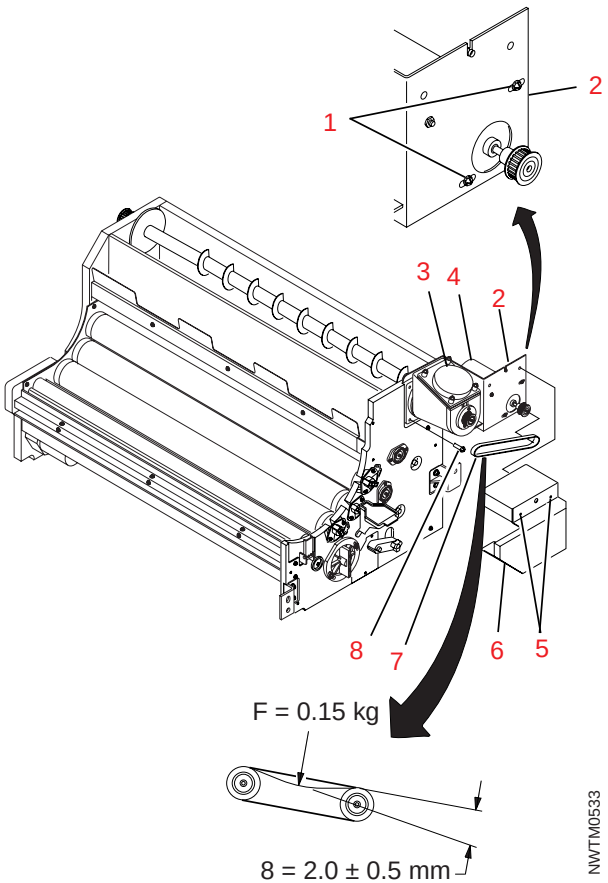


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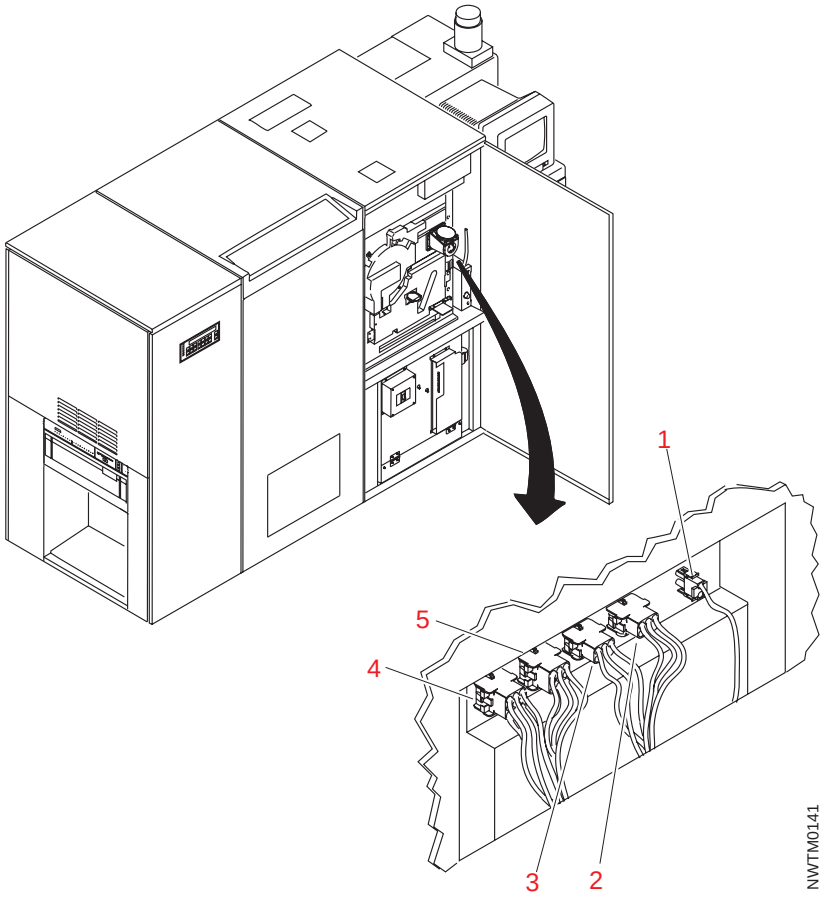
Table 591. Developer (continued)



10. Disconnect connectors PJ113 **(4)**, PJ114 **(5)**, PJ185 **(1)**, PJ193 **(3)**, and PJ196 **(2)** on the right side of the developer.

Attention: To prevent damage to either cables or connectors while you remove the developer, ensure that the connectors are hanging out away from the developer.

(continued on next page)

Table 591. Developer (continued)

11. If the Enhanced Toner Loading Feature is installed, and disconnect connectors PJ1015 **(1)** and PJ1016 **(2)**.

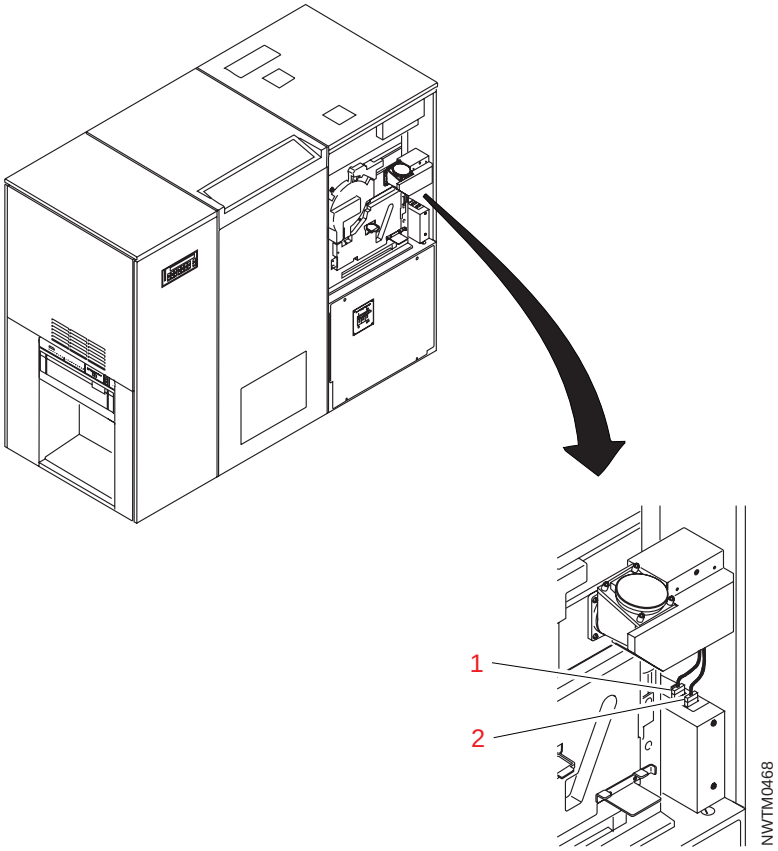


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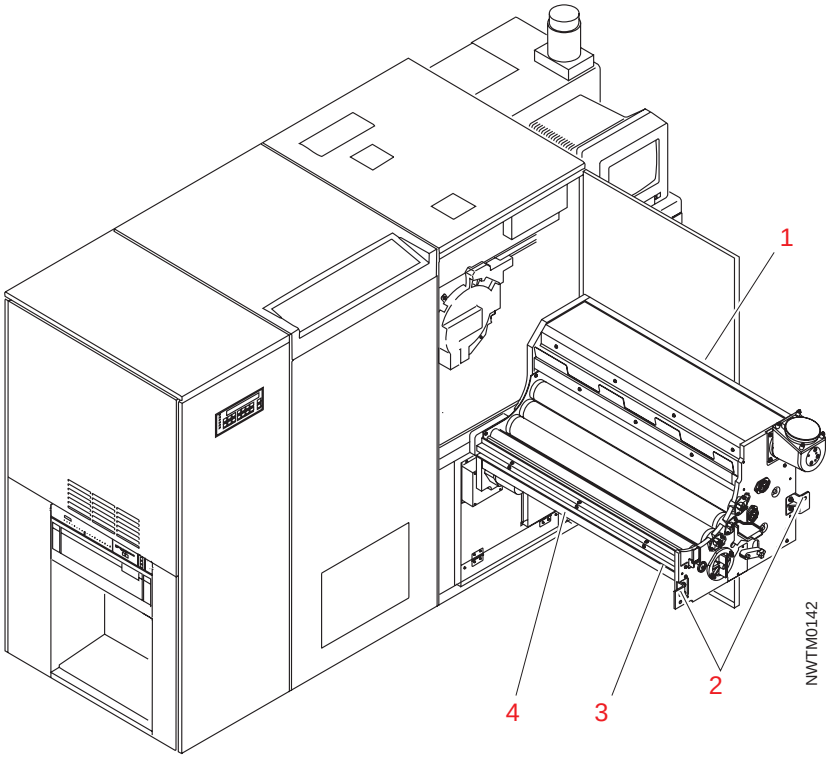
Table 591. Developer (continued)



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

12. Remove the two screws **(2)**, pull the developer **(1)** out on the developer slide rail assembly **(4)**.
13. Remove the six screws **(3)** (three on the left rail and three on the right rail) that fasten the developer to the rail assembly.
14. Lift the developer off the rails and remove it from the printer. Set the developer on a solid, clean service area.
15. Remove the belt cover from the rear of the developer.
16. Inspect the belts for wear and tightness. Inspect the developer for leaking toner or developer mix.
17. Remove paper dust and spilled toner.
18. Use a lint-free cloth to clean the developer rails, rollers, jack screws, and pads.

Developer Installation & Checks

Installation

1. Reverse the removal procedure to install the developer into the printer.
2. Perform the Developer Checks and Adjustments. After you complete the checks continue with this procedure.
3. Install the PC Drum.
4. Install the drum cover.
5. Power on the printer.
6. Reenter the developer mix usage values if reusing the old mix.
   a. Set the diagnostic switch to **2** .
   b. Key in **3** and press **Enter**.
   c. Key in **F1** and press **Enter**.
   d. Key in **FF1E** and press **Enter**.
   e. Key in the correct value for byte **1E** and press **Enter**.
   f. Key in the correct value for byte **1F** and press **Enter**.
7. If the Enhanced Toner Loading Feature is installed, press the **Toner Supply** pushbutton and ensure that the toner supply motor and toner hopper auger are rotating properly.

CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Developer Checks and Adjustments

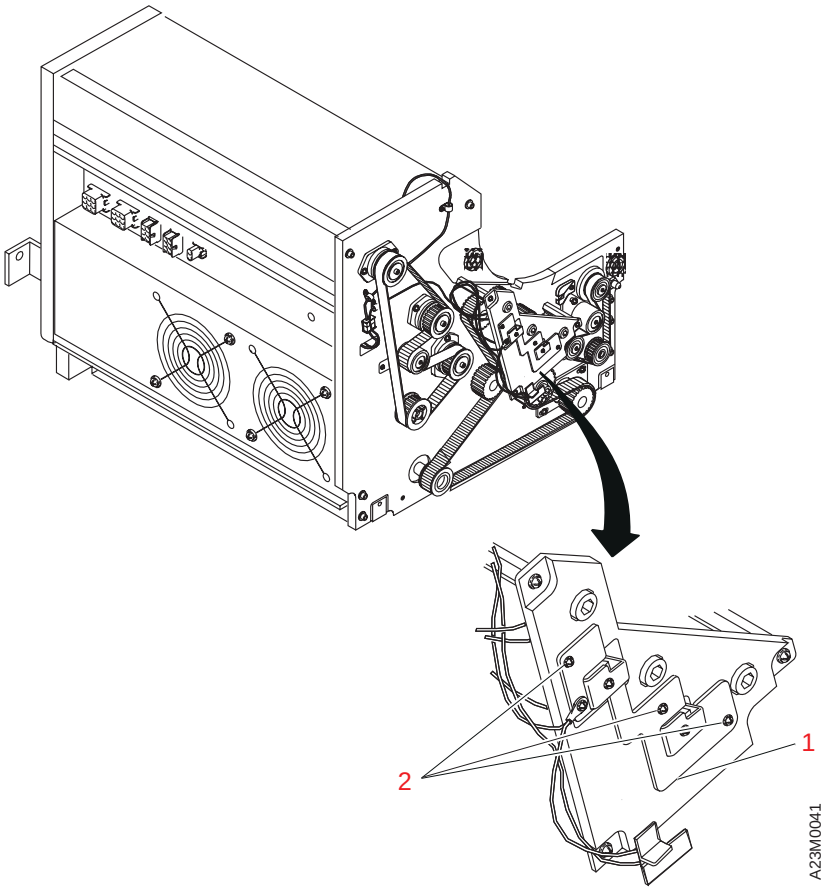
1. Ensure that the three mag roll punch marks (high point) are aligned towards the PC drum before you check PC drum clearances.
2. Check the following PC Drum & Developer Clearances/Gaps, perform adjustments as necessary in this order
   a. Mag Brush Rolls to Doctor Blade Gap
   b. Mag Brush C to Scraper Gap
   c. Developer Housing Vacuum Seal Gap
3. Ensure that the PC Drum & Developer Clearances/Gaps (front and rear) are as shown in the tables. Record the clearances for reference if adjustment is necessary.
4. If you are installing a new developer or new toner control sensor, perform the adjustment procedure for the particular card in your printer. See Toner Control Card (PCxxx).

Verification

1. Run Print Samples to verify print quality.

Bias Contact Brushes

Table 592. Bias Contact Brushes



Special Tools Required

Digital voltmeter

Removal

Note: Do not remove the developer to perform this procedure.

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Fine Filter Case.
4. Remove the belt cover from the rear of the developer.
5. Remove the three screws **(2)** and remove the bias brush contact plate **(1)**.
6. Remove the bias brushes.

Installation

1. Clean the mag roll contact brush armatures before you reinstall the bias brushes.
2. Reverse the removal process.

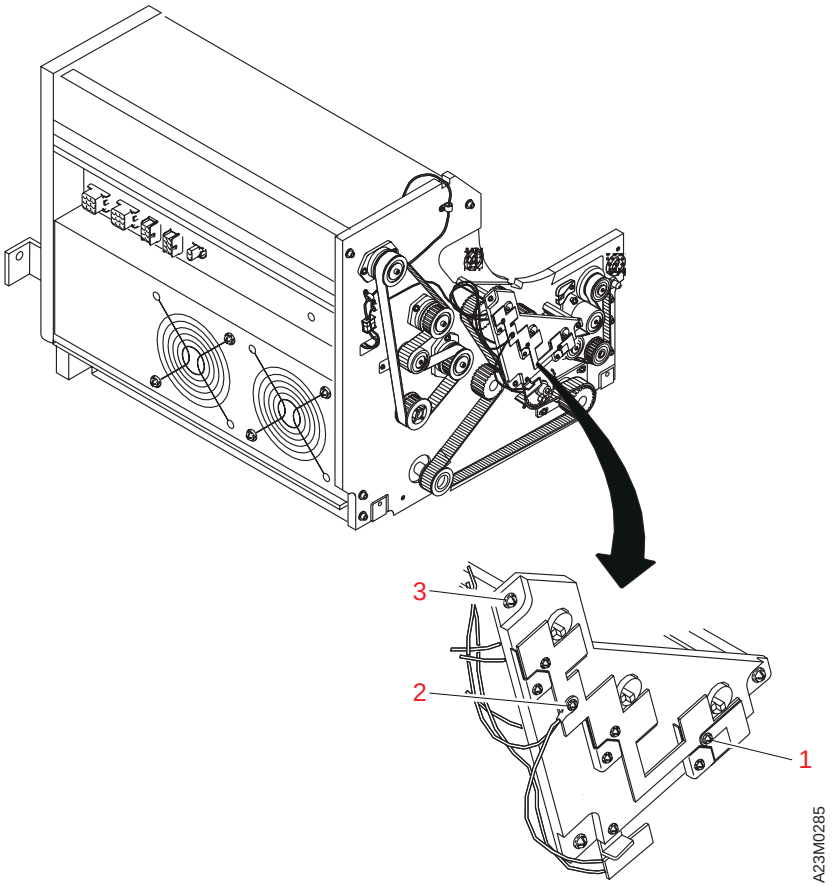
Attention: Do not force the bias brushes onto the mag roll contact shafts because the brushes are carbon and can be broken.

Check

1. Use a digital voltmeter to ensure that there is continuity between the mag brush rolls and the wire supplying the bias voltage.
2. Run Print Pack to verify print quality.

Bias Contact Plate Assembly

Table 593. Bias Contact Plate Assembly



Special Tools Required

Digital voltmeter

Removal

Note: Do not remove the developer to perform this procedure.

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Fine Filter Case.
4. Remove the belt cover from the rear of the developer.
5. Remove the bias contact wire **(2)**.
6. Remove the screw **(1)** holding the strap connecting the mag brush bias to the mag brush roll C scraper blade.
7. Remove the three screws **(3)** and remove the bias contact plate assembly.
8. Remove the Conveyor Roll Rotation Sensor (S113), if required.

Installation

Reverse the removal process.

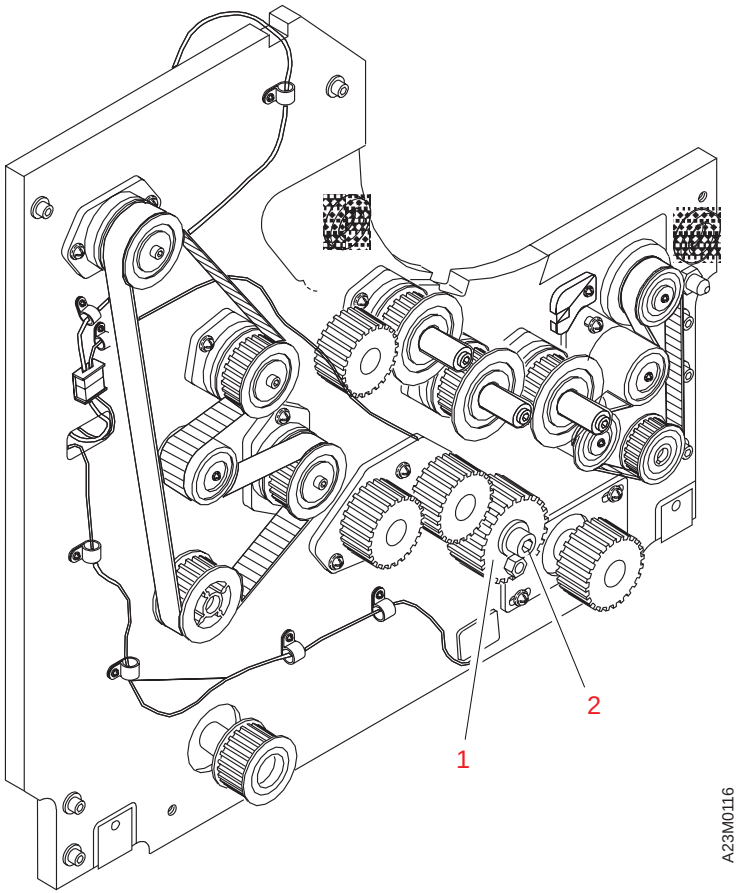
Attention: Do not force the bias brushes onto the mag roll contact shafts because the brushes are carbon and can be broken.

Check

1. Use a digital voltmeter to ensure that there is continuity between the mag brush rolls and the wire supplying the bias voltage.
2. Run Print Pack to verify print quality.

Conveyor Roll

Table 594. Conveyor Roll



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

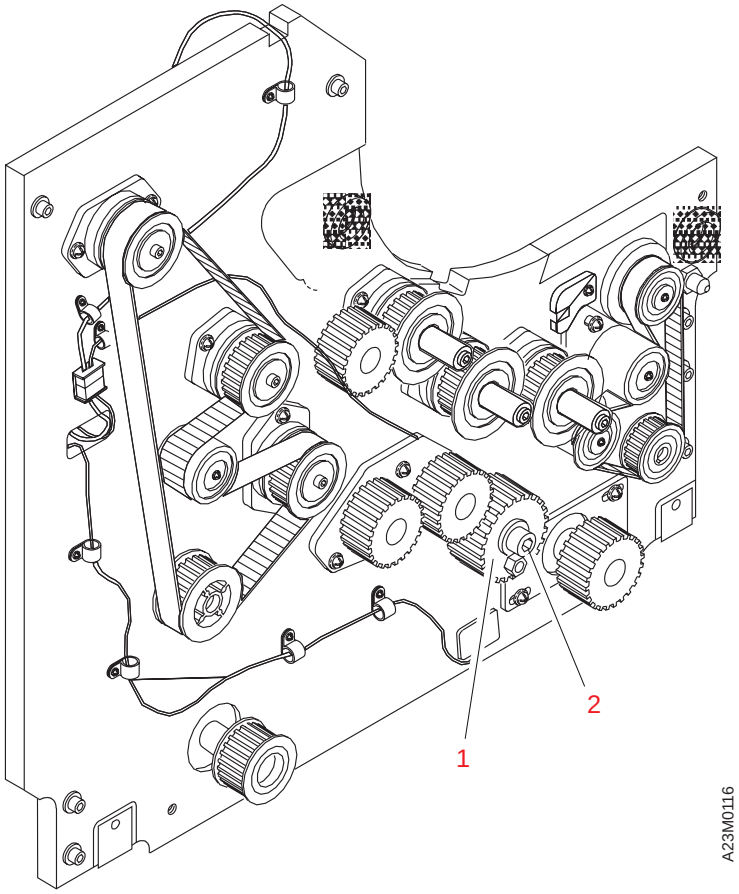
- Digital voltmeter
- Push-pull scale (PN 0460870)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.

(continued on next page)

Table 594. Conveyor Roll (continued)



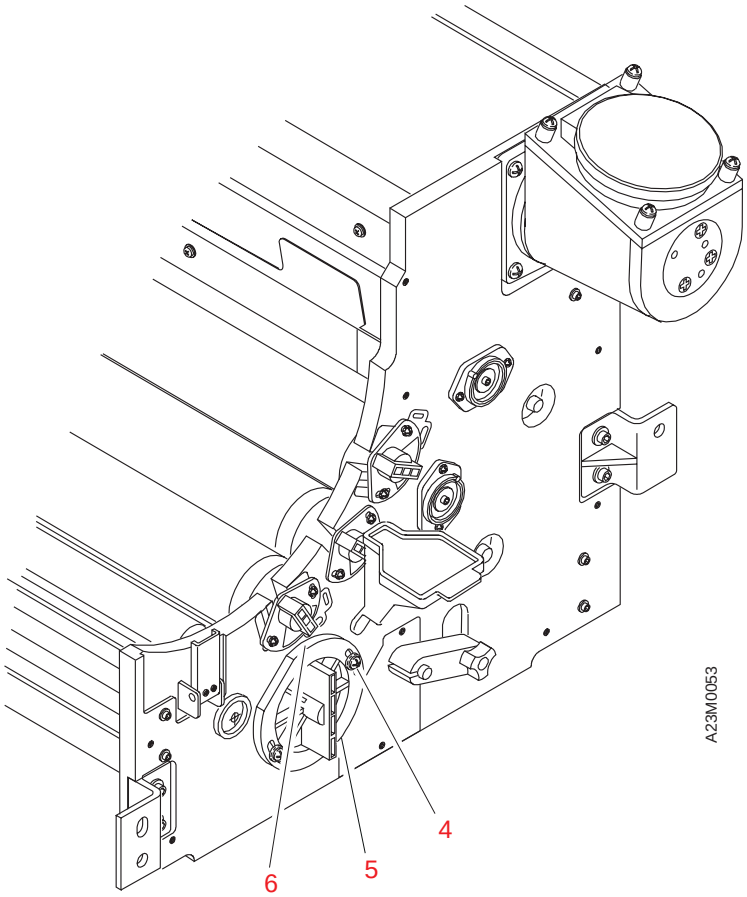
2. Follow the Developer Removal procedures and place it on a solid clean service area.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

3. Remove the mag brush drive belt. (See Developer Belts.)
4. Remove the screw **(2)**.
5. Remove the conveyor roll pulley **(1)** and key. Be careful not to lose the key.

(continued on next page)

Table 594. Conveyor Roll (continued)



6. Remove the two screws **(4)** and washers. Pull the conveyor roll and flange **(5)** out the front of the developer.

Attention: The surface of the conveyor roll and the mag brush is made of a very soft material and will dent or scratch easily.

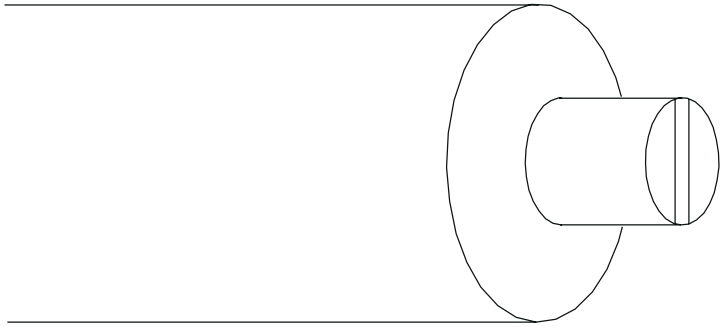
7. If required, remove the two screws and remove the rear conveyor roll bearing assembly.

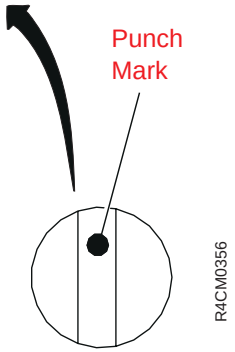
Installation

1. Clean developer mix from the screws, threaded holes, both ends of the conveyor roll shaft, and the large openings at both ends of the developer.

(continued on next page)

Table 594. Conveyor Roll (continued)

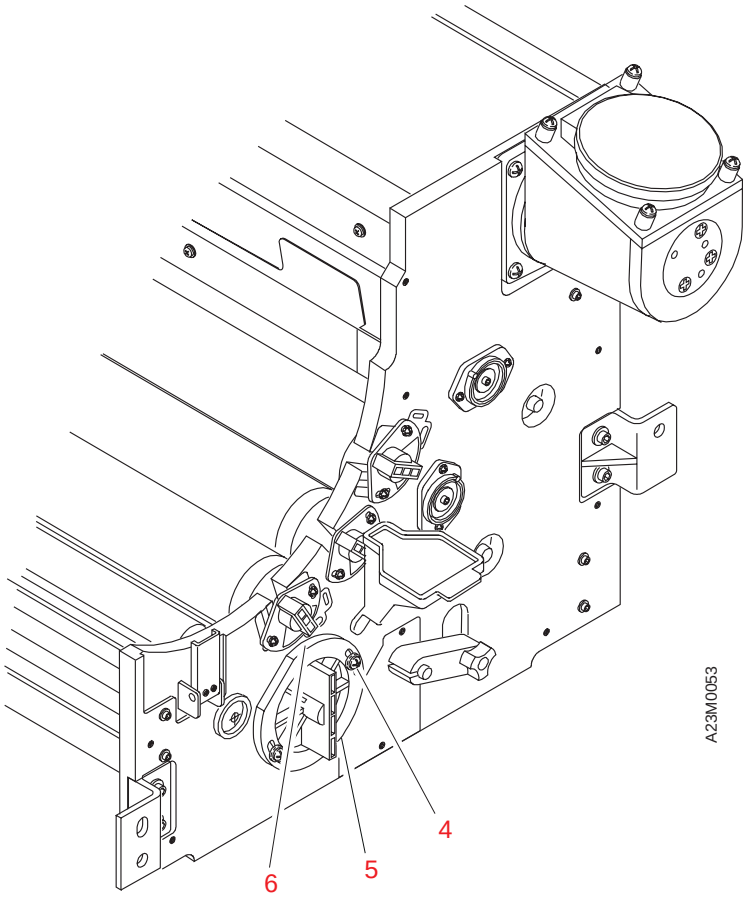




2. Ensure that the punch mark located inside the slot on the front end of the conveyor roll shaft faces upward.
3. Install the conveyor roll into the developer.
4. Slide the conveyor roll shaft through the rear conveyor roll bearing cavity.
5. Clean developer mix or toner from the rear of the shaft.
6. Reinstall the rear conveyor roll bearing assembly and slide it into position against the developer frame. Tighten the two screws.

(continued on next page)

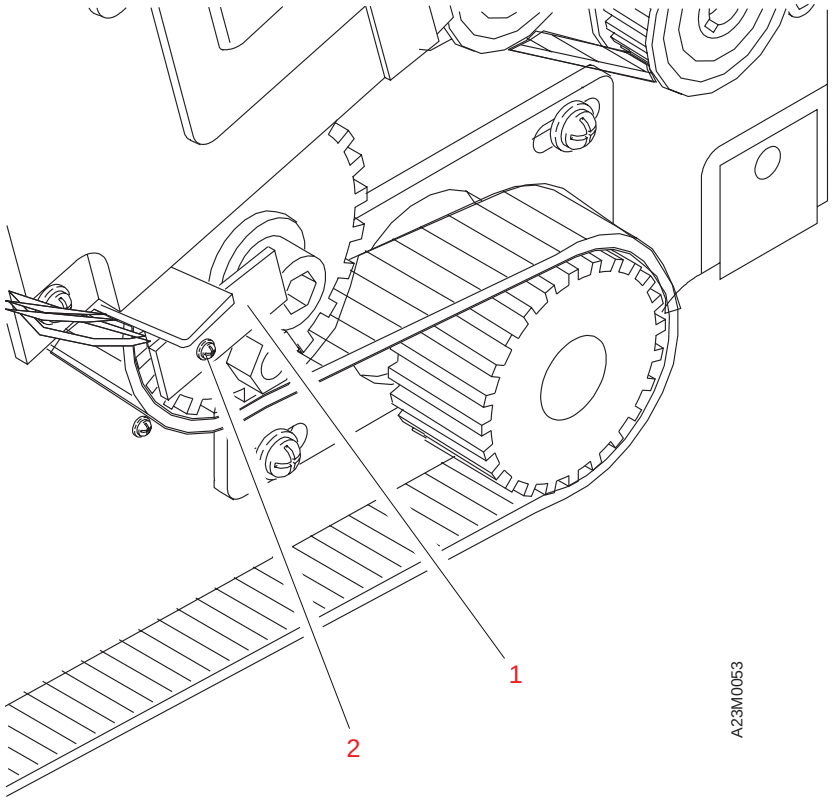
Table 594. Conveyor Roll (continued)



7. Reinstall the conveyor roll flange **(5)** and ensure that the +0° mark on the conveyor roll flange scale lines up with the punch mark **(6)** on the developer front plate.
8. Reinstall the conveyor roll pulley and key.
9. Install the bias brush contact assembly. Tighten the two screws.
10. Install the mag brush drive belt.
11. Perfom the mag brush drive belt adjustment.
12. Ensure that the mag brush punch marks are all aligned towards the PC drum.
13. Install the Bias Contact Plate Assembly.
14. Use the digital voltmeter to ensure that there is continuity between the bias brushes and the mag brush rolls.
15. Install the developer belt cover.
16. Follow the Developer Installation & Checks procedures.

Conveyor Roll Rotation Sensor (S113)

Table 595. Conveyor Roll Rotation Sensor (S113)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Fine Filter Case.
4. Remove the belt cover from the rear of the developer.
5. Remove the screw **(2)** and remove the sensor **(1)**.
6. Remove any cable ties. Disconnect connector PJ107.

Installation and Adjustment

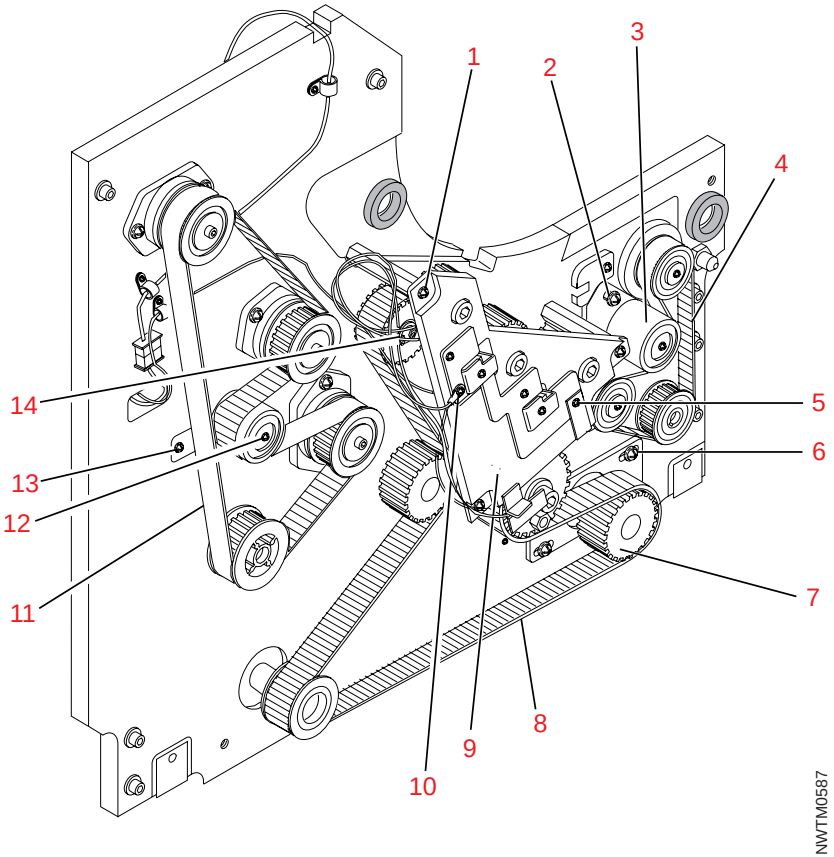
1. Reverse the removal procedure.
2. Ensure that there is a clearance of at least 1 mm (0.040 in.) between the conveyor roll and the magnet attached to the conveyor roll drive pulley.
3. If the clearance is not within the specified range, ensure that all pulleys and bearings are seated correctly. Check the clearance again.

Check

1. Power on the printer.
2. Run Encoder Routine A9 to ensure that the sensor is working correctly.
3. Run Print Pack to verify print quality.

Developer Belts

Table 596. Developer Belts



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

- Push-pull scale (PN 0460870)

Removal

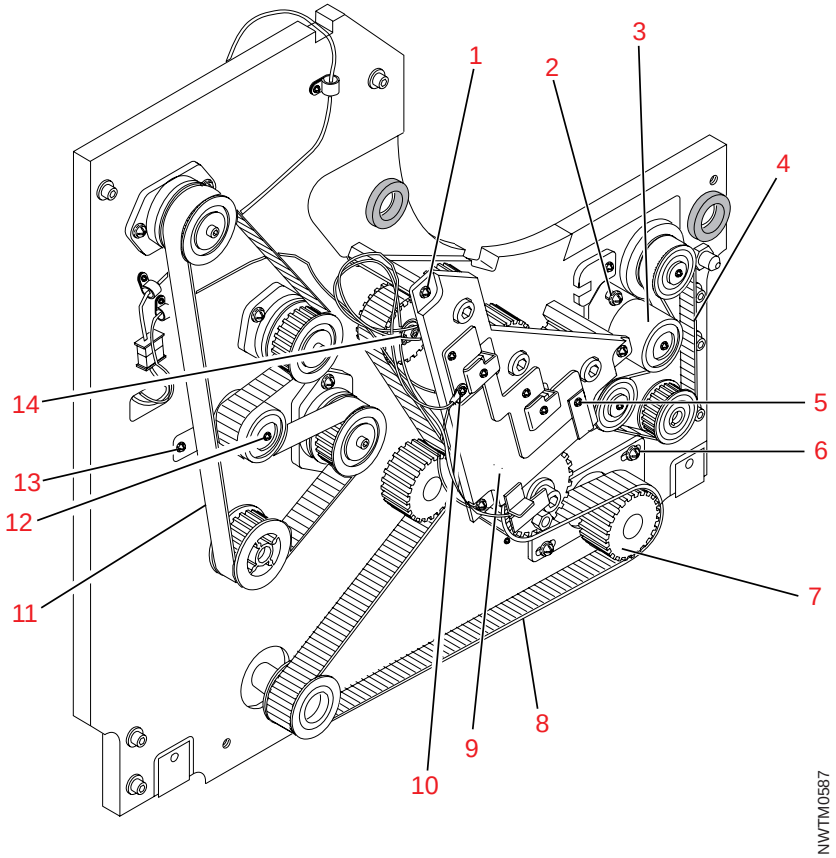
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. You can remove developer belts with the developer in or out of the printer.

   To remove belts with the developer in the printer, go to step 8.

   To remove belts with the developer out of the printer, go to step 3.
3. Follow the PC Drum Removal procedure.

(continued on next page)

Table 596. Developer Belts (continued)



Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Follow the Developer Removal Procedure.
5. Go to the belt removal procedures:
   - Mag Brush Belt Removal
   - Toner Control Belt Removal
   - Toner Feed Belt Removal
   - Toner Supply Belt Removal
6. Follow the Developer Installation & Checks Procedures.

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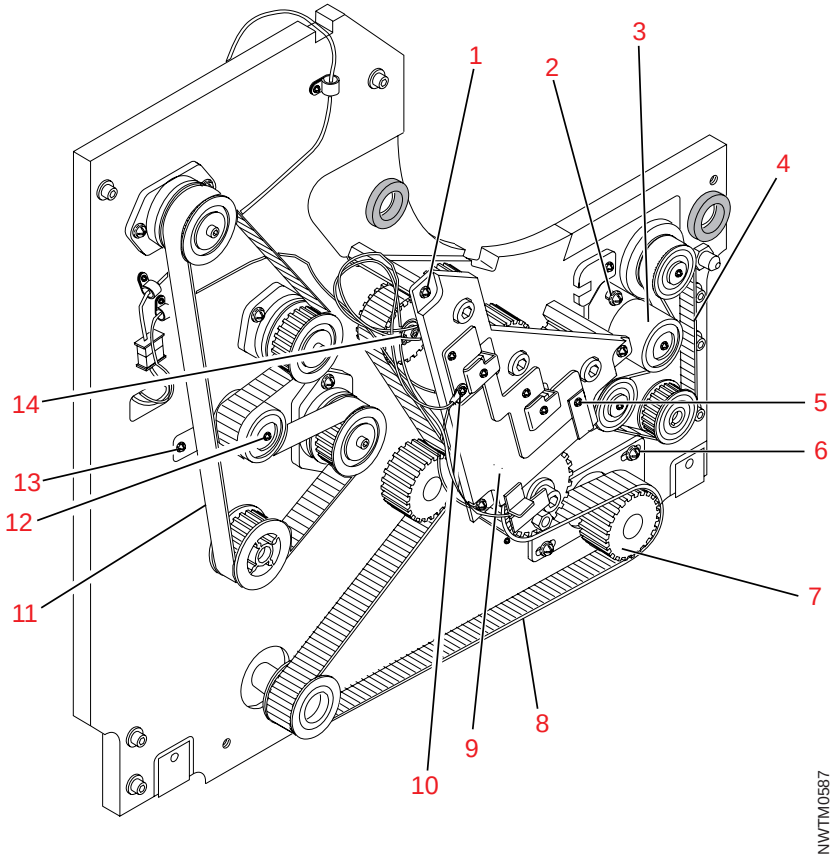
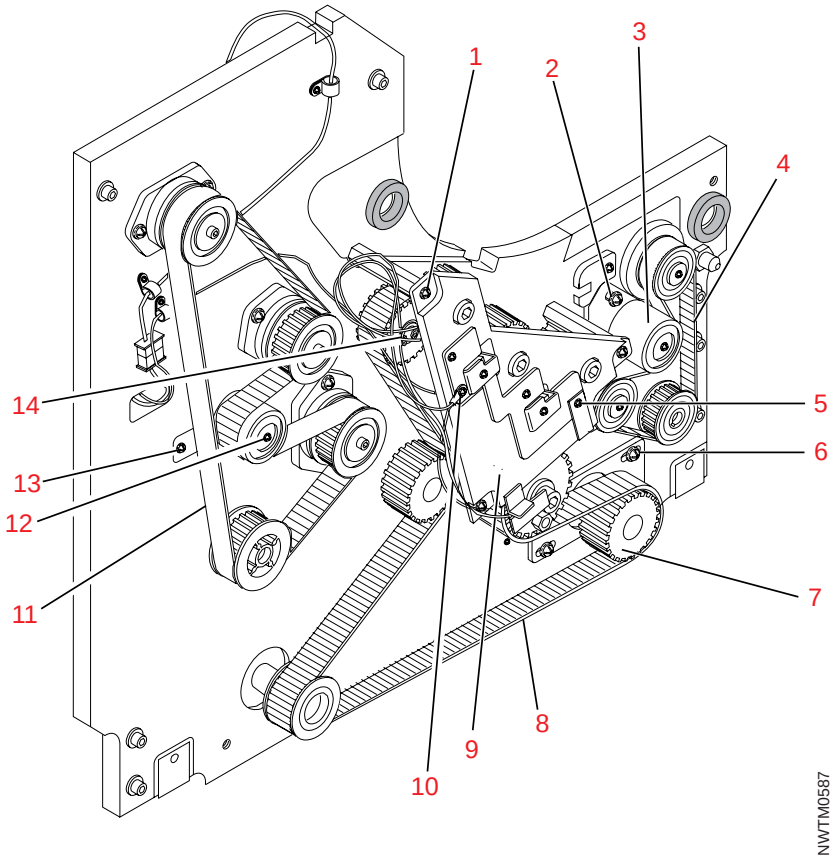
Table 596. Developer Belts (continued)



7. Shutdown and power off the printer.
8. Leave the developer in the printer.
9. Remove the Fine Filter Case.
10. Remove the belt cover from the rear of the developer.
11. Go to the belt removal procedures:
    - Mag Brush Belt Removal
    - Toner Control Belt Removal
    - Toner Feed Belt Removal
    - Toner Supply Belt Removal

Mag Brush Motor Drive Belt



Belt Removal

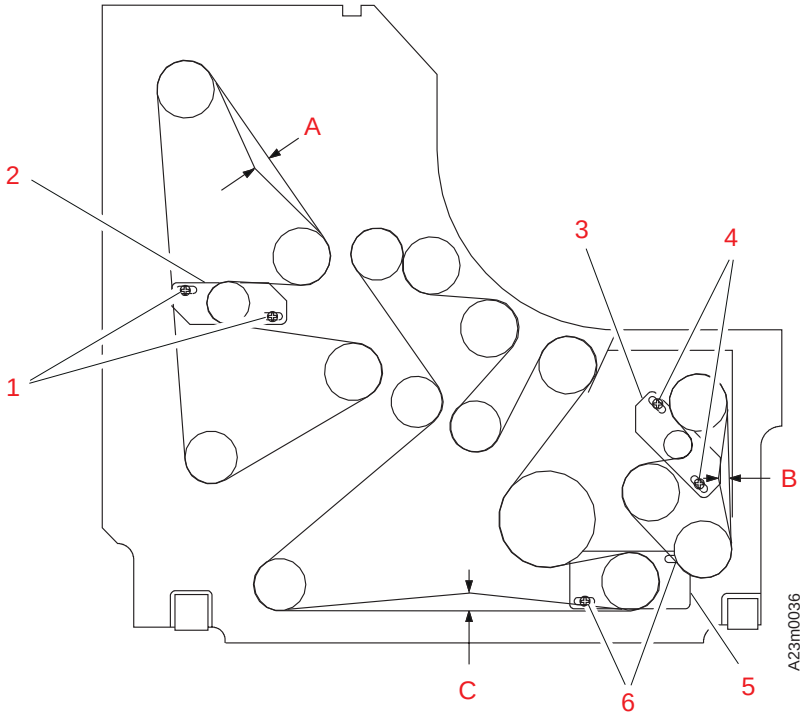
1. Remove the screw **(10)** holding the bias wire to the bias contact assembly.
2. Remove screw **(5)** holding the bias contact strip.
3. Remove the screws **(1)** holding the bias contact assembly **(9)** to the developer and remove the bias contact assembly.
4. Loosen the screws **(6)** holding the mag brush belt idler bracket and pulley **(7)**.
5. Remove c-clip **(14)** and pulley.
6. Remove the mag brush belt **(8)**.

Installation

Reverse the removal procedure.

Note: Ensure that the three mag roll punch marks (high point) are aligned towards the PC drum when installing the mag brush belt.

(continued on next page)

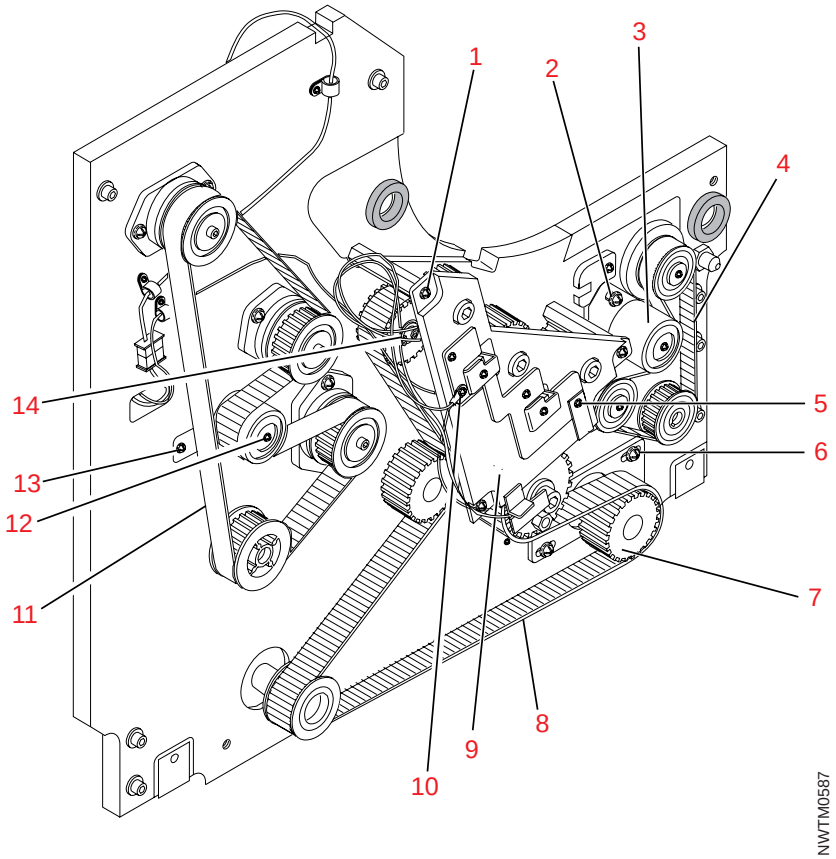


Mag Brush Motor Drive Belt Adjustment

1. Loosen the two screws **(6)** to move the idler pulley plate **(5)** to tighten the mag brush belt.

   Adjust the mag brush belt to deflect **(C)** 0.5 to 1.0 mm (0.020 to 0.040 in.) when 0.5 kg (1.1 lb) of force is applied to the belt.
2. Tighten the two screws **(6)**.
3. Recheck the three mag rolls to ensure all punch marks are still aligned toward the PC.

Toner Control Belt



Toner Control Belt Removal

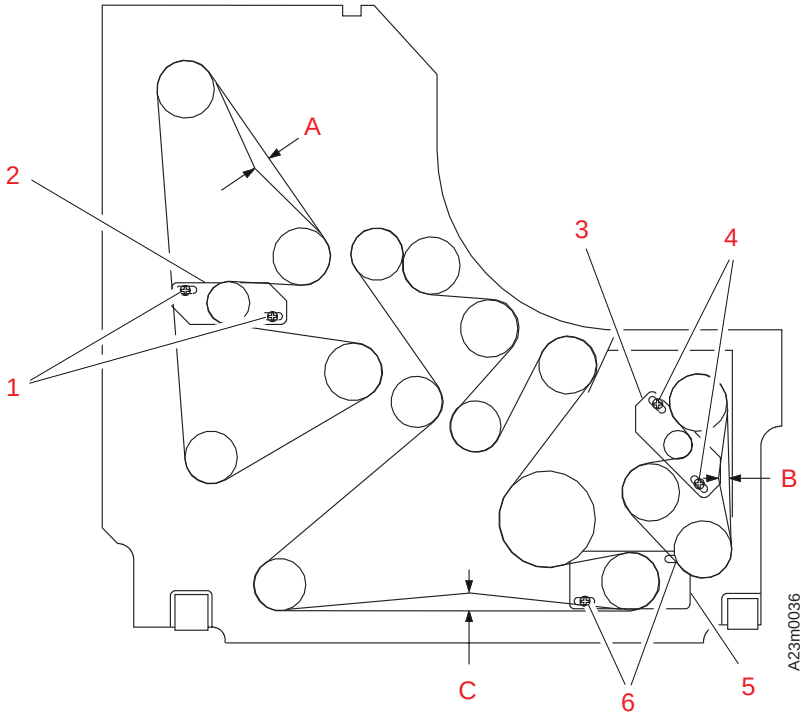
1. Loosen the screws **(2)**, to loosen the idler pulley and bracket **(3)**.
2. Remove the toner control belt **(4)**.

Installation

Reverse the removal procedure.

Note: Ensure that the three mag roll punch marks (high point) are aligned towards the PC drum when installing the mag brush belt.

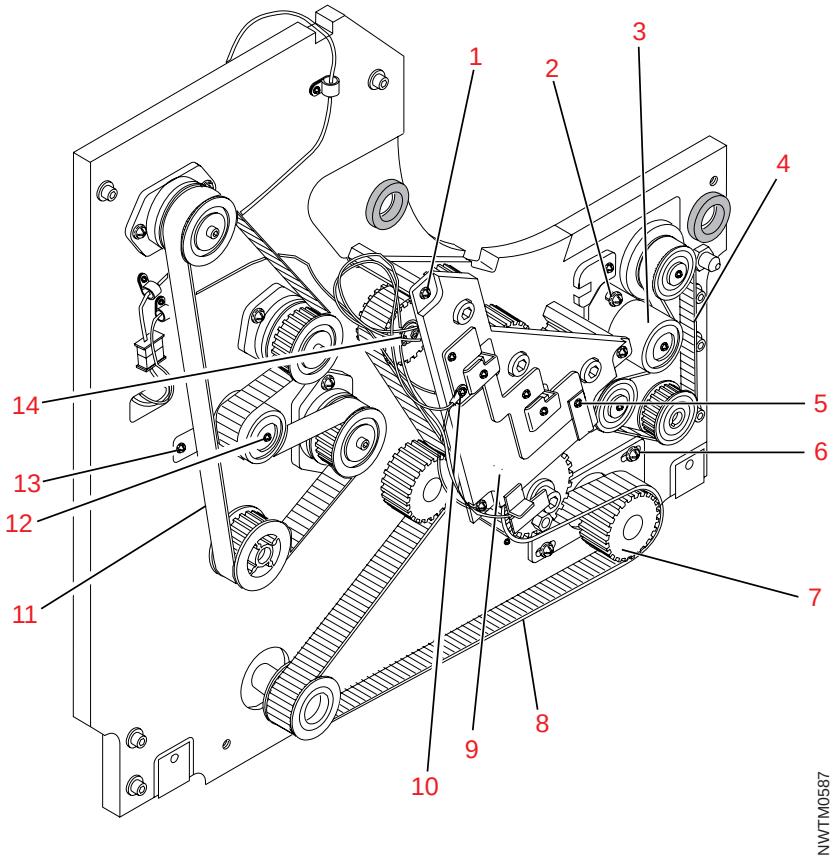
(continued on next page)



Toner Control Belt Adjustment

1. Loosen the screws **(4)** to move the idler pulley plate **(3)** to tighten the toner control belt. Adjust the toner control belt to deflect **(B)** 1.3 mm (0.052 in.) when a force of 0.1 kg (0.22 lb) is applied to the center of the belt.
2. Tighten the screws **(4)**.

Toner Feed Belt



Toner Feed Belt Removal

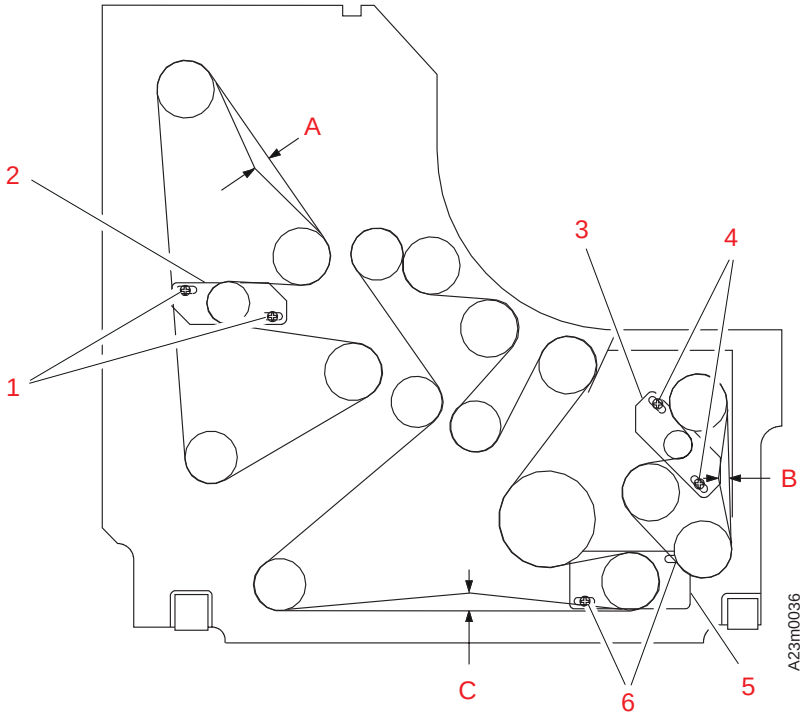
1. Loosen the two screws **(13)** to loosen the idler pulley and bracket **(12)**.
2. Remove the toner feed belt **(11)**.

Installation

Reverse the removal procedure.

Note: Ensure that the three mag roll punch marks (high point) are aligned towards the PC drum when installing the mag brush belt.

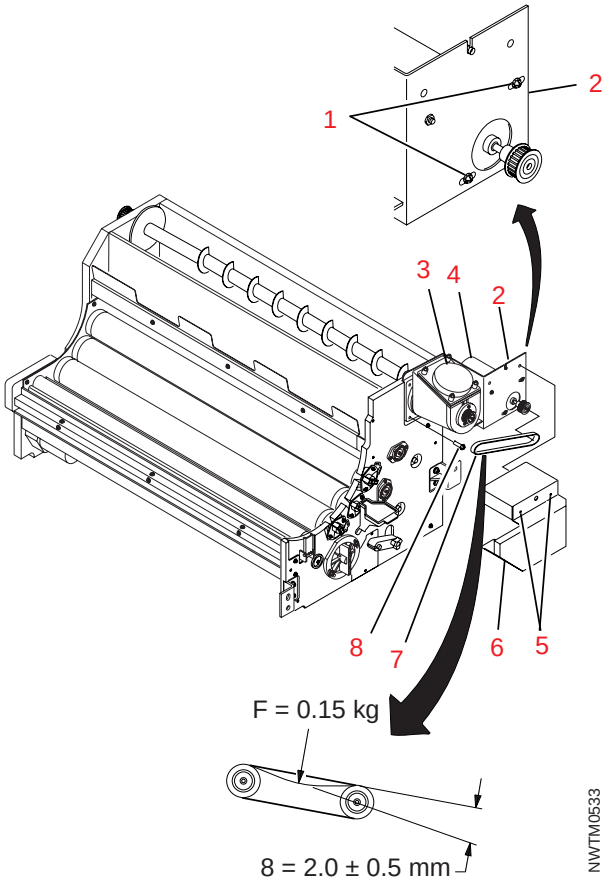
(continued on next page)



Toner Feed Belt Adjustment

1. Loosen the screws **(1)** to move the idler pulley plate **(2)** to tighten the toner feed belt. Adjust the toner feed belt to deflect **(A)** 2.6 mm (0.104 in.) when a force of 0.34 kg (0.75 lb) is applied to the center of the belt.
2. Tighten the two screws **(1)**.

Toner Supply Belt



Toner Supply Belt Removal

Note: The toner supply belt is only present if the Enhanced Toner Loading Feature is installed.

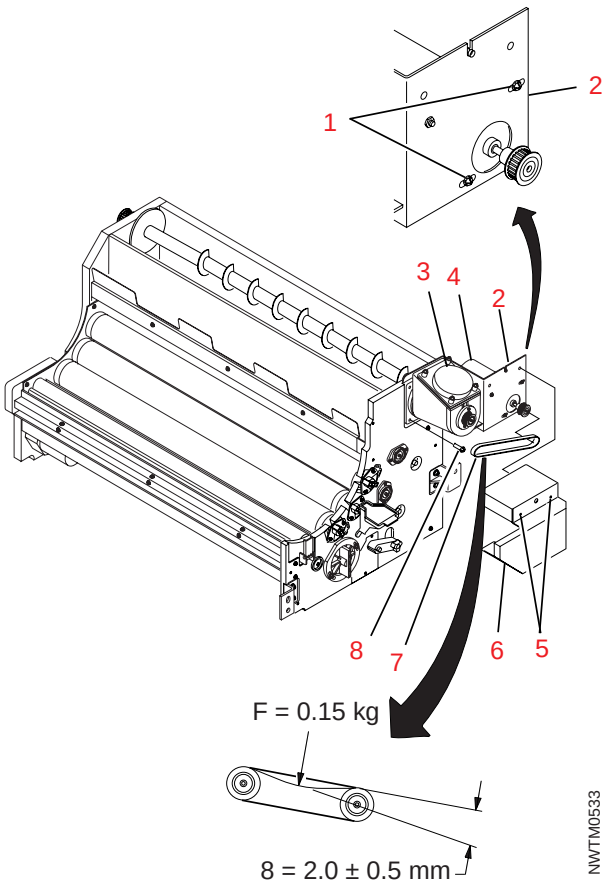
1. Remove the toner supply motor cover **(6)** by removing screws **(5)**.
2. Loosen the toner supply motor screws **(1)**, slide the motor **(4)** towards the toner inlet, and remove the toner supply belt **(7)**.

Installation

Reverse the removal procedure.

Note: Ensure that the three mag roll punch marks (high point) are aligned towards the PC drum when installing the mag brush belt.

(continued on next page)

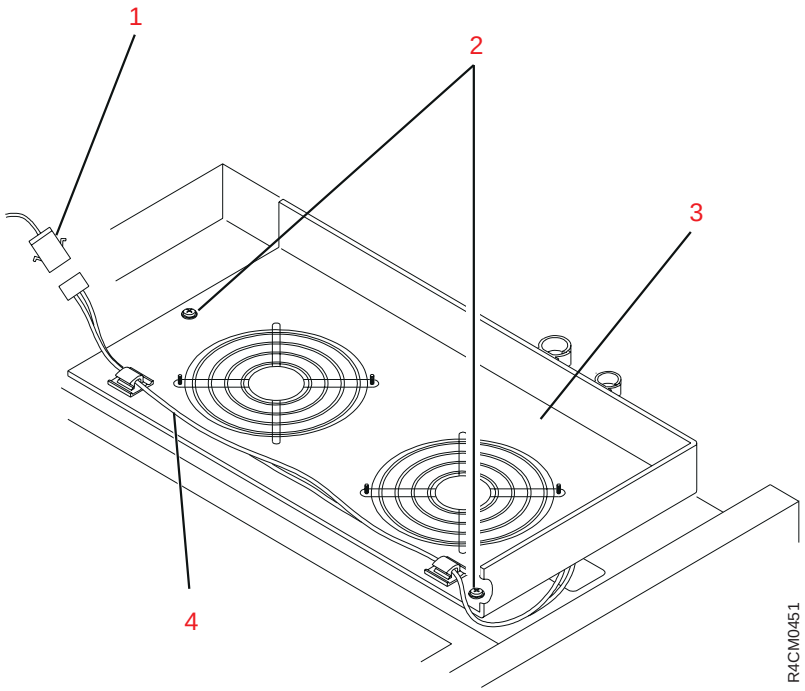


Toner Supply Belt Adjustment

1. Loosen the toner supply motor mounting screws **(1)** and adjust the position of the motor **(4)** to get the correct belt tension .
2. Adjust the toner supply belt to deflect 2.0 mm ± 0.5 mm when a force of 0.15 kg is applied to the center of the belt..

Developer Cooling Fans (B108 and B109)

Table 597. Developer Cooling Fans (B108 and B109)



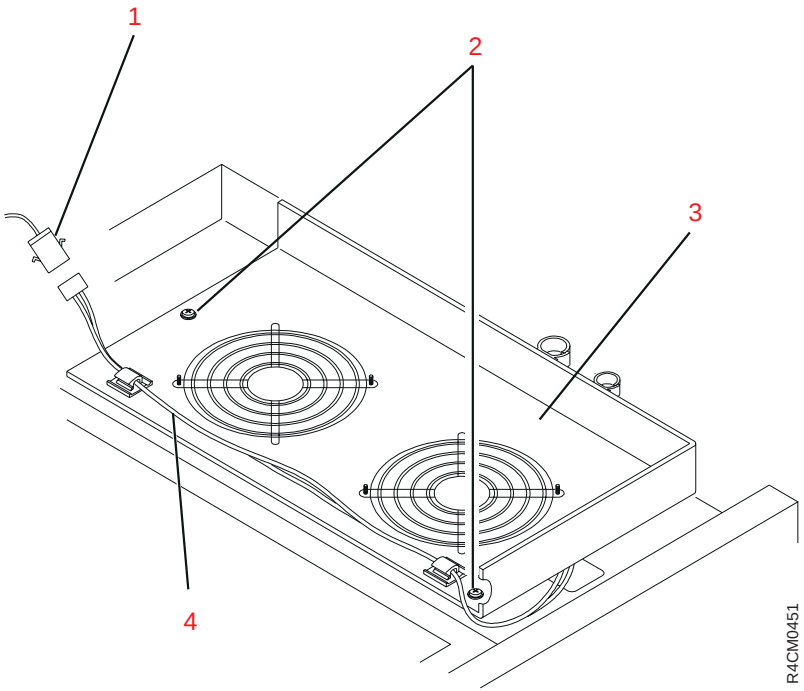
Removal

Note: Fans B108 and B109 are located inside the developer cavity.

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and leave it on the rails.
3. Remove the Fine Filter Case.
4. Disconnect connector PJ192 **(1)** and remove the cable **(4)**.
5. Remove the two screws **(2)** from the fan assembly **(3)**.

(continued on next page)

Table 597. Developer Cooling Fans (B108 and B109) (continued)



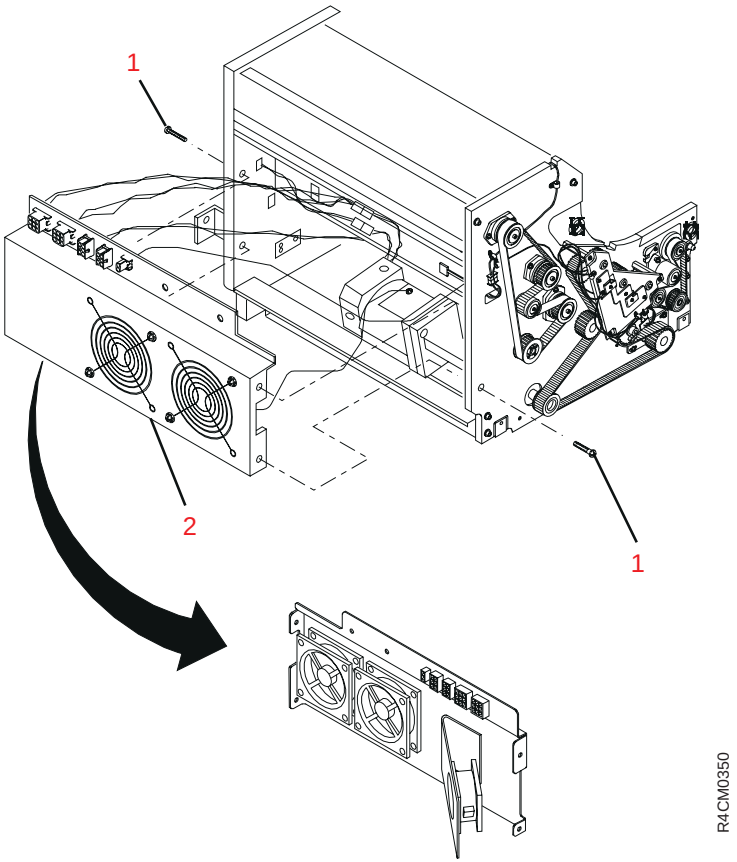
6. Slowly lift the fan and bracket assembly, being careful not to get them tangled with the cables at the back of the assembly.
7. Remove the cables from the cable clamps and remove the fan from the assembly **(3)**.
8. Remove the two screws on the fans, being careful not to drop the nuts.
9. Disconnect the plugs, and remove the fans.

Installation

1. Reverse the removal procedure to install the developer cooling fans. Do not install the developer.
2. Power on the printer.
3. Ensure that the fans are working correctly.
4. Perform the Developer Installation & Checks Procedures.

Developer Cooling Fans (B110, B111, and B112)

Table 598. Developer Cooling Fans (B110, B111, and B112)



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

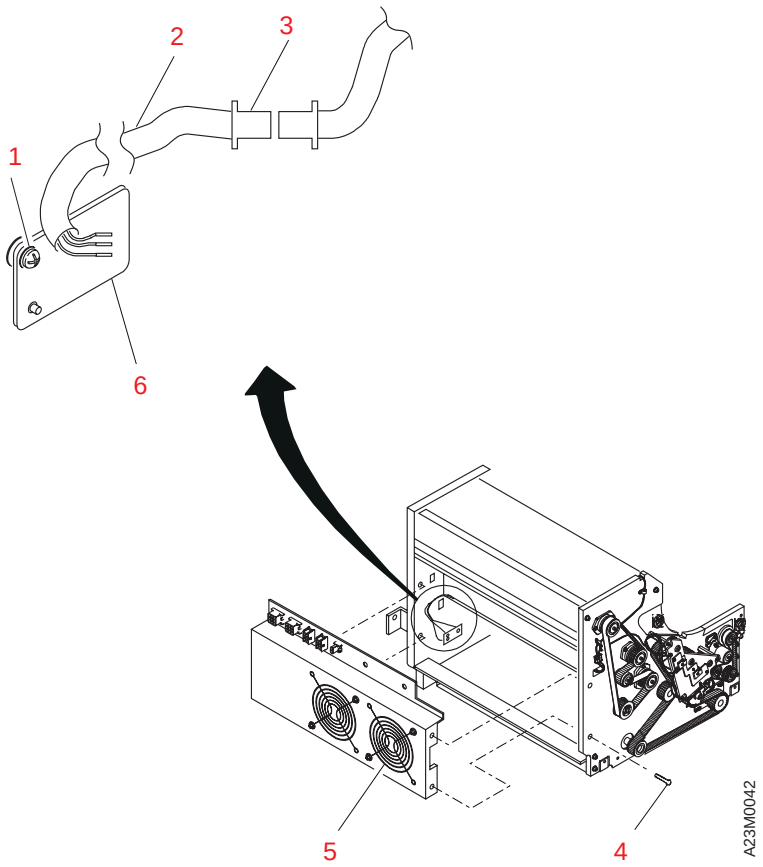
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure.
3. Remove the four screws **(1)** (two on each side of the developer), and remove the fan assembly **(2)**.
4. Remove the two screws on the fan, being careful not to drop the nuts from the screws on B110 or B111.
5. Disconnect the plug from the fan and remove the fan from the assembly **(2)**.
6. Follow steps 3 through 5 for each fan.

Installation

1. Reverse the removal procedure to install the developer cooling fans
2. Perform the Developer Installation & Checks Procedures.

Developer Drain Lever Sensor (S112)

Table 599. Developer Drain Lever Sensor (S112)



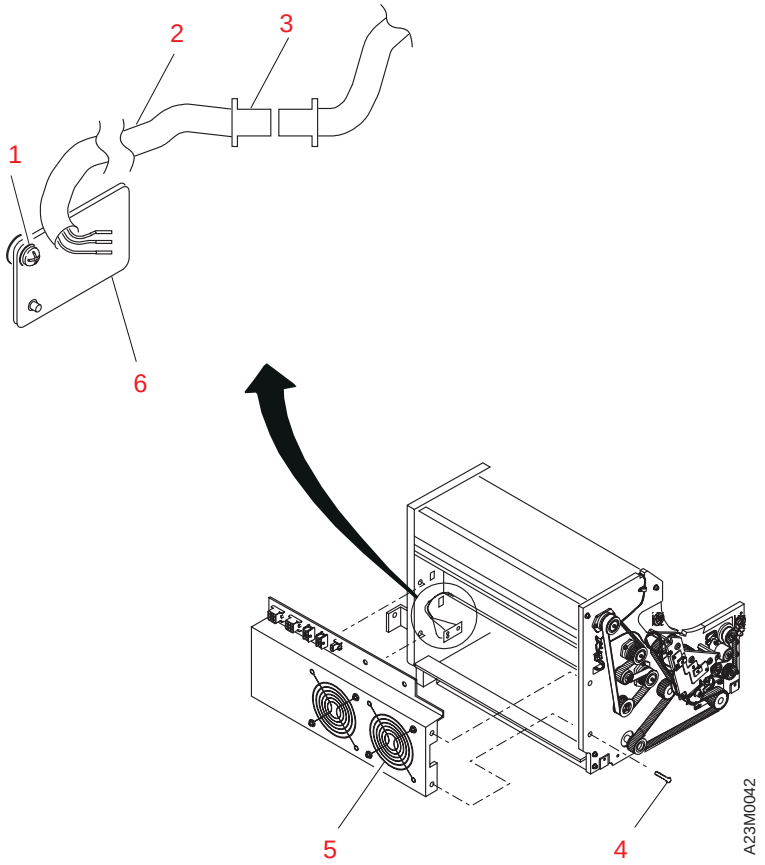
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure.
3. Remove the four screws **(4)** (two in front and two in back), remove the developer fan bracket assembly **(5)**.
4. Disconnect connector PJ108 **(3)**.
5. Remove the cables from the cable clamps **(2)**.
6. Remove screw **(1)** and remove the developer drain lever sensor **(6)**.

Table 599. Developer Drain Lever Sensor (S112) (continued)

Developer Drain Lever Sensor



Installation

Reverse the sensor removal procedure.

Note: Do not add developer mix until after you have completed all checks.

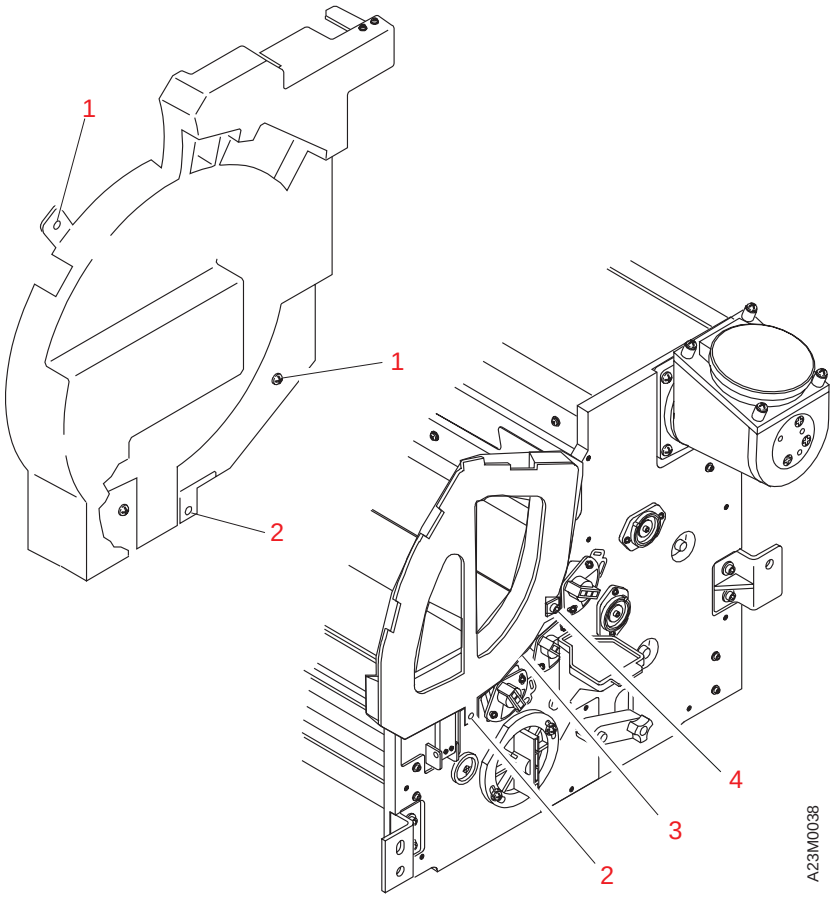
Perform the Developer Installation & Checks Procedures.

Check

1. Power on the printer.
2. Run Sensor Routine 5A to ensure that the sensor works correctly.
3. Run Print Pack to verify print quality.

Developer Front Seal

Table 600. Developer Front Seal



Removal

Note: Do not remove the developer to perform this procedure.

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove two screws **(1)** and remove the drum cover.
4. Remove the screw **(2)** and remove the developer front seal **(3)**.

Installation

Reverse the removal procedures.

Notes:

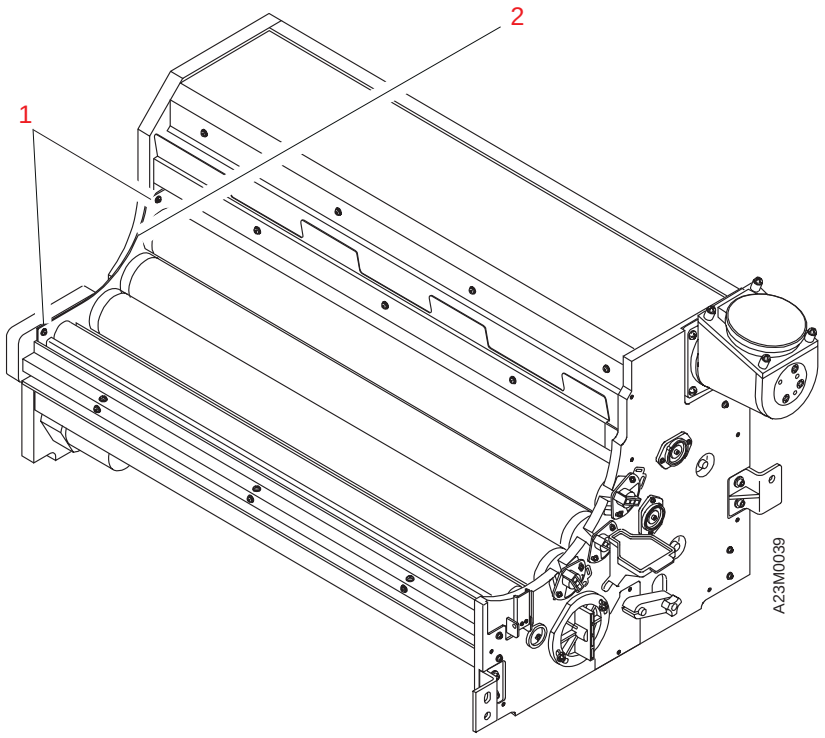
1. Ensure that the slot on the lower right side of the seal is positioned behind the flange of the shoulder screw **(4)**.
2. Ensure that the foam on the seals is correctly seated in the slots on the front of the developer. This prevents toner and developer mix leakage.

Check

Run Print Pack to verify print quality.

Developer Rear Seal

Table 601. Developer Rear Seal



Special Tools Required

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- IBM vacuum cleaner (PN 9900735)

Removal

Note: Do not remove the developer to perform this procedure.

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the PC Drum Removal Procedure.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Loosen the two screws **(1)** and remove the developer rear seal **(2)**.

Installation

Reverse the removal procedure.

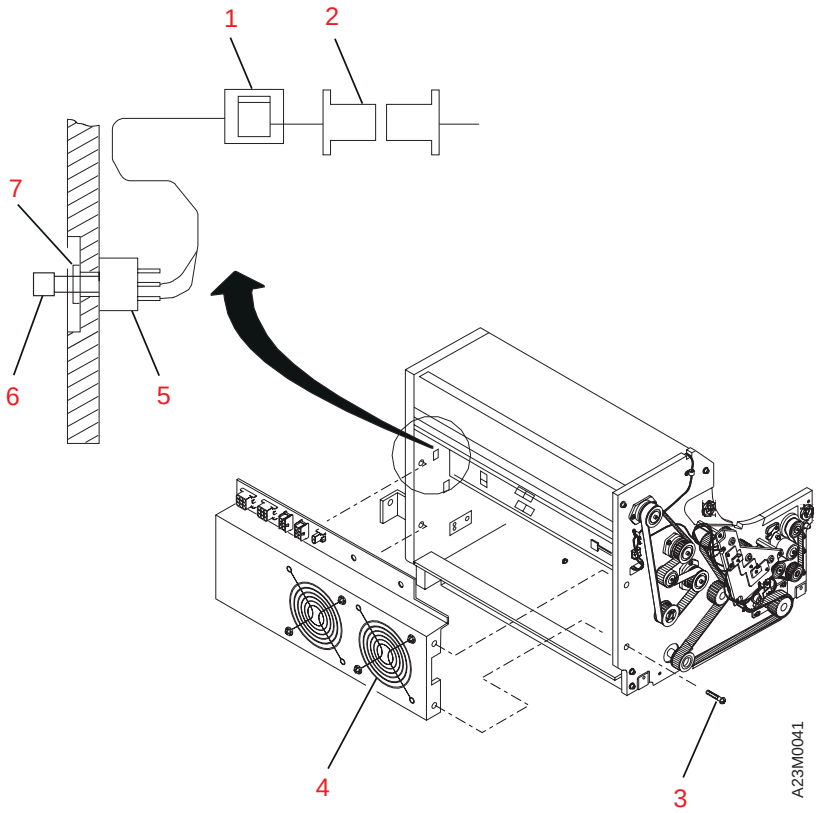
Attention: To avoid a developer bias short, do not allow the seal to contact the mag brush roller.
Note: To ensure that the rear seal foam is fully seated into the openings on the rear side of the developer, remove the fine filter and the developer rear cover.

Check

Run Print Pack to verify print quality.

Developer Run Switch (S107)

Table 602. Developer Run Switch

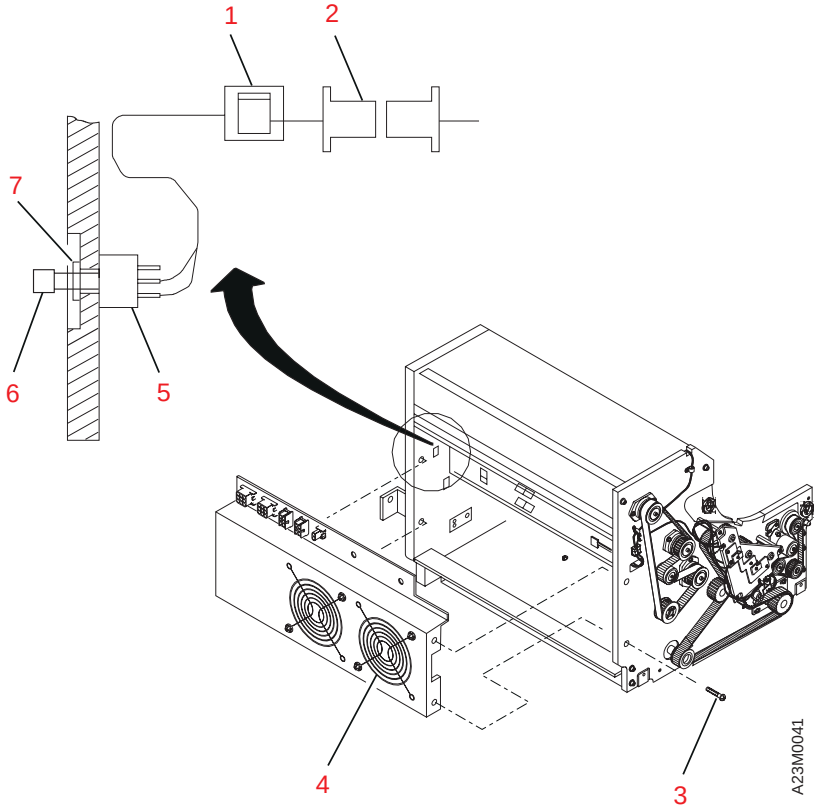


CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure.
3. Remove the four screws **(3)** (two in front and two in back), and remove the developer fan bracket assembly **(4)**.
4. Disconnect connector PJ112 **(2)**.
5. Remove the cable from the cable clamp **(1)**.
6. Remove the cap **(6)** and the nut **(7)**. Remove the developer run switch **(5)**.

Table 602. Developer Run Switch (continued)

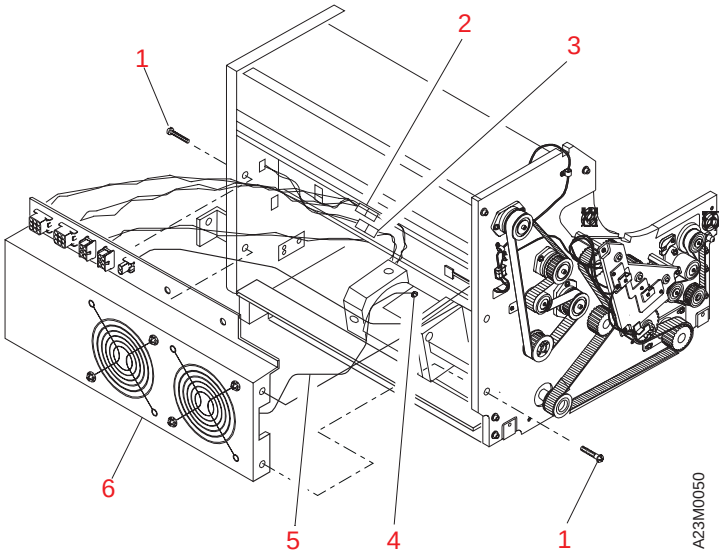


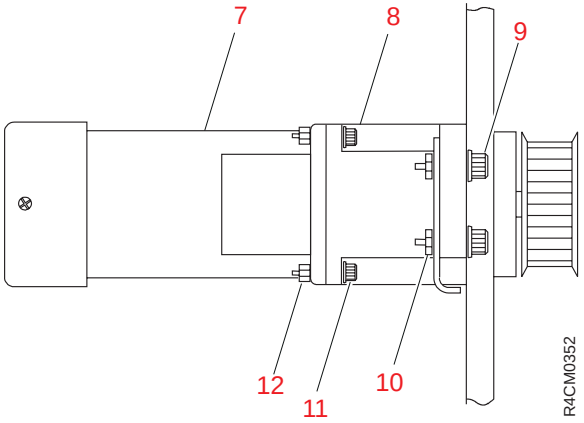
Installation

1. Reverse the developer run switch removal procedure.
2. Perform the Developer Installation & Checks Procedures.
3. Run Sensor Routine 5B to ensure that the switch works correctly.
4. Push the developer run switch to ensure that it runs the developer.
5. Run Print Pack to verify print quality.

Mag Brush Motor (M101)

Table 603. Mag Brush Motor (M101)





CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

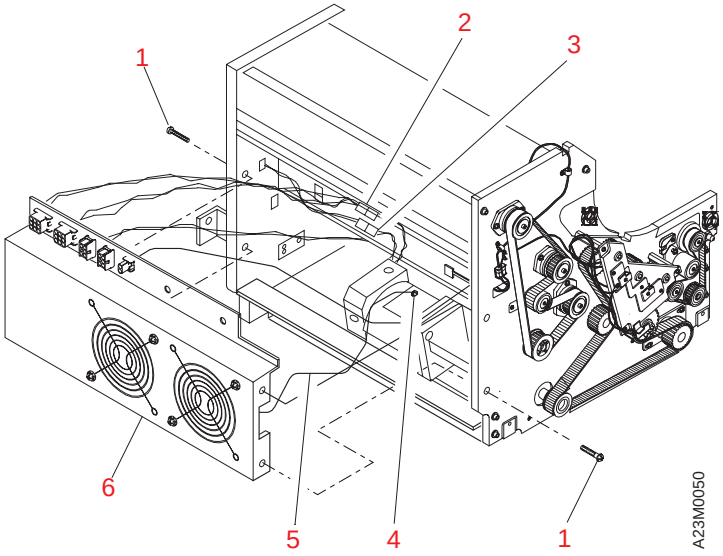
- Push-pull scale (PN 0460870)

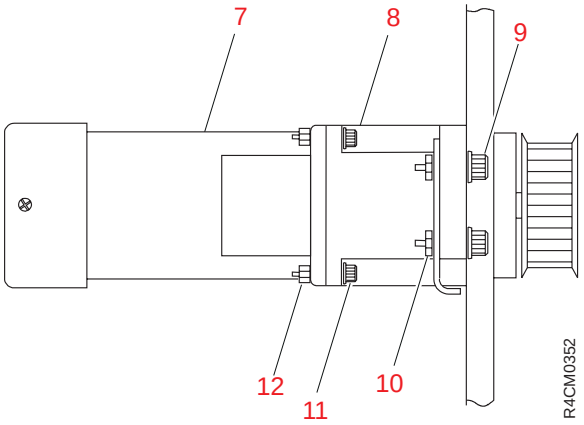
Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure.
3. Remove the Mag Brush Motor Drive Belt. (See Developer Belts).

(continued on next page)

Table 603. Mag Brush Motor (M101) (continued)





4. Tip the developer back on to the fan side to access the mag brush motor through the bottom of the developer.
5. Remove the three screws **(9)**, washers, and nuts **(10)**. Remove the mag brush motor assembly.

   Mark the motor gearbox and motor in order to ensure correct realignment when you replace the motor.
6. Remove the screw **(4)** and washer, and remove the ground wire **(5)** from the motor. Be careful not to lose the star washer.
7. Remove the four screws **(11)** and four nuts **(12)**; remove the mag brush motor **(7)** from the mag brush motor gearbox **(8)**.

Installation

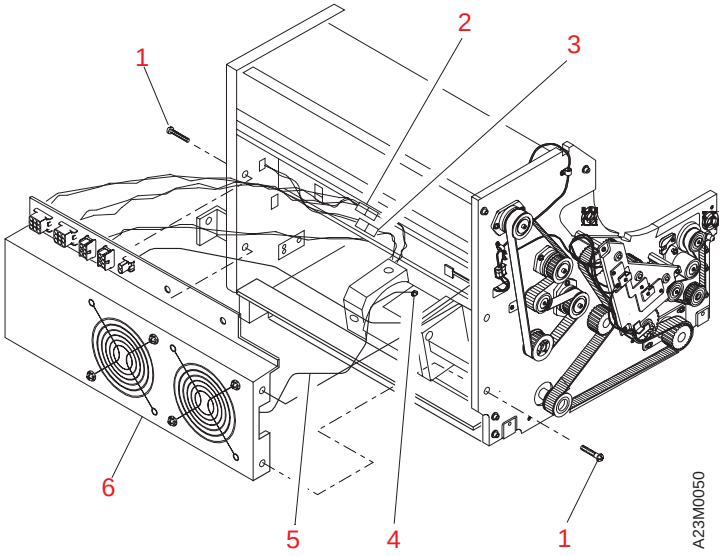
1. Apply molycoat G grease to the gear on the motor.
2. When you install the motor, ensure that the ground screw is facing out.
3. Reverse the removal procedure to install mag brush motor.
4. Perform the Developer Installation & Checks Procedures.

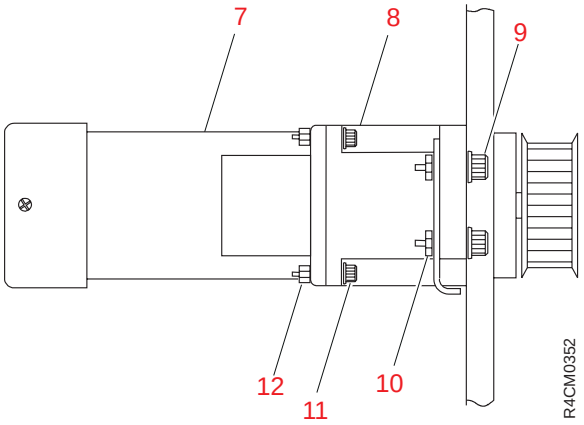
Adjustment

See the Mag Brush Motor Drive belt adjustment.

(continued on next page)

Table 603. Mag Brush Motor (M101) (continued)



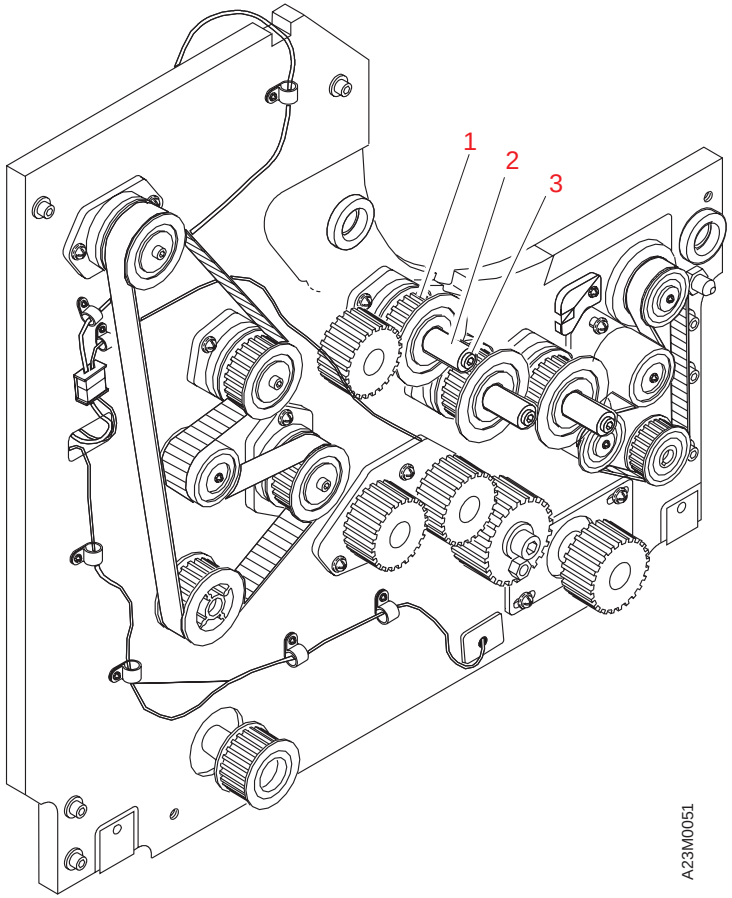


Check

1. Run Encoder Routine A9.
2. Run Print Pack to verify print quality.

Mag Brush Rolls A, B, C

Table 604. Mag Brush Rolls A, B, C



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

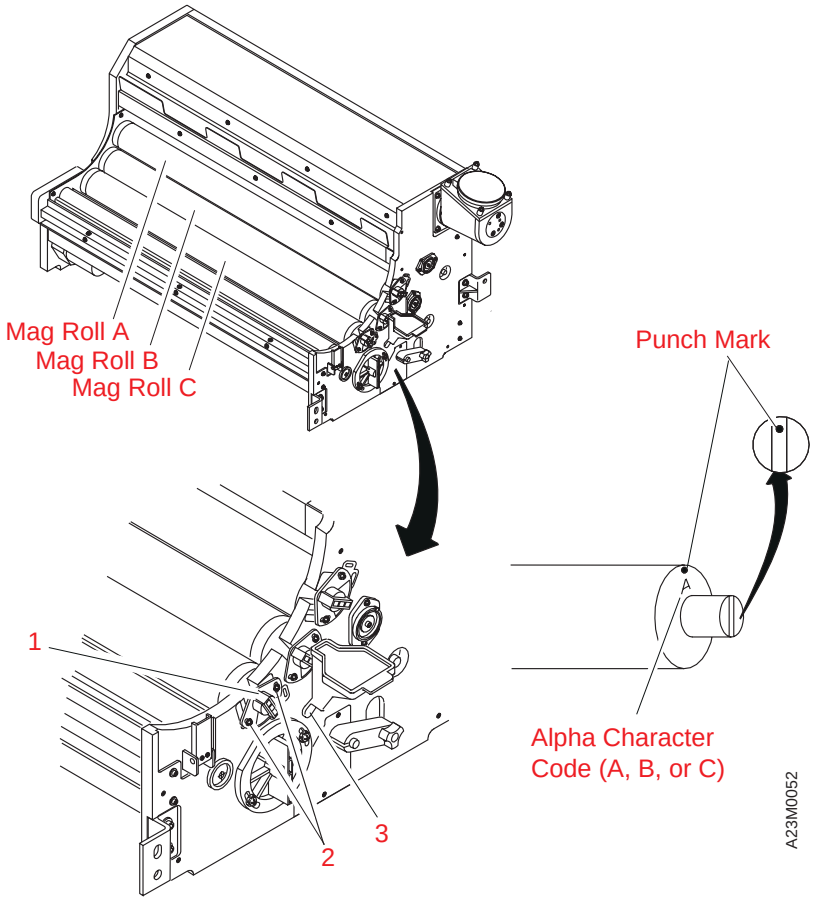
- Digital voltmeter
- Push-pull scale (PN 0460870)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure.
3. Remove the Developer Rear Seal.
4. Remove the mag brush drive belt. (See Developer Belts.)
5. Remove the screw **(3)** on the mag brush roll that you want to remove. Remove the bias contact sleeve **(2)** and mag brush pulley **(1)** and key.

(continued on next page)

Table 604. Mag Brush Rolls A, B, C (continued)



6. If you are removing mag roll **B**, remove the two screws **(3)** holding the developer mix inlet.
7. Remove the two screws **(2)** on the mag brush roll front bearing that you want to remove. Remove the mag brush roll front knob **(1)**.

Note: Do not remove the front plates on mag rolls **A** and **C**.

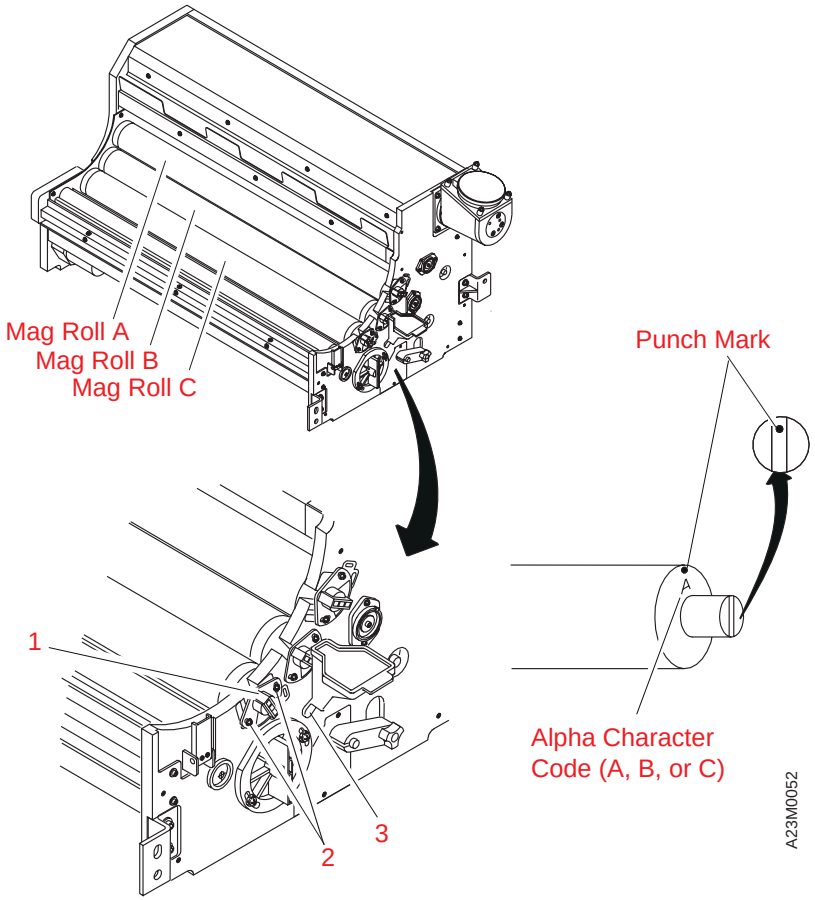
8. Remove the two screws at the rear of the mag brush roll and slide the rear bearing assembly off the mag brush roll shaft.

Attention: The surface of the mag brush rolls is made of a soft material and will dent or scratch easily.

9. Lift and remove the mag brush roll A, B, or C.

(continued on next page)

Table 604. Mag Brush Rolls A, B, C (continued)



Installation and Adjustment

1. Clean all toner and developer mix from the screws, threaded holes, and bearing assemblies.
2. Install the mag brush roll in the developer.
3. Install the rear bearing assembly on the rear of the mag brush roll shaft and tighten the two screws.

Note: The mag brush rolls have the letter **A**, **B** or **C** stamped on them so that they cannot be mixed up.

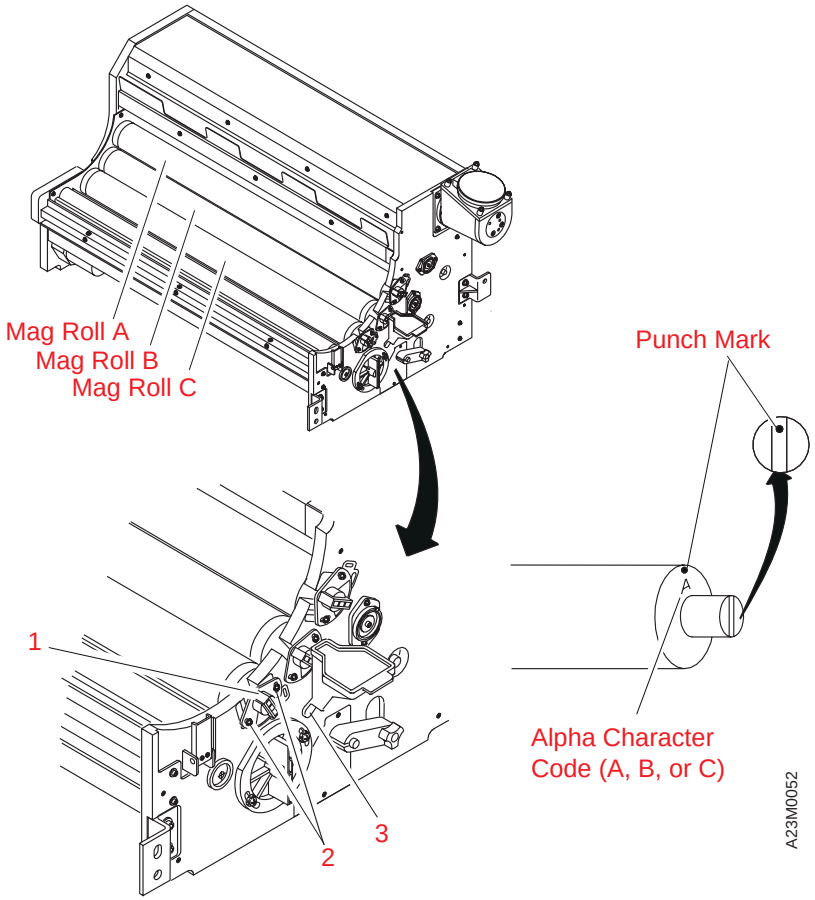
4. Install the mag brush front plate and front knob on the mag brush roll. Ensure that the punch mark in the slot on the front of the mag brush roll faces up.
5. For mag brush **A**, install the front knob, using the two screws **(2)**.

   Align the mag brush roll **A** front knob at **+2.5 degrees** with the punch mark on the front plate and tighten the two screws.
6. For mag brush **B and C**, install the front knob, using the two screws **(2)**.

   Align the **0 degrees** mark on the front knob with the punch mark on the front plate, and tighten the two screws.

(continued on next page)

Table 604. Mag Brush Rolls A, B, C (continued)

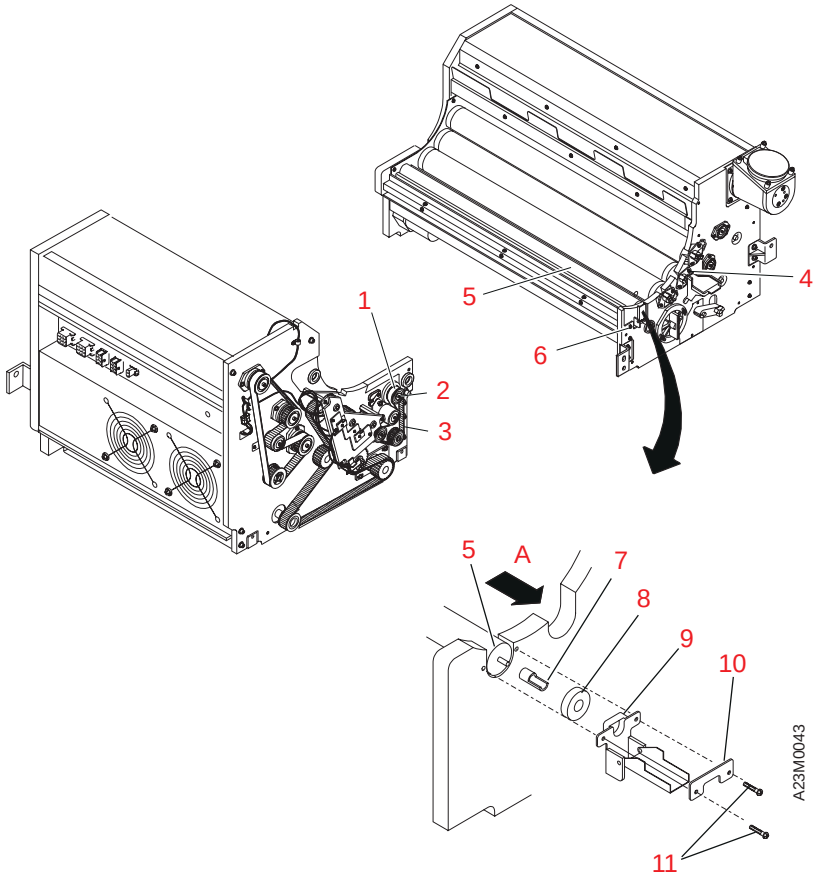


7. If you removed mag brush roll **A** or **B**, go to Mag Brush Rolls to Doctor Blade Gap.
8. Install the Developer Rear Seal.
9. Install the key, mag brush pulley, and bias contact on the rear of the mag brush roll shaft. The flange on the pulley goes away from the rear bearing. Tighten the screw.
10. Install the mag brush motor drive belt and perform the belt adjustment.

    Ensure that the mag brush roll punch marks (high points) are all aligned towards the PC drum.
11. Install the Bias Contact Plate Assembly.
12. Use the digital voltmeter to ensure that there is continuity between the bias brushes and the mag brush rolls.
13. Install the developer belt cover.
14. Install the Developer Rear Seal.
15. Install the developer mix inlet.
16. Perform the Developer Installation & Checks Procedures.

Scavenger Roll

Table 605. Scavenger Roll



Special Tools Required

- Drum clearance gauge (PN 06F1029)
- Push-pull scale (PN 0460870)
- IBM vacuum cleaner (PN 9900735)

Removal

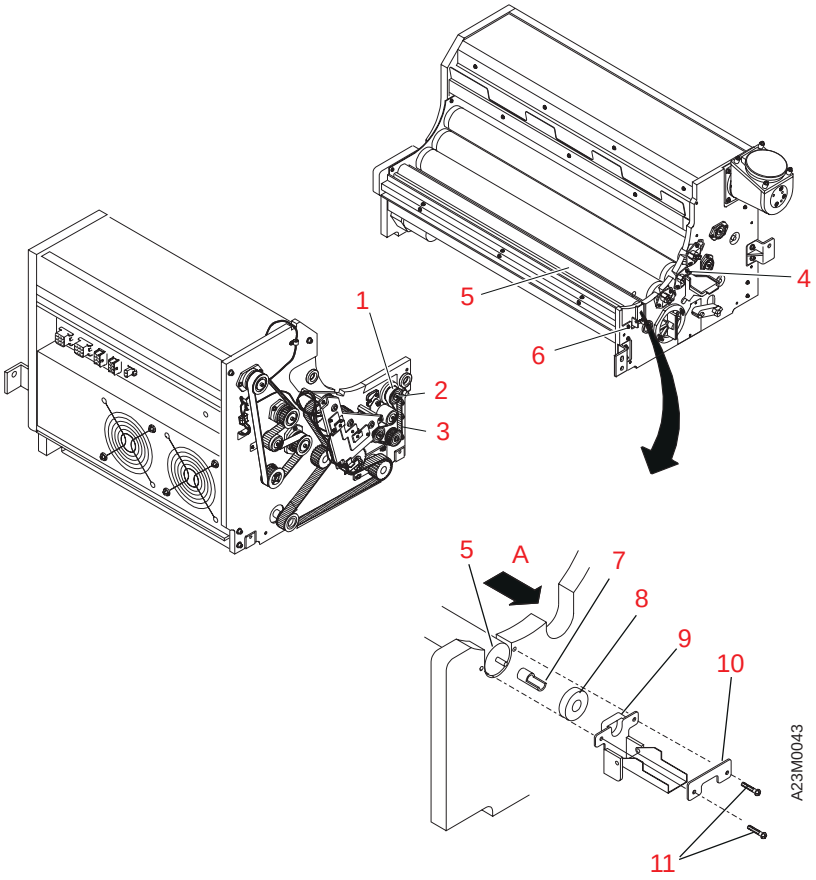
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the PC Drum Removal Procedure.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

3. Remove the Developer Rear Seal.
4. Remove the Fine Filter Case.
5. Remove the Toner Control Belt **(3)**.
6. Remove the screw and washer **(2)**, and remove the scavenger roll pulley **(1)** and key.
7. Remove the front developer cover.
8. Remove the two screws **(11)** Remove the scavenger roll stop plate **(10)** and the scavenger roll flange **(9)**.

(continued on next page)

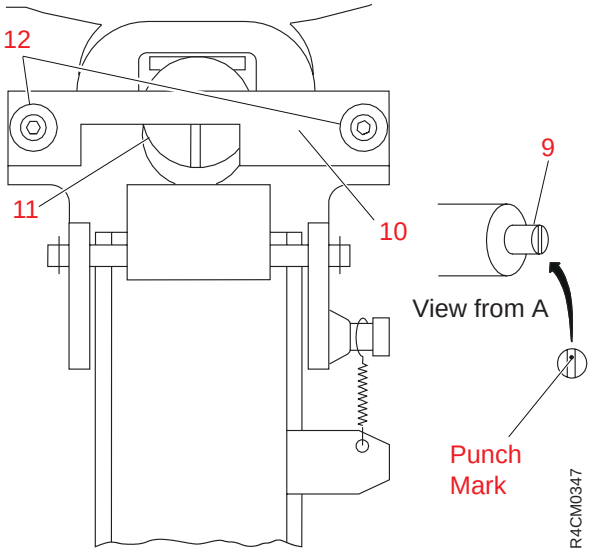
Table 605. Scavenger Roll (continued)



9. Remove the scavenger roll adapter **(7)** and seal **(8)**.
10. Remove the scavenger roll **(5)** by pulling it out in the **(A)** direction.
11. If the rear bearing needs to be removed, remove the two holding screws and remove the rear bearing.

(continued on next page)

Table 605. Scavenger Roll (continued)



Installation and Adjustment

1. Install the scavenger roll rear bearing if removed.
2. Install the scavenger roll with the punch mark **(9)**, located inside the slot on the front end of the shaft, facing upward.

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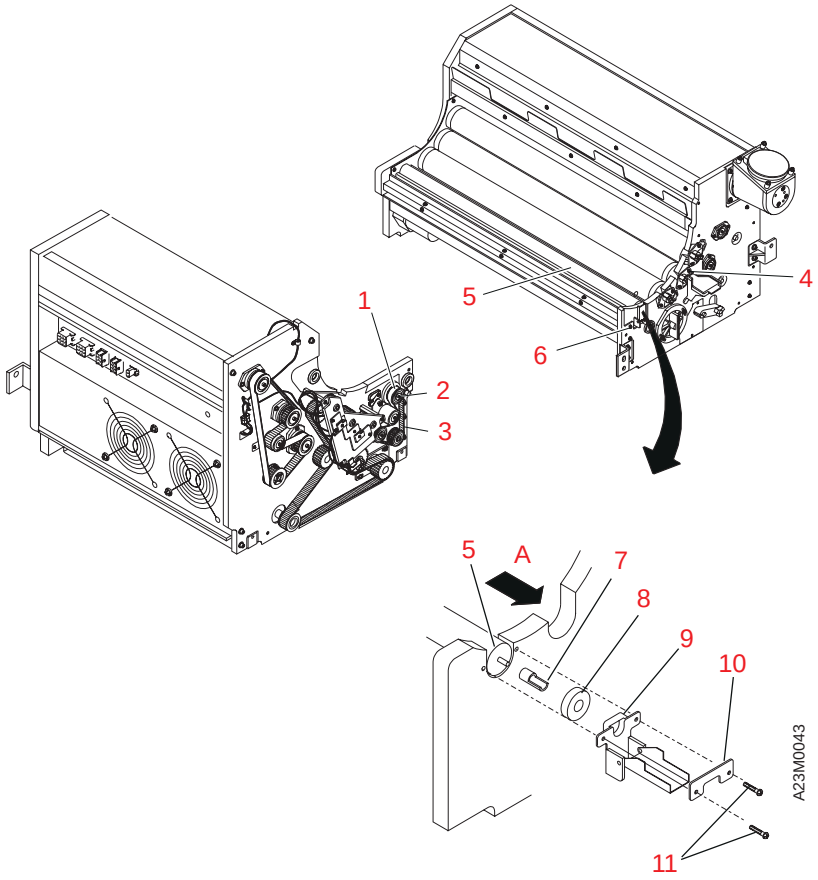
Table 605. Scavenger Roll (continued)



3. Install the scavenger roll adapter **(7)** and seal **(8)**.
4. Install the scavenger roll flange **(9)**.

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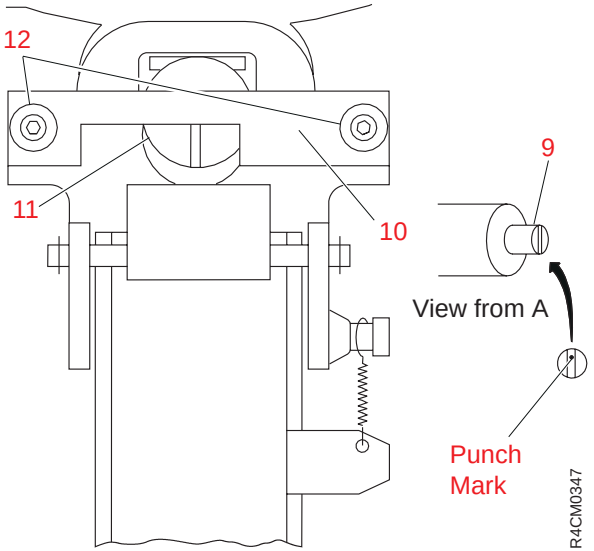
Table 605. Scavenger Roll (continued)



5. Install the stop plate **(10)** with the right side of the plate against the flat side of the adapter **(11)**. Leave the screws **(12)** loose to allow for adjustment.
6. Raise the scavenger roll lever and adjust the stop plate for zero clearance on the flat at the top of the adapter and for a clearance of 0.05 to 0.1 mm (0.002 to 0.004 in.) between the right side of the stop plate **(10)** and the flat side on the adapter **(11)**.
7. Tighten the left screw on the stop plate, lower the scavenger roll lever, and tighten the right screw.
8. Reverse the removal procedure beginning at step 7 to complete the installation of the scavenger roll.
9. Perform the toner control belt adjustment.

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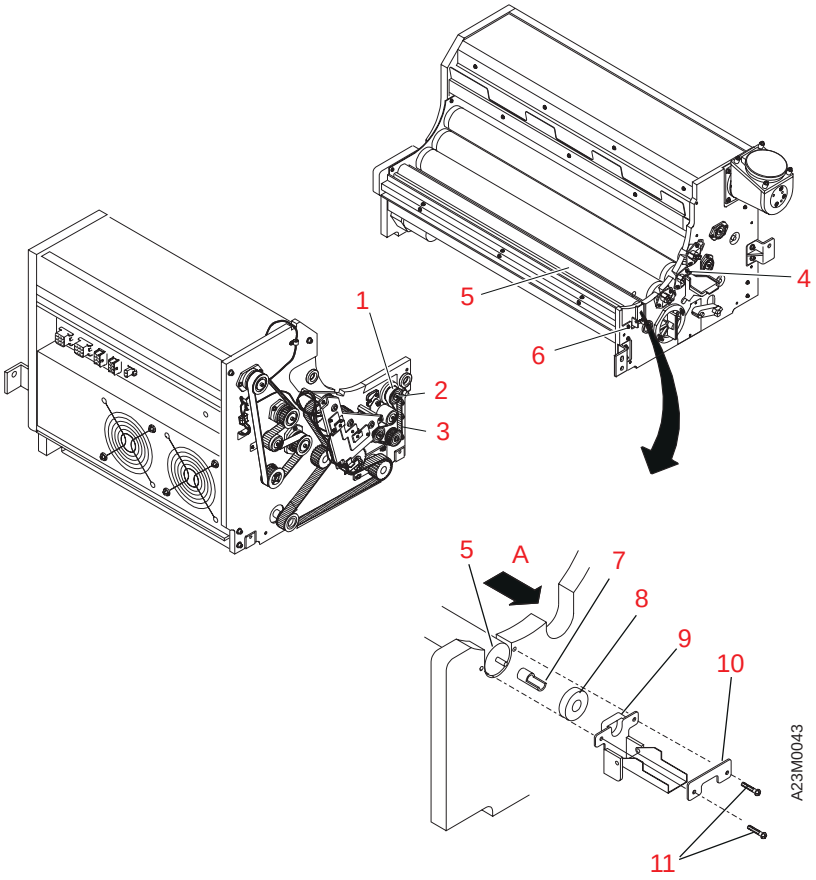
Table 605. Scavenger Roll (continued)

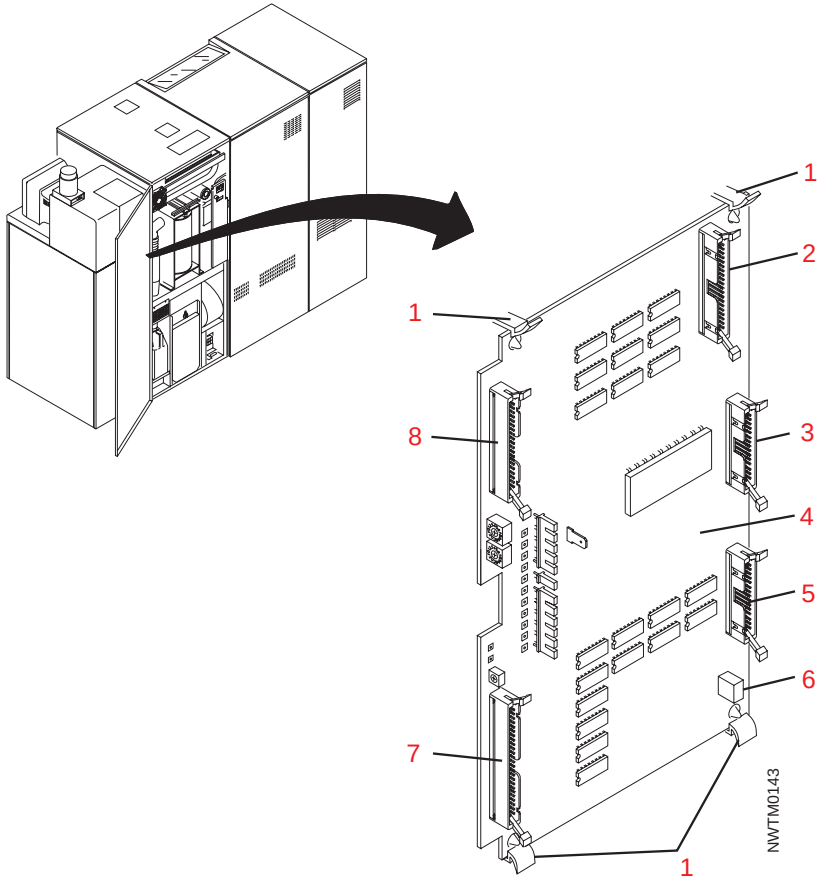


10. Ensure that the PC Drum & Developer Clearances/Gaps (front and rear) are as shown in the table. Record the clearances for reference if adjustment is necessary.

    Parallel accuracy front to rear must be equal to or less than 0.1 mm.
11. Install the PC Drum..
12. Install the drum cover.
13. Power on the printer.
14. Run Print Pack to verify print quality.

Toner Control Card (PCxxx)

Table 606. Toner Control Card



DANGER

<5> High-voltage is present. Use care while working in this area.

Attention: Use ESD procedures when working with the toner control cards.

Special Tools Required

Digital voltmeter

Removal

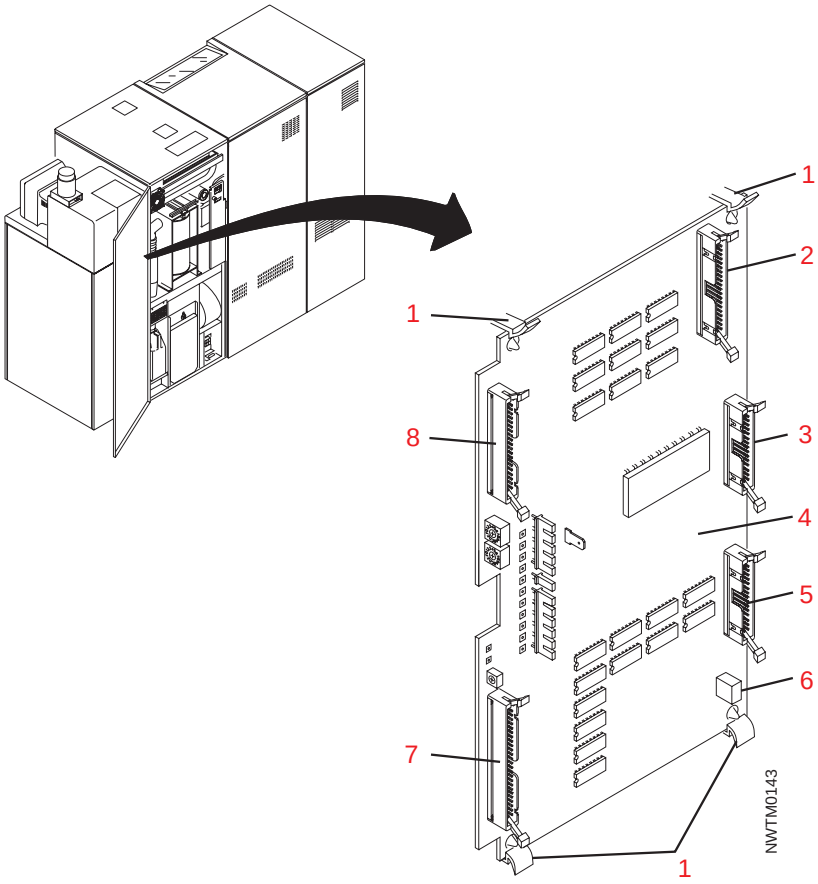
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left rear cover.
4. Remove the left rear process cover.
5. Disconnect connectors PJ135 **(7)**, PJ136 **(8)**, PJ1003 **(5)**, PJ1006 **(3)**, PJ1007 **(2)**, and PJ1008 **(6)**.
6. Lift each of the four card clips **(1)**. Remove the toner control card **(4)**.

Installation

Reverse the removal procedure.

(continued on next page)

Table 606. Toner Control Card (continued)



Adjustment

1. Power on the printer.
2. Ensure the attachments are disabled.
3. The developer mix usage counter is automatically reset to zero when you move the developer drain lever from the open to the closed position with power on.

   Read and save the values in developer mix usage values from counters FF IE and FF IF. You will reenter these values into the usage counter at the end of this procedure. To read the developer mix usage values, perform the following procedure from the maintenance panel:

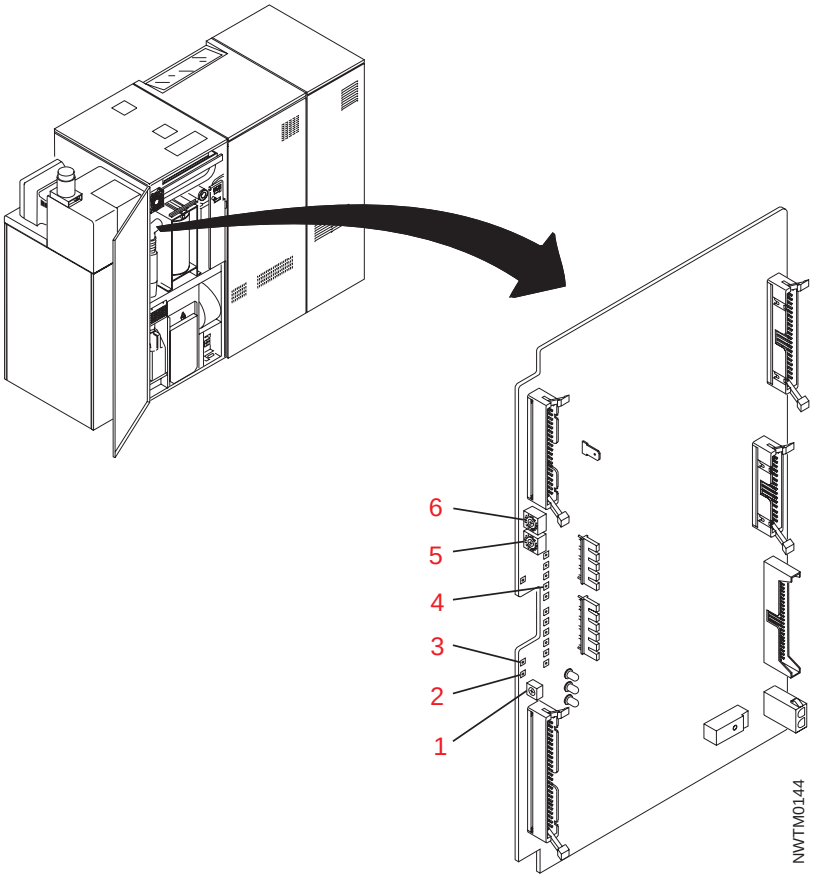
   a. Set the diagnostic switch to **2**.
   b. Key in **3** and press **Enter**.
   c. Key in **01** and press **Enter**.
   d. Key in **FF 1E** and press **Enter** to read the low-order byte.
   e. Press **Enter** to read the high-order byte, **FF 1F**.

Note: Use the following procedure for cleaning the developer before calibrating TP1 with a new mix.

4. Drain the old mix into the bottle. (See the *Operator's Guide*.) Shake the developer drain lever in the front of the developer a few times while the developer is running. Let the developer stop by itself (it usually takes two minutes).

(continued on next page)

Table 606. Toner Control Card (continued)



5. Close the developer drain lever and fill the developer mix inlet in the front of the developer with the old mix without running the developer. After you fill the inlet, press the developer run button and feed the mix into the inlet as fast as possible. Let the developer stop by itself (it usually takes two minutes).
6. Repeat steps 4 and 5.
7. Repeat step 4. Ensure that there are no kinks in the hose. Shake the hose while the developer is running to ensure that all the old mix is completely drained.

   This allows for the complete removal of the excess toner in the developer and a more accurate setting of the toner control voltage
8. Set the original developer mix aside.
9. Close the developer drain.
10. Add new, unused developer mix.

Notes:

a. You must calibrate the new toner control card with new developer mix.

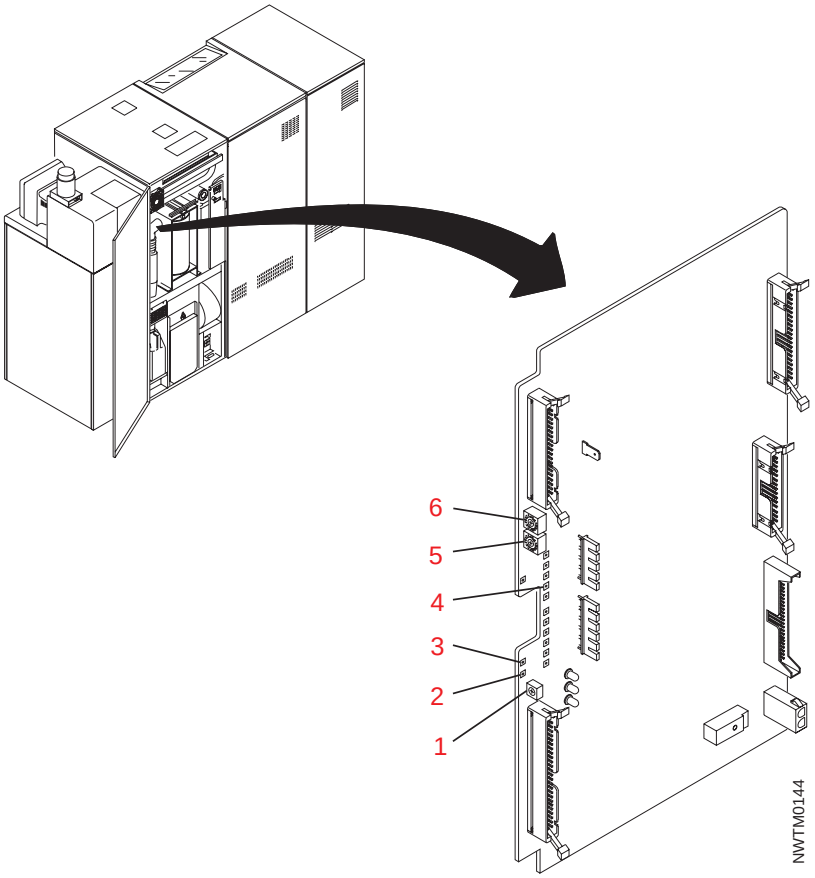
b. Set the contrast switch on the printer control panel to **4**.

c. Make this adjustment while the developer is running.

11. Attach the voltmeter **+** lead to TP1 **(3)** and the **−** lead to TPG **(2)**.
12. Press the developer run button.
13. Toner Control Voltages shows the TP1 adjustment values. If TP1 is correct, go to step 16. If not, continue with step 14.

(continued on next page)

Table 606. Toner Control Card (continued)



14. Center the pot on S2 **(5)**.
    a. Adjust S1 **(6)** (coarse adjust) for a voltmeter reading as close as possible to the voltage shown in Toner Control Voltages.
    b. Use S2 (fine adjust) to adjust the reading to the correct voltage ±0.02 V dc.
15. Record the voltage at TP1.
16. Attach the voltmeter **+** lead to TP2-8 **(4)** and the **−** lead to TPG **(2)**.
17. Adjust VR1 **(1)** so that the voltage at TP2-8 is 2.10 ±0.01 V dc while the developer is running.
18. Drain the new developer mix. See the *Operator's Guide*. Add a note to this NEW mix bottle that reads, **"Do not calibrate with this mix."** Mix can only be used ONE TIME for calibration. Return this mix to the customer.
19. Install the original developer mix.
20. Reenter the developer mix usage values.

    To write the developer mix usage values, perform the following procedure at the maintenance panel:
    a. Set the diagnostic switch to **2**.
    b. Key in **3** and press **Enter**.
    c. Key in **F1** and press **Enter**.
    d. Key in **FF 1E** and press **Enter**.
    e. Key in the correct value for byte **1E** and press **Enter**.
    f. Key in the correct value for byte **1F** and press **Enter**.
21. Run at least 500 feet of forms using Print Pack to allow the original developer mix to reach the correct toner concentration.
22. Run Print Pack to verify print quality.

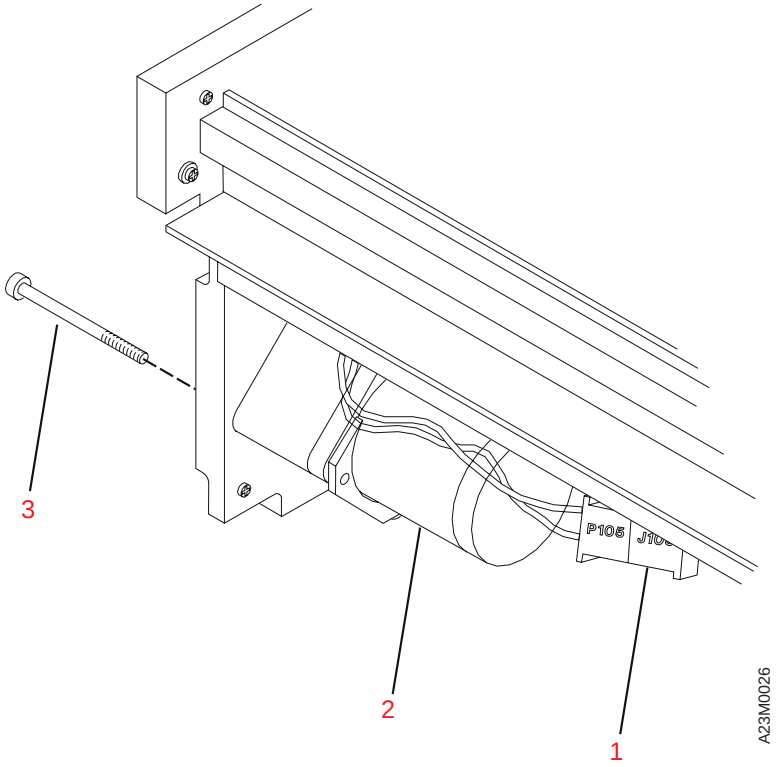
(continued on next page)

Table 607. Toner Control Voltage

Toner Control Card	Mix Part Number	TP1 Voltage
PC551	1402833 (blue lettering)	1.80 ±0.02 V dc
	70X7426 (purple lettering)	2.10 ±0.02 V dc

Toner Control Motor (M103)

Table 608. Toner Control Motor (M103)



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

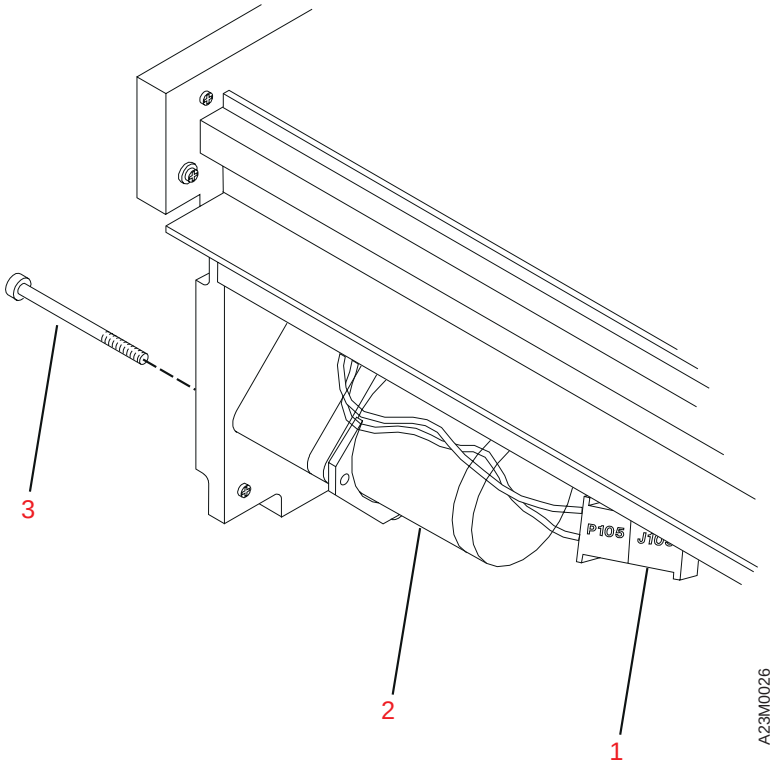
- Push-pull scale (PN 0460870)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure.
3. Remove the toner control belt. (See Developer Belts.)
4. Mark the motor gearbox and motor to ensure correct realignment when you replace the motor.

(continued on next page)

Table 608. Toner Control Motor (M103) (continued)



5. Disconnect connector PJ105 **(1)**.
6. Remove the three screws **(3)** and remove the toner control motor **(2)**.

Note: The mag brush drive belt idler pulley bracket may have to be loosened to allow you to remove the motor pulley with the motor.

Installation and Adjustment

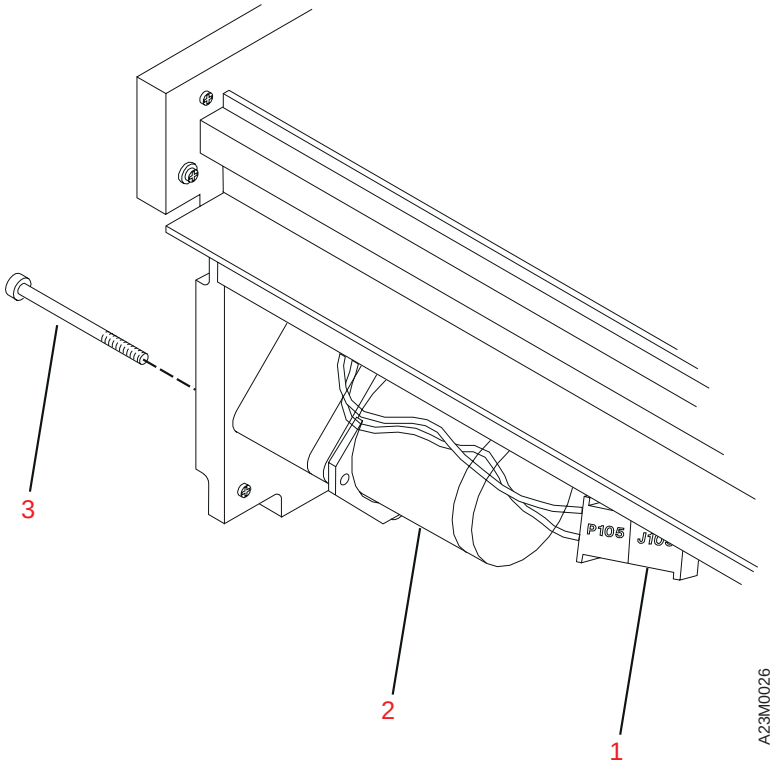
1. Reverse the removal procedure.

Note: Also, replace the motor capacitor C102.

2. Ensure that the motor and gearbox are positioned correctly, using the mark made in removal procedure step 4.
3. Ensure that you reattach the ground wire and star washer to the toner control motor.
4. Perform the toner control belt adjustment.
5. If you loosened the mag brush belt idler pulley bracket, perform the mag brush drive belt adjustment.
6. Perform the Developer Installation & Checks Procedures.

(continued on next page)

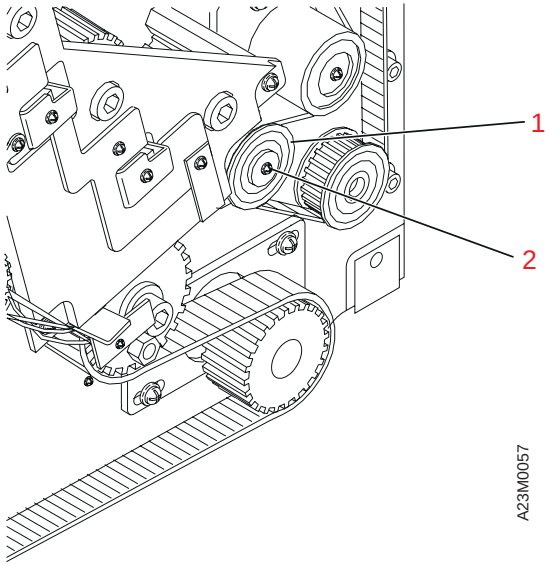
Table 608. Toner Control Motor (M103) (continued)



7. Power on the printer.
8. Run Driver Routine 06 to ensure that the toner control motor is working correctly.
9. Run Print Pack to verify print quality.

Toner Control Shaft

Table 609. Toner Control Shaft



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

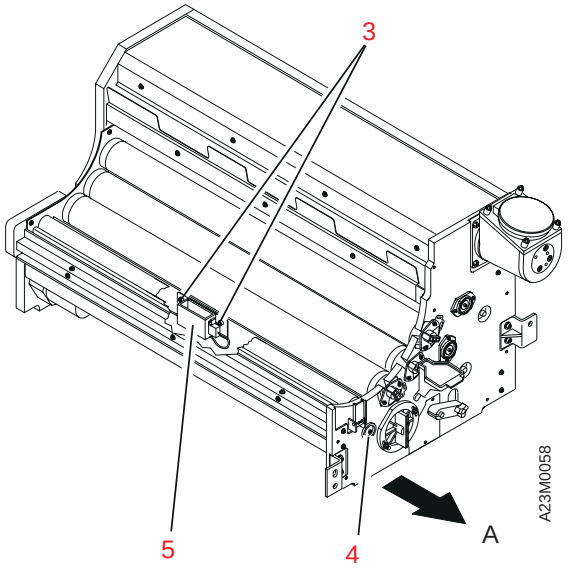
- Digital voltmeter

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure.
3. Remove the screw **(2)** and remove the toner control shaft pulley and key **(1)**.

(continued on next page)

Table 609. Toner Control Shaft (continued)



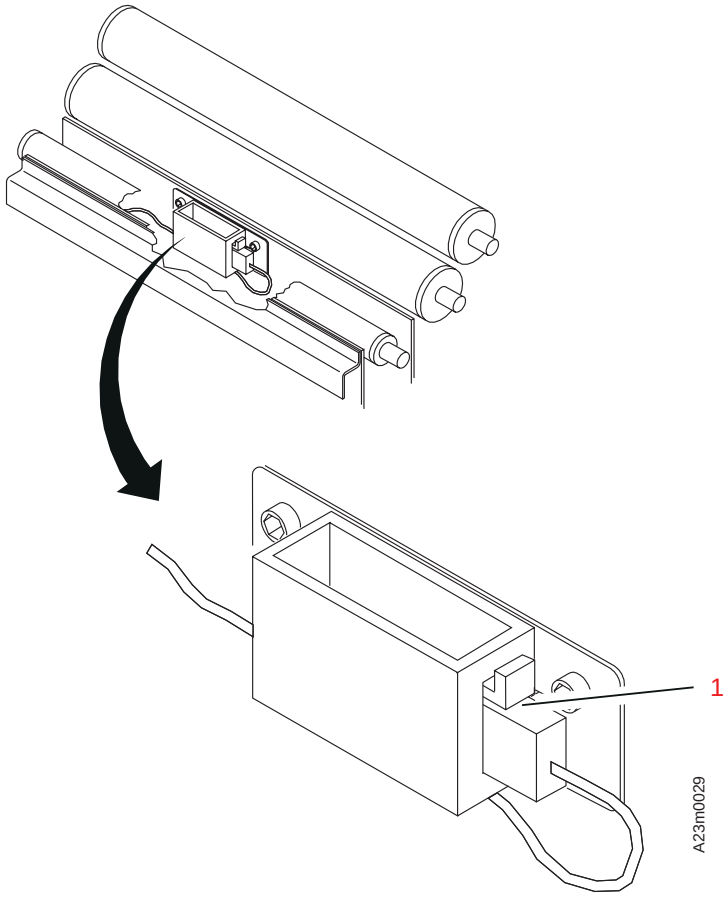
4. Remove the two screws and remove the toner control shaft rear bearing assembly.
5. Remove the screw **(4)** in the center front of the toner control shaft.
6. Remove the two screws **(3)** lift the toner control box **(5)** off of the shaft.
7. Push on the rear of the toner control shaft and, at the same time, pull the front bearing in the **A** direction until the bearing is free.
8. Continue to pull the toner control shaft out the front of the developer and, at the same time, hold the toner control sensor box **(5)** to avoid damaging the sensor box or cable.

Installation and Adjustment

1. Clean developer mix from the screws and the holes.
2. Reverse the toner control shaft removal.
3. Perform the toner control belt adjustment.
4. Perform the Developer Installation & Checks Procedures.
5. Run Print Pack to verify print quality.

Toner Control Sensor (L101)

Table 610. Toner Control Sensor (L101)



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

- Digital voltmeter

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal procedure and place it on a solid, clean service area.
3. Lift up on tab **(1)** and pull the sensor out of the toner control box.

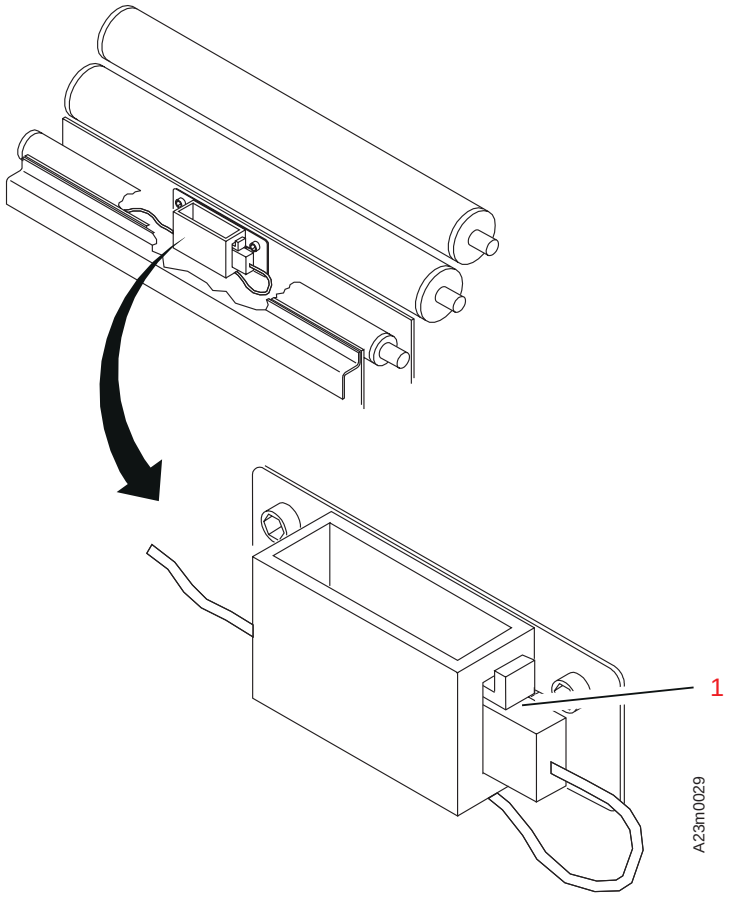
Note: If you cannot remove the sensor from the toner control box, remove the screws holding the lower seal.

Loosen the two screws holding the sensor box and then remove the sensor and box assembly.

4. Remove the cable from the cable clamps.
5. Remove cable seal plate.
6. Disconnect connector PJ110.
7. Remove the sensor.

(continued on next page)

Table 610. Toner Control Sensor (L101) (continued)



Installation

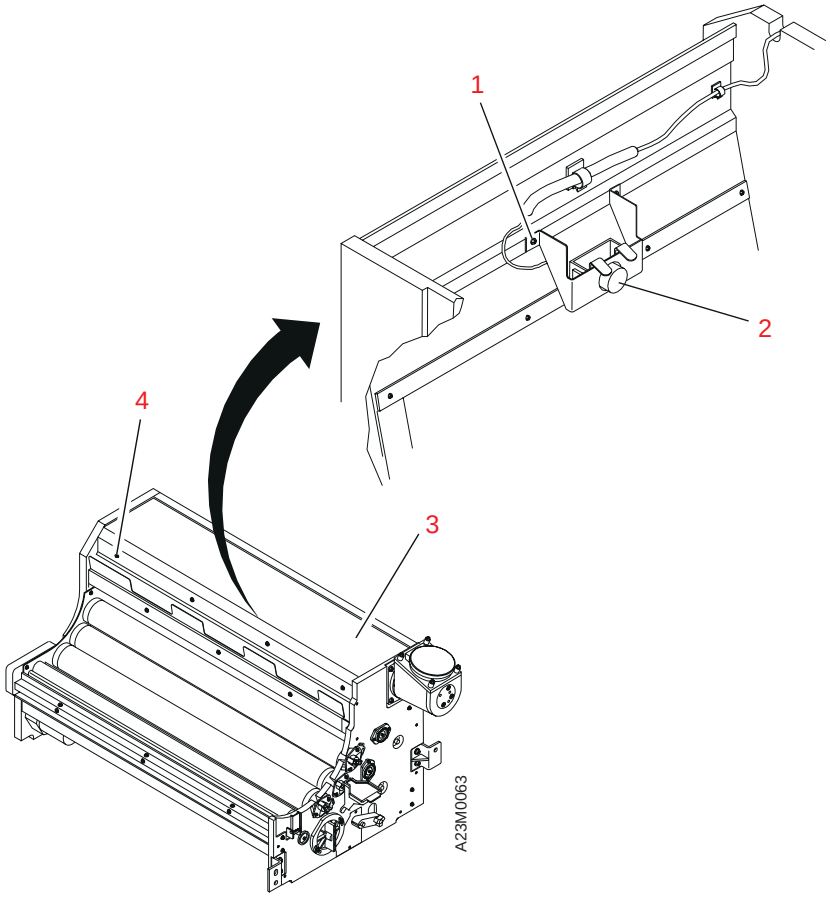
1. Clean the developer mix from the screws and the holes.
2. Reverse the sensor removal procedure.
3. Perform the Developer Installation & Checks Procedures.
4. Power on the printer.
5. Perform the toner control card adjustment.

Attention: Be sure to follow the procedure for cleaning out the developer.

6. Run Print Pack to verify print quality.

Toner Empty Sensor (S106)

Table 611. Toner Empty Sensor (S106)



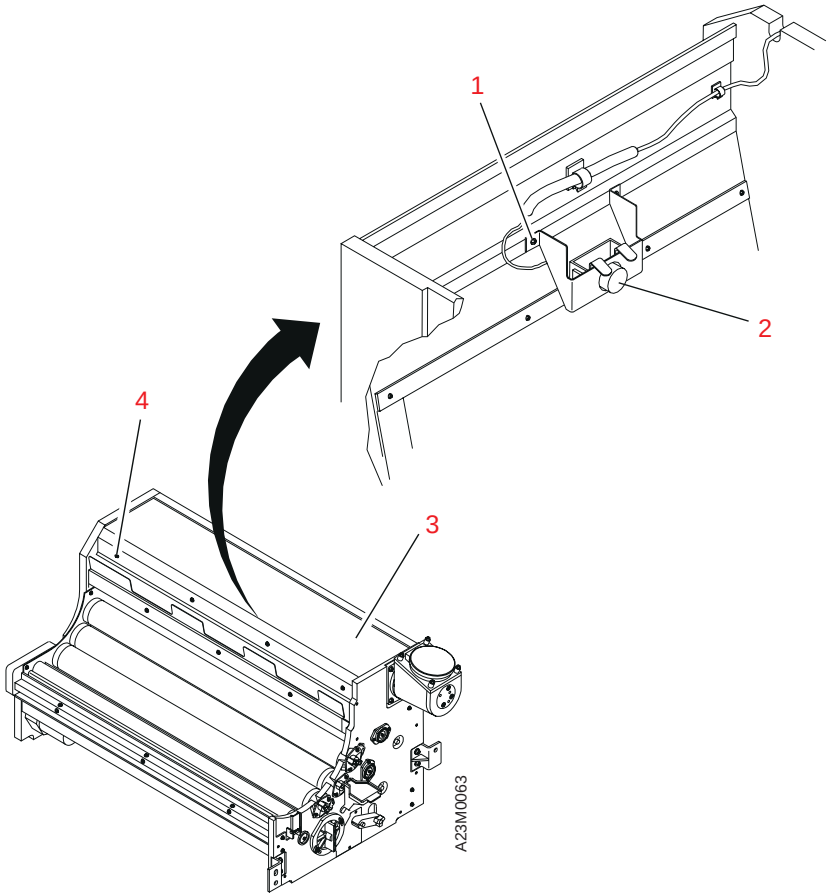
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal procedure and place it on a solid, clean service area.
3. Remove the four screws **(4)**. Remove the toner hopper cover **(3)**.
4. Remove the toner from the toner hopper until the toner empty sensor **(2)** is completely clean and uncovered.

(continued on next page)

Table 611. Toner Empty Sensor (S106) (continued)



5. Vacuum the area around the toner empty sensor and cable.
6. Remove the two screws **(1)**. Remove the cable ties.
7. Disconnect connector PJ111.
8. Remove the toner empty sensor **(2)**.

Hint: To gain more room, turn the toner hopper paddle shaft so that the flat part of the shaft is parallel to the toner empty sensor.

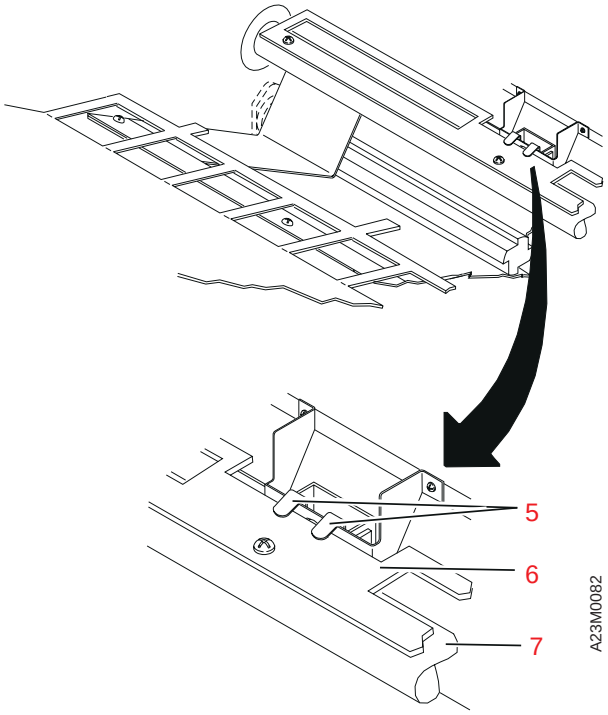
Installation

Note: Do not add the toner until step 7

1. Reverse the removal procedure.
2. Tighten the screws **(1)**.
3. Ensure that the gap between the toner hopper paddle and the toner empty sensor is 1.0 to 2.0 mm.

(continued on next page)

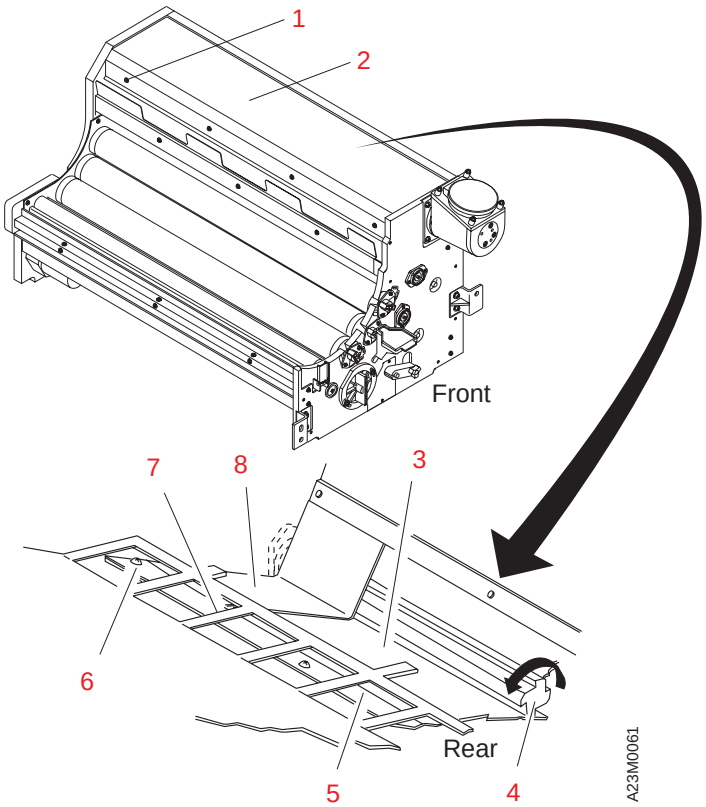
Table 611. Toner Empty Sensor (S106) (continued)



4. Ensure that the sensor tabs **(5)** overlap the paddles **(6)** fastened to the hopper paddle shaft **(7)** by 1.0 ±0.5 mm. This overlap causes the sensor to vibrate on every revolution of the hopper paddle shaft.
5. Perform the Developer Installation & Checks procedures.
6. Run Sensor Routine 58.
7. Add toner.
8. Run Print Pack to verify print quality.

Toner Feed Gate

Table 612. Toner Feed Gate



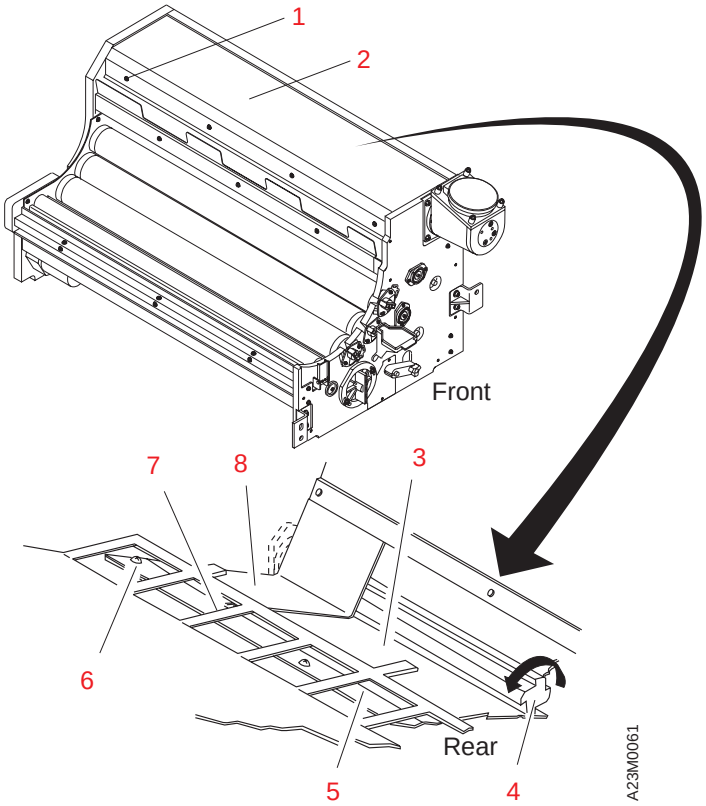
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the four screws **(1)** and remove the toner hopper cover **(2)**.
4. Remove the toner from the toner hopper.

(continued on next page)

Table 612. Toner Feed Gate (continued)



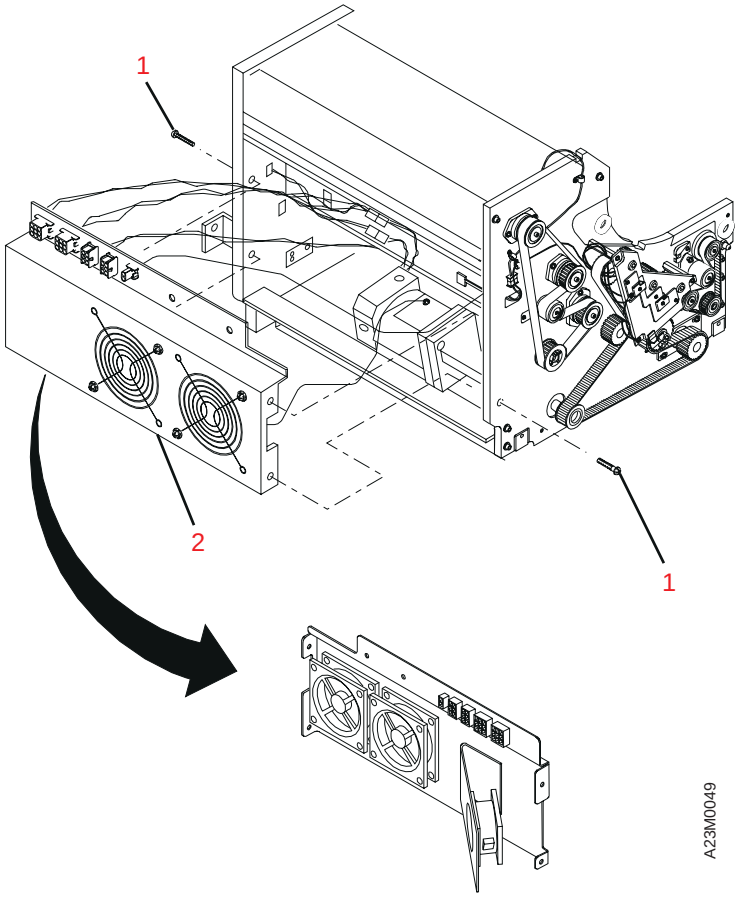
5. Remove the four screws **(6)** holding the feed gate **(3)** and stiffener **(5)**.
6. Remove the feed gate **(3)** by first sliding it toward the feed roll **(4)** until the feed gate is free of the metal fingers **(7)**. Once the feed gate is free of the metal fingers, lift it out the top of the developer.

Installation & Adjustment

1. Reverse the removal procedure to install the feed gate.
2. Perform the Developer Installation & Checks Procedures.
3. Adjust the metal tabs at both ends of the feed gate so that they are flush against the sides of the developer. This is necessary to prevent toner from leaking through to the developer mix.
4. Power on the printer.
5. Run Print Pack to verify print quality.

Toner Feed Motor (M102)

Table 613. Toner Feed Motor (M102)



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

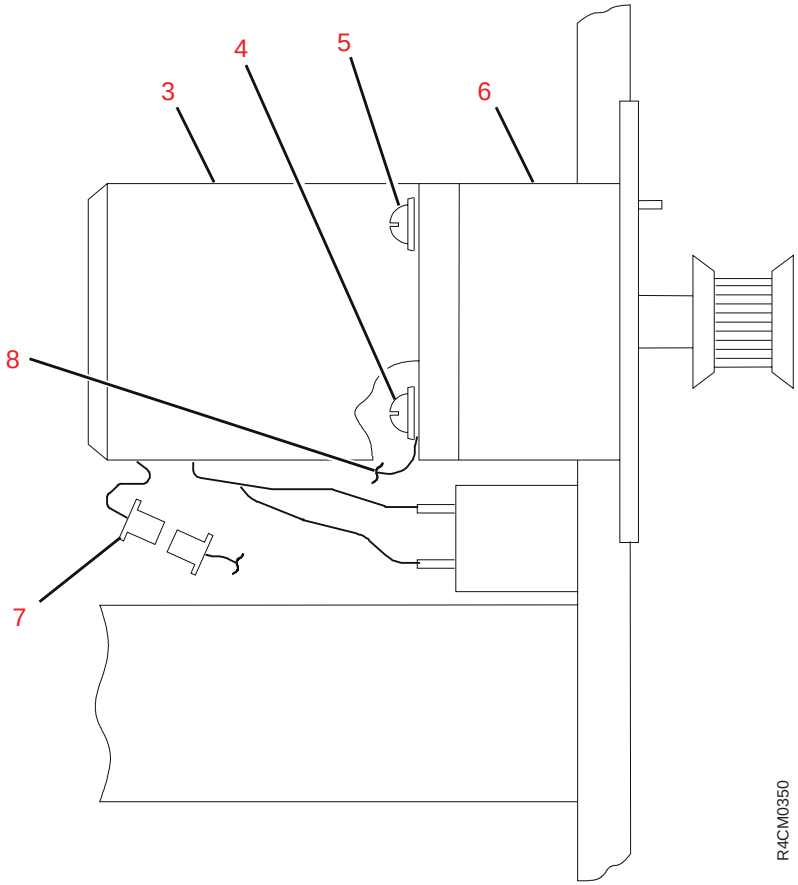
- Push-pull scale (PN 0460870)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the toner feed motor drive belt. (See Developer Belts.)
4. Remove the four screws **(1)** and remove the developer fan assembly **(2)**.

(continued on next page)

Table 613. Toner Feed Motor (M102) (continued)



5. Disconnect connector PJ194 **(7)**.
6. Remove the screw **(4)** and remove the ground cable **(8)**.

Note: Mark the motor gearbox and motor to ensure correct realignment when you replace the motor.

7. Remove the two screws **(5)**. Remove the gearbox **(6)** and the toner feed motor **(3)**.

Installation and Adjustment

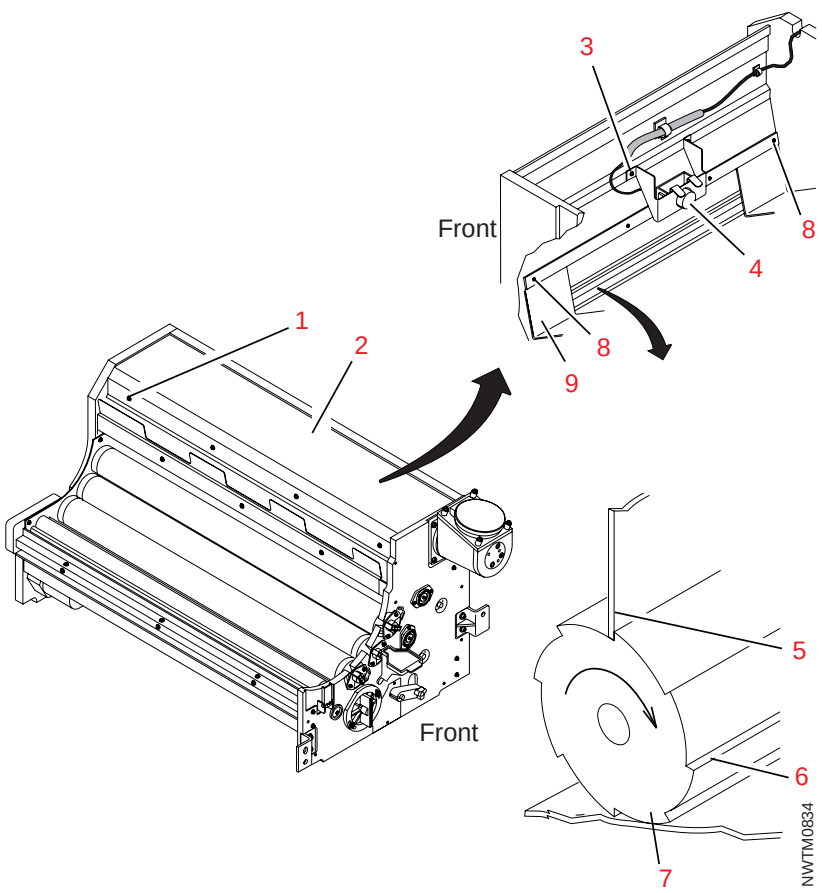
1. Reverse the motor removal procedure.

Note: Also, replace the motor capacitor C102.

2. Perform the toner feed belt adjustment.
3. Perform the Developer Installation & Checks Procedures.
4. Run Driver Routine 0A, which turns the toner feed shaft and toner hopper paddle for a toner feed operation.
5. If the Enhanced Toner Loading Feature is installed: Press the **Toner Supply** pushbutton to ensure that the toner hopper auger operation works correctly.
6. If the Enhanced Toner Loading Feature is **not** installed: Run Driver Routine 34, which runs the toner feed motor in the opposite direction to ensure that the toner hopper auger operation works correctly.
7. Run Print Pack to verify print quality.

Toner Feed Scraper Blade

Table 614. Toner Feed Scraper Blade



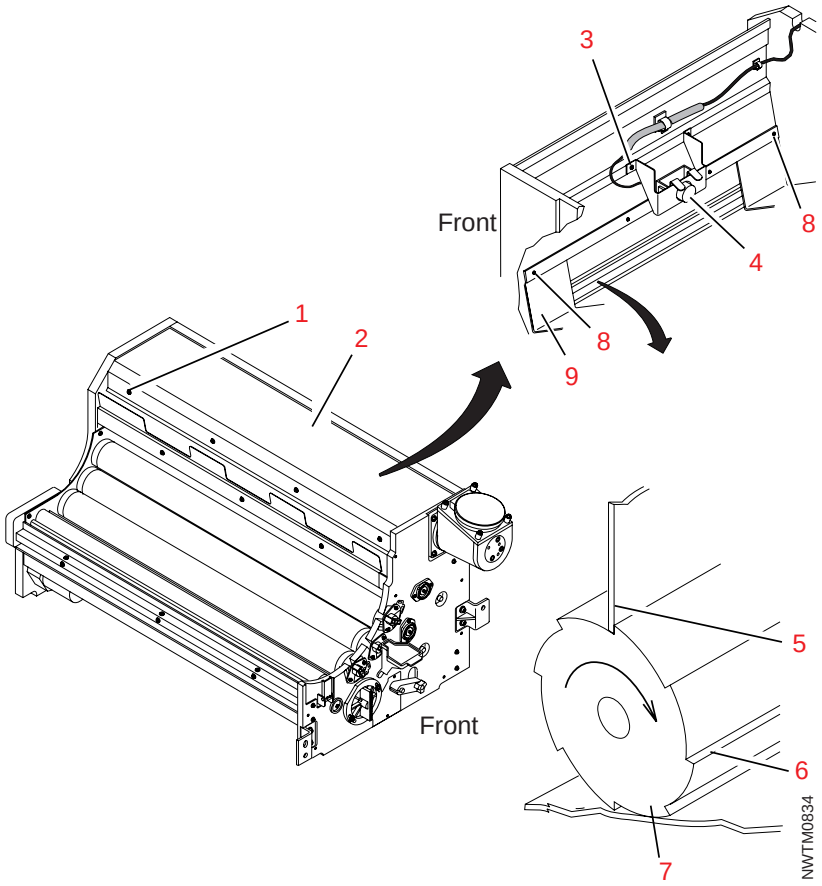
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the four screws **(1)**. Remove the toner hopper cover **(2)**.

(continued on next page)

Table 614. Toner Feed Scraper Blade (continued)



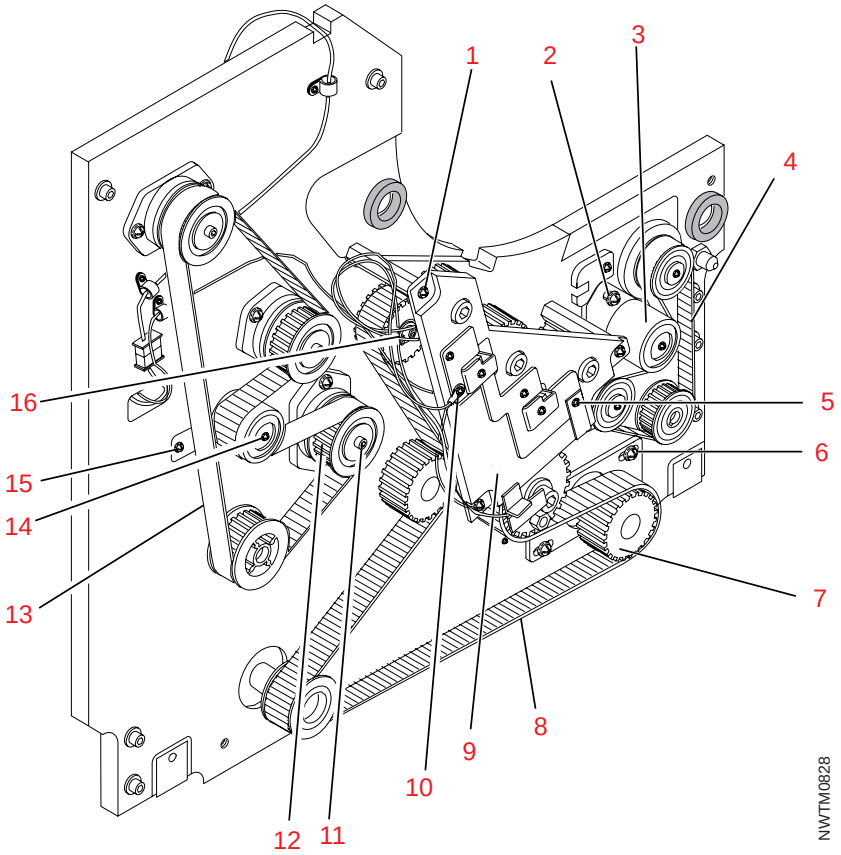
4. Vacuum the toner from the toner hopper until the hopper is completely clean.
5. Remove the four screws **(8)** and remove the stiffener, scraper blade, and screws as a unit to prevent the stiffener from falling into the developer.

Installation and Adjustment

1. Reverse the scraper blade removal procedure.
2. Turn the toner feed shaft **(7)** until one of the flat sides **(6)** faces up.
3. Push the toner feed scraper blade **(5)** tight against the flat side **(6)** of the toner feed shaft **(7)** as follows:

(continued on next page)

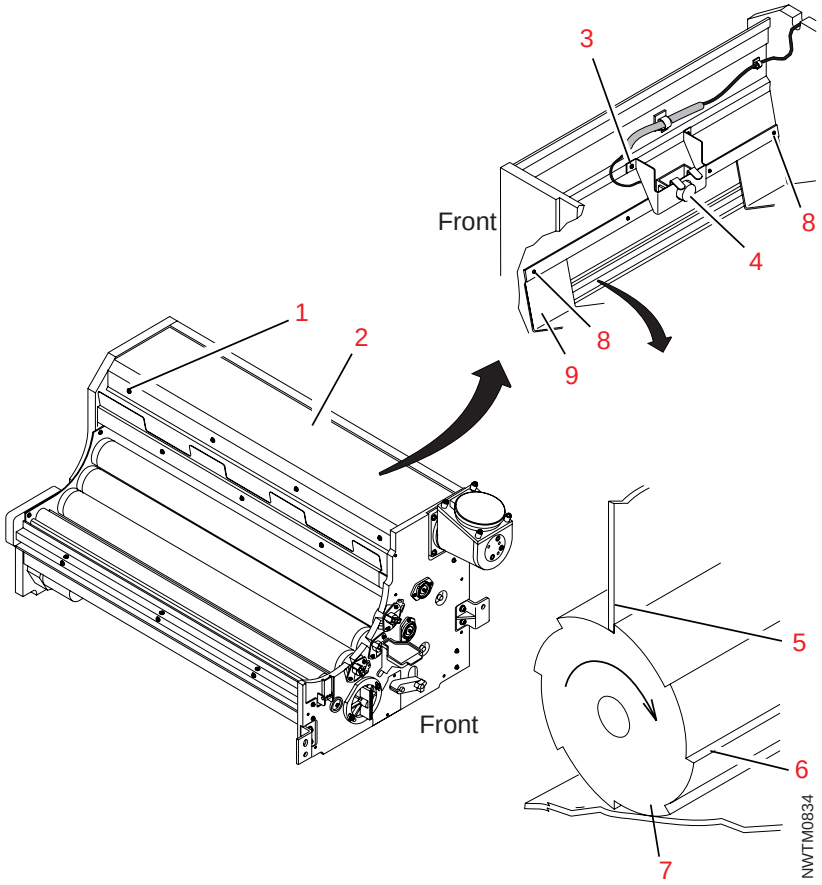
Table 614. Toner Feed Scraper Blade (continued)



4. Loosen screws **(15)**, to move the idler pulley plate to loosen the toner feed belt **(13)**.
5. Remove the toner feed belt **(13)**.
6. Remove the bolt and washer **(11)**.
7. Remove the toner feed pulley **(12)**.
8. Ensure that the scraper blade is all the way down in the groove of toner feed shaft in the front and rear. Slowly turn the toner feed shaft and check that the toner feed scraper blade touches the lowest part of the toner feed shaft.

(continued on next page)

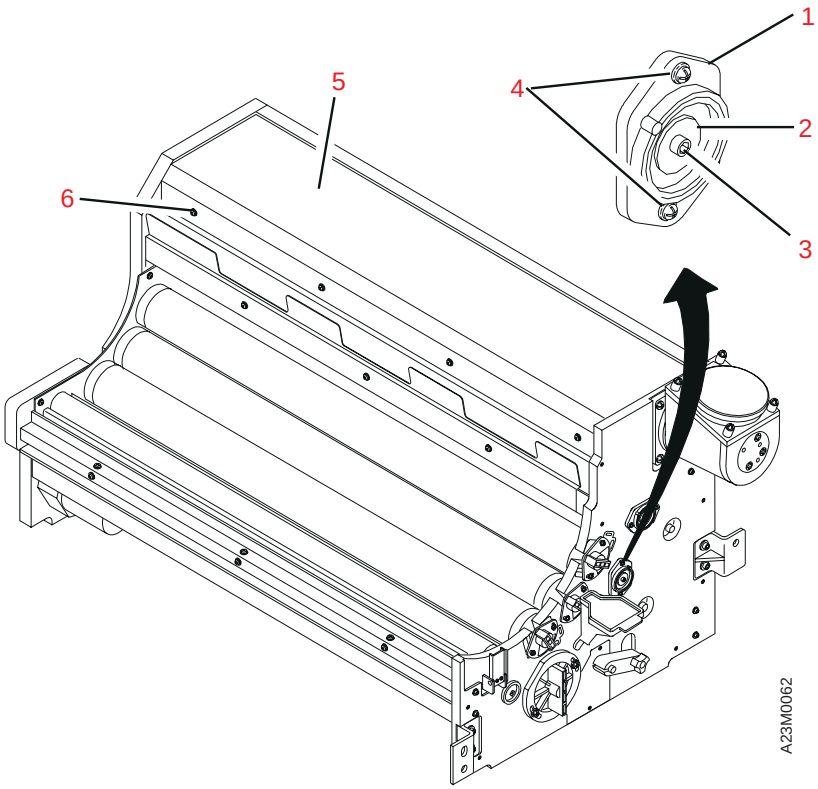
Table 614. Toner Feed Scraper Blade (continued)



9. Tighten the two center screws **(8)**.
10. Slide the end plates **(9)** toward the front and rear of the developer to close the gaps between the scraper blade and the developer side frames.
11. Tighten the two end screws **(8)**.
12. Install the toner feed pulley using the washer and screw.
13. Install the toner feed belt and perform the belt adjustment.
14. Perform the Developer Installation & Checks Procedures.
15. Run Print Pack to verify print quality.

Toner Feed Shaft

Table 615. Toner Feed Shaft



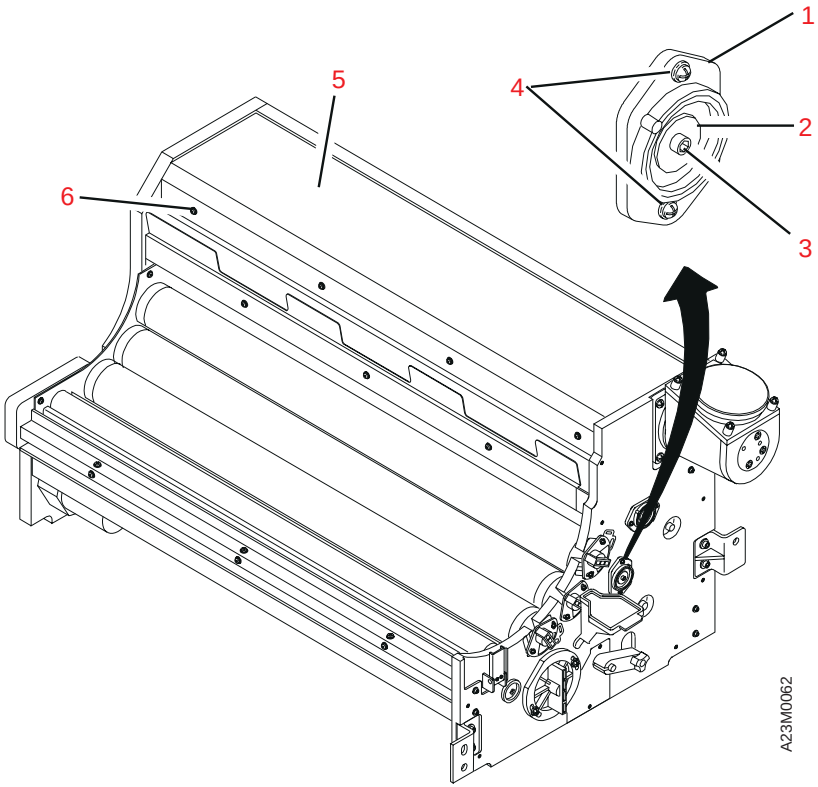
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.

(continued on next page)

Table 615. Toner Feed Shaft (continued)



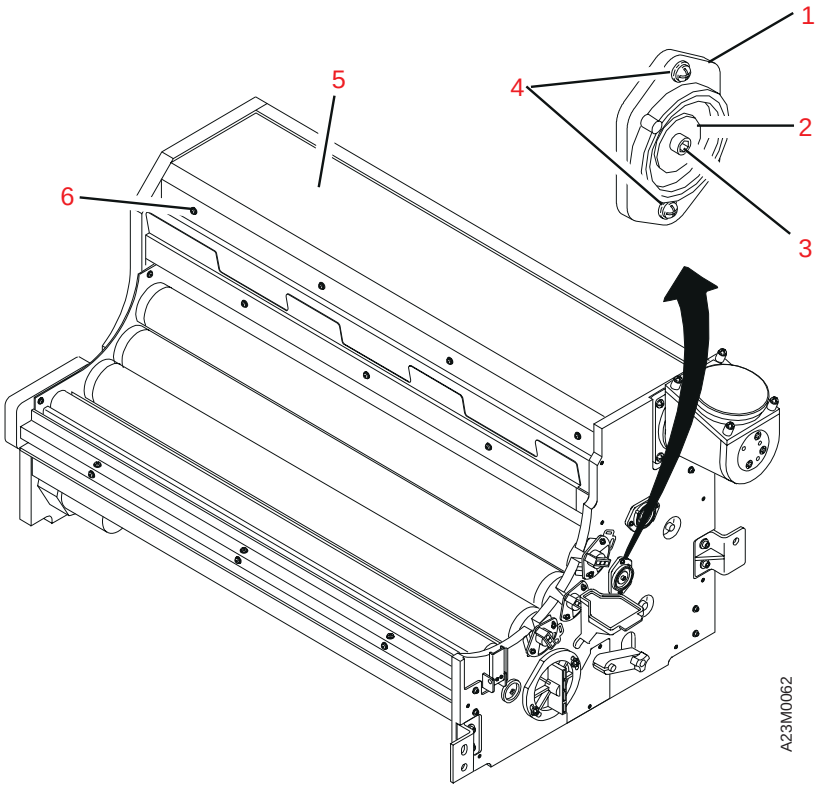
3. Remove the toner feed belt. (See Developer Belts.)
4. Remove the four screws **(6)** and remove the toner hopper cover **(5)**.
5. Remove the toner from the toner hopper.
6. Clean out the toner inlet.
7. Wedge a screwdriver against the pin behind the pulley on the bearing adapter. Remove the screw and washers from the rear of the toner feed shaft.
8. Remove the pulley and bearing from the toner feed shaft.

Note: The pulley will drive only when it is turned *counterclockwise*.

9. Remove the front developer cover.
10. Remove the two screws **(4)**, remove the toner feed shaft front bearing **(1)**
11. Push the shaft forward from the rear and at the same time pull the front bearing and shaft out the front of the developer.
12. Remove the screw **(3)** from the front of the toner feed shaft **(2)**, remove the bearing assembly.

(continued on next page)

Table 615. Toner Feed Shaft (continued)



Installation and Adjustment

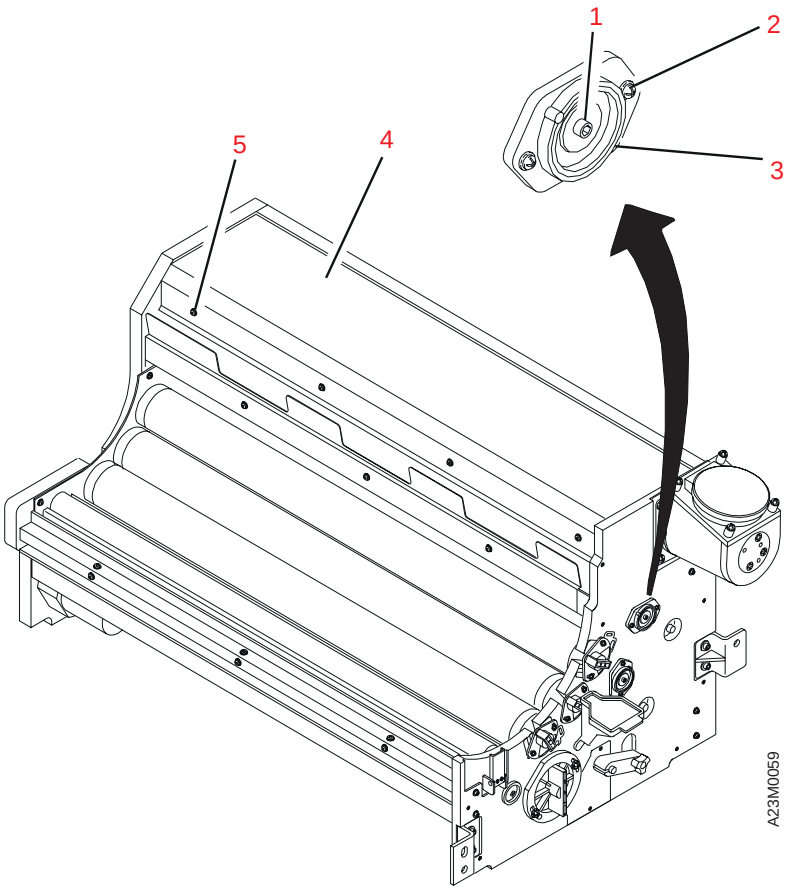
1. Reverse the shaft removal procedure.
   a. The toner feed shaft has a slot on one end. This end must go toward the rear of the developer.
   b. When you install the toner feed pulley, ensure that the punch mark on the pulley faces out (away from the side of the developer).
2. Install the toner feed belt and perform the belt adjustment.
3. Perform the Developer Installation & Checks Procedures.
4. Run Driver Routine 0A.

Note: This will not drive the toner auger.

5. Run Print Pack to verify print quality.

Toner Hopper Paddle

Table 616. Toner Hopper Paddle



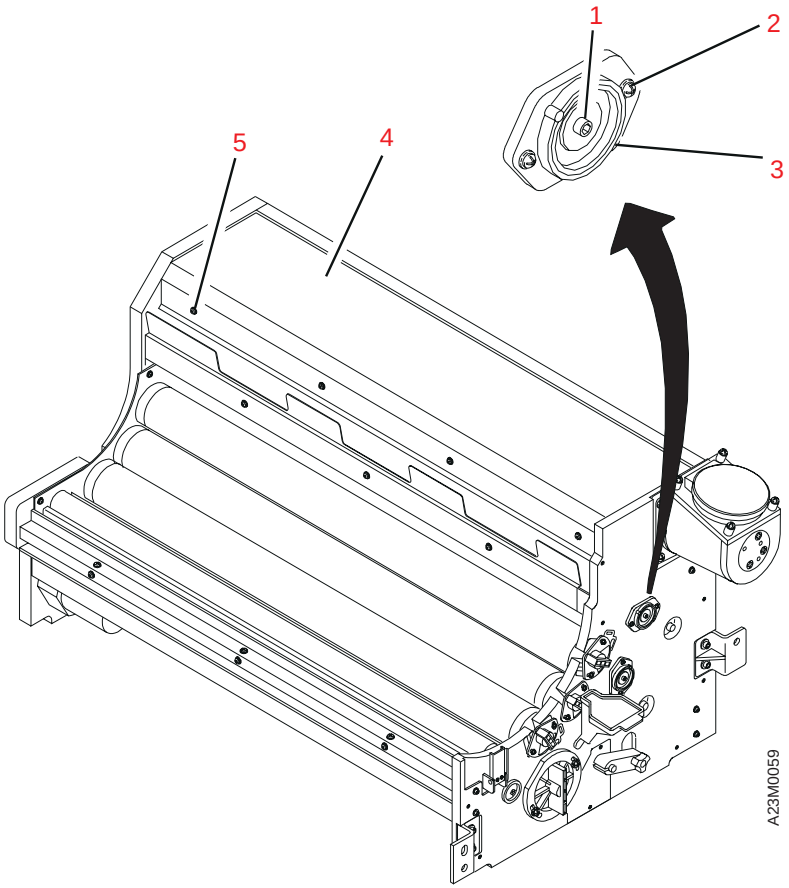
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the four screws **(5)** and remove the toner hopper cover **(4)**.
4. Remove enough toner so you may remove the toner hopper paddle shaft.

(continued on next page)

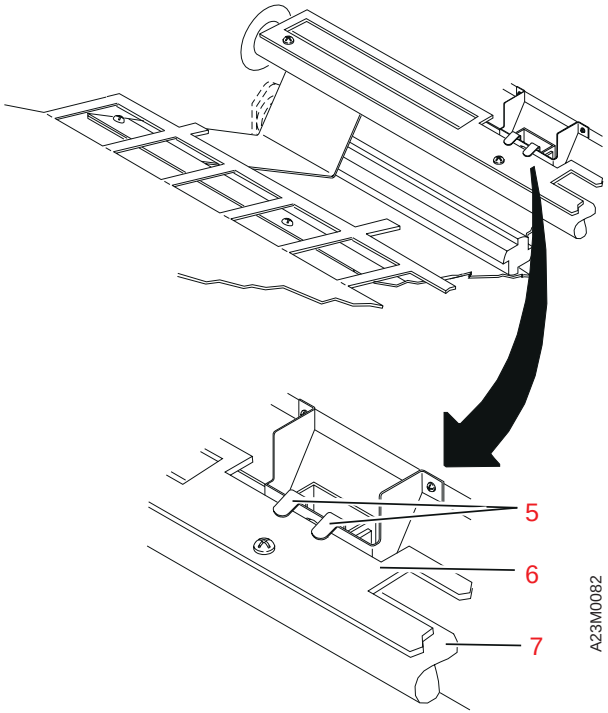
Table 616. Toner Hopper Paddle (continued)



5. Remove the toner feed belt. (See Developer Belts.)
6. Remove the front developer cover.
7. Remove the screw **(1)** from the shaft on the front bearing assembly.
8. Because the toner hopper paddle pulley has a one-way clutch, hold the toner hopper paddle shaft and loosen the screw in the center of the pulley.
9. Remove the pulley and bearing adapter.
10. Remove the two screws and remove the rear bearing assembly.
11. Remove the two screws **(2)** and remove the front bearing assembly **(3)**.
12. Turn the toner hopper paddle shaft so that the paddle points down toward the toner feed shaft.
13. Push the shaft toward the rear of the developer and lift the toner hopper paddle shaft out the front of the developer.

(continued on next page)

Table 616. Toner Hopper Paddle (continued)



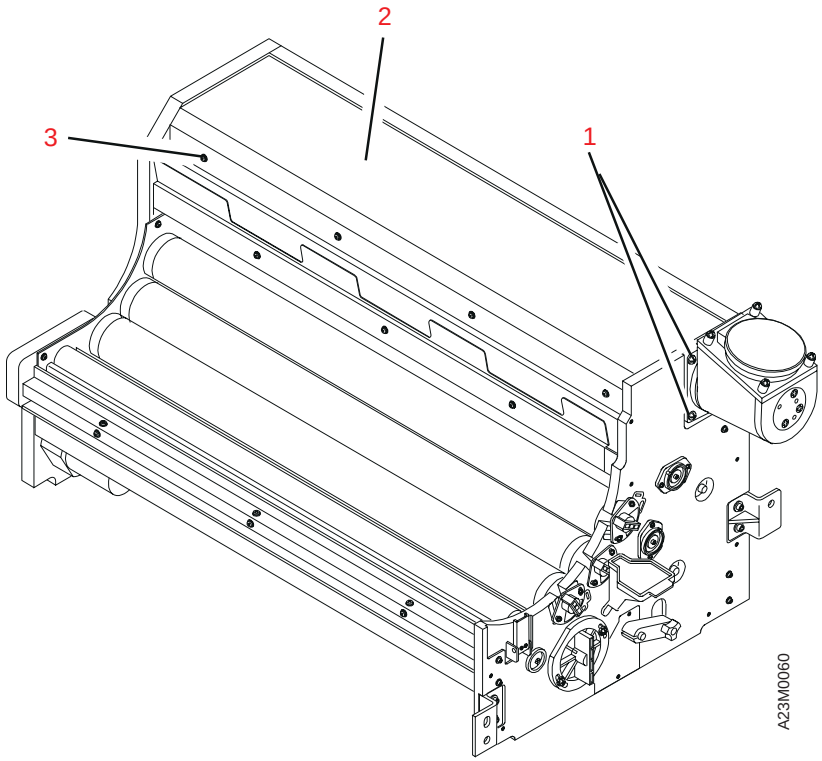
Installation and Adjustment

1. The slot in the shaft is the pulley end.
2. Put the pulley on the shaft with the punch mark facing out away from the casting.
3. Reverse the removal procedure to install the toner hopper paddle.
4. Ensure that the gap between the toner hopper paddle and the toner empty sensor is 1.0 to 2.0 mm.
5. Install the toner feed belt and perform the belt adjustment.
6. Ensure that the sensor tabs **(5)** overlap the paddles **(6)** fastened to the hopper paddle shaft **(7)** by 1.0 ±0.5 mm. This overlap causes the sensor to vibrate on every revolution of the hopper paddle shaft.

   If the tabs do not overlap the paddles, go to Toner Empty Sensor (S106).
7. Perform the Developer Installation & Checks Procedures.
8. Add toner if necessary.
9. Run Driver Routine 0A to ensure the toner hopper paddle works correctly.
10. Run Print Pack to verify print quality.

Toner Inlet and Toner Supply Motor (M112)

Table 617. Toner Supply Motor (M112)



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

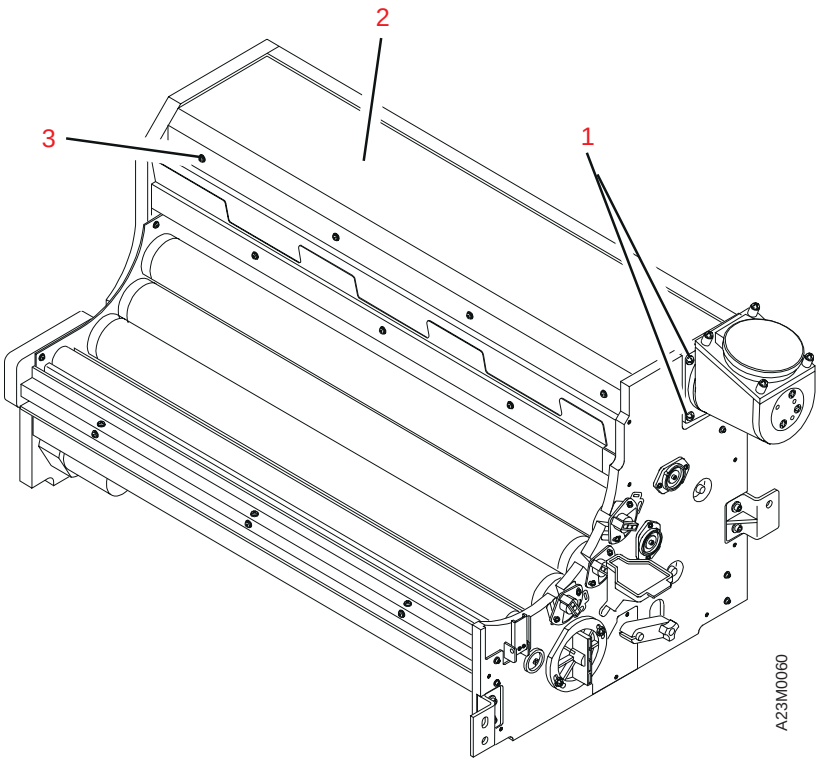
Note: If the Enhanced Toner Loading Feature is installed, the toner inlet assembly also includes a toner supply motor and toner auger drive belt.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove toner until it is below the level of the auger.
4. Remove the toner feed motor drive belt. (See Developer Belts.)

(continued on next page)

Table 617. Toner Supply Motor (M112) (continued)



5. Remove the screw on the rear of the toner inlet pulley.

- If the Enhanced Toner Loading Feature is installed, the toner inlet pulley is free-running and will not drive the toner auger in either clockwise or counterclockwise direction.
- If the Enhanced Toner Loading Feature is **not** installed, the toner inlet pulley will drive the toner auger only when it is turned clockwise.

6. Remove the toner supply belt. (See Developer Belts.)
7. Remove the toner inlet pulley and bearing adapter.

(continued on next page)

Table 617. Toner Supply Motor (M112) (continued)

8. If the Enhanced Toner Loading Feature is installed, disconnect connectors PJ1015 **(1)** and PJ1016 **(2)**.

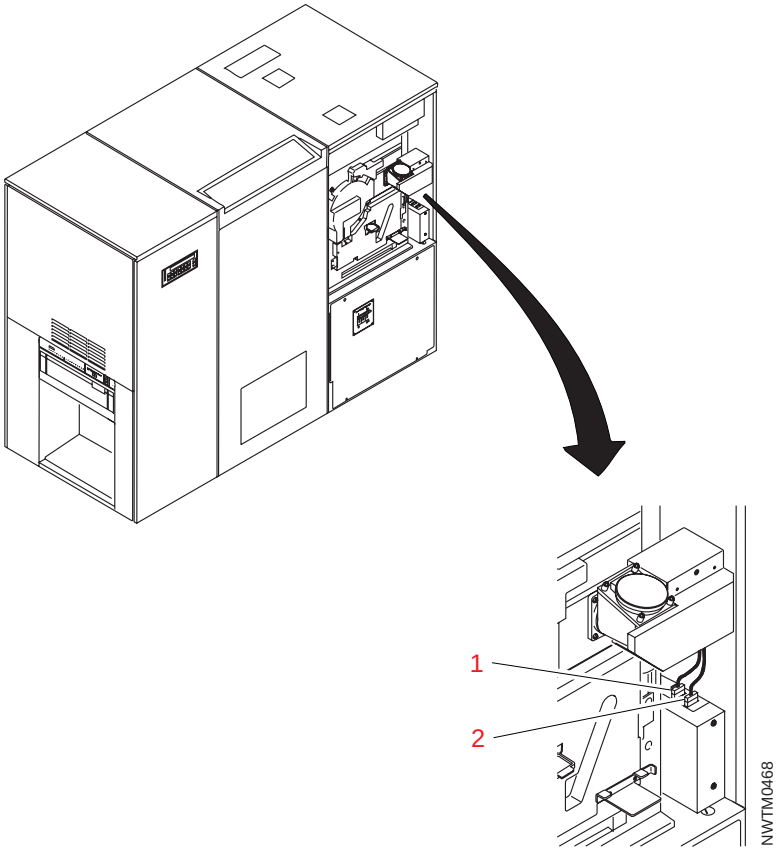


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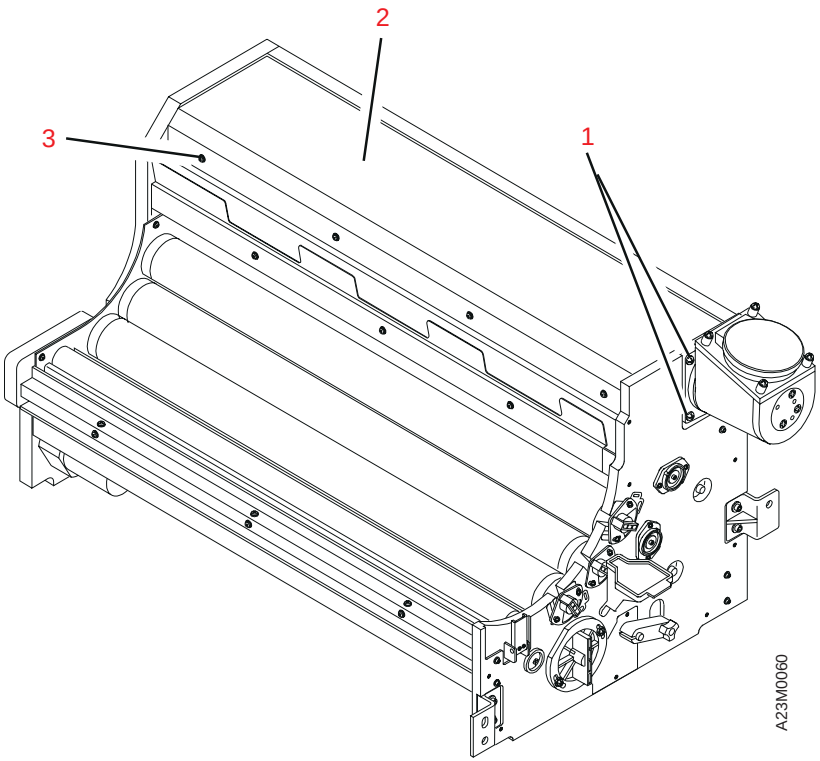
Table 617. Toner Supply Motor (M112) (continued)



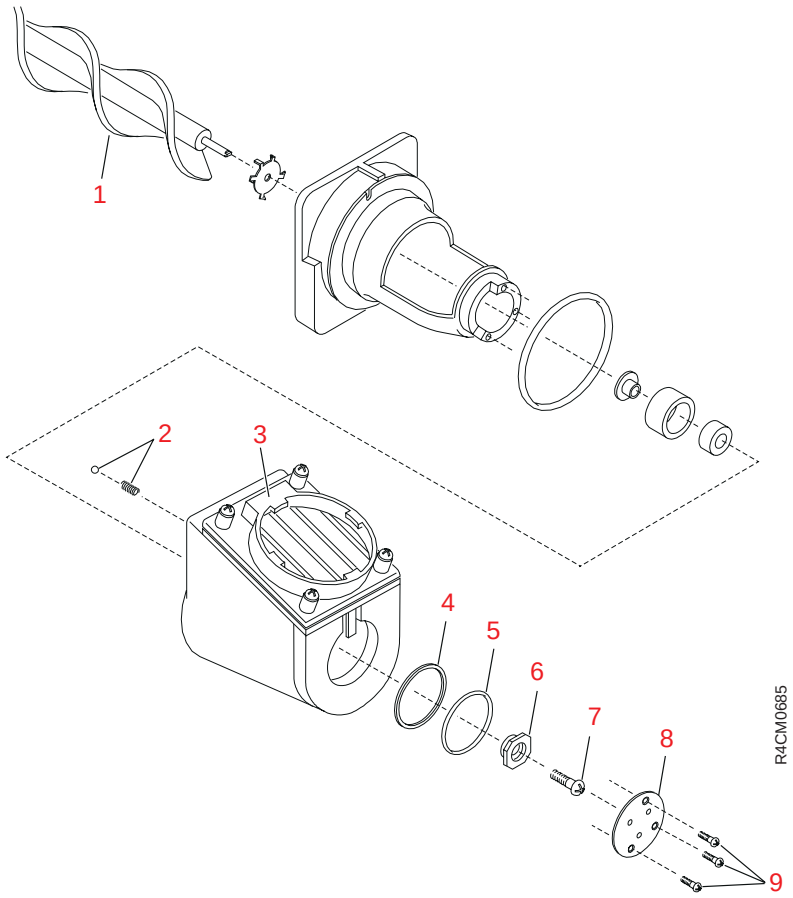
9. Remove the four screws **(1)**, remove the entire toner inlet assembly with auger shaft, and place the assembly on a clean work area.

If the Enhanced Toner Loading Feature is installed, perform steps 13 through 17.

If the Enhanced Toner Loading Feature is **not** installed, perform steps 10 through 12.

(continued on next page)

Table 617. Toner Supply Motor (M112) (continued)



10. Remove the three screws **(9)** and remove the toner inlet front cover **(8)**.

    The O-Ring **(5)** sits on top of the plastic ring **(4)**.

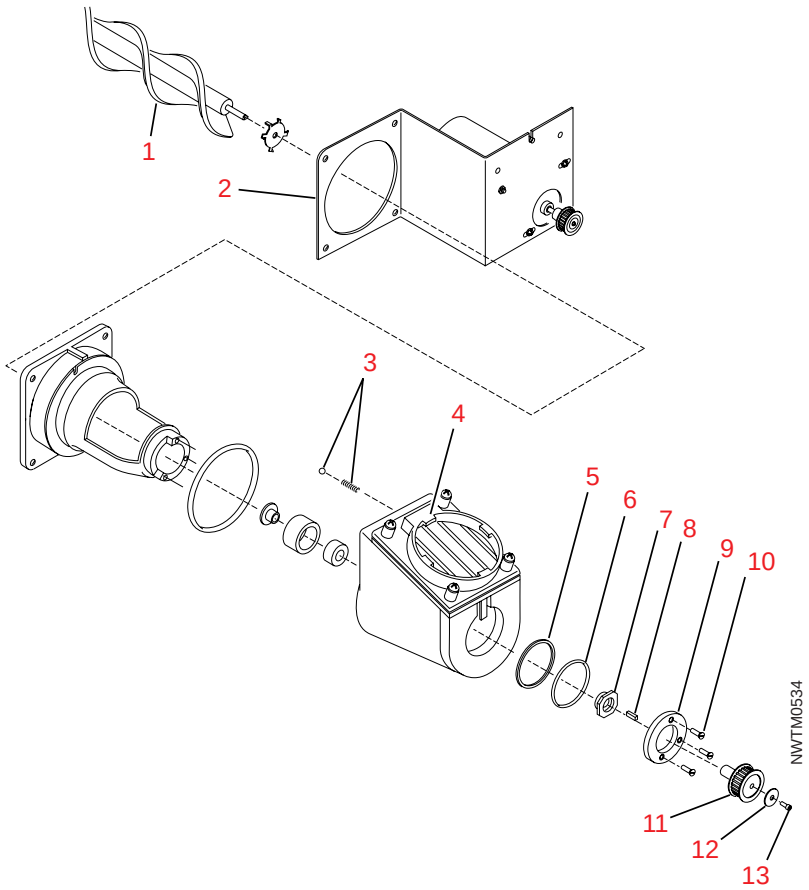
11. Hold the toner auger **(1)**. Remove the screw **(7)** and cam **(6)** at the center of the shaft.

Note: Be careful not to lose the ball bearing and spring **(2)** at the back of the toner inlet assembly.

12. Pull on the toner inlet cover **(3)** to separate it from the rest of the assembly.

(continued on next page)

Table 617. Toner Supply Motor (M112) (continued)



If the **Enhanced Toner Loading Feature** is installed, perform the following steps.

13. Remove the toner auger drive pulley **(11)** by removing screw **(13)** and washer **(12)**.
14. Remove the three screws **(10)** and remove the toner inlet front cover **(9)**.

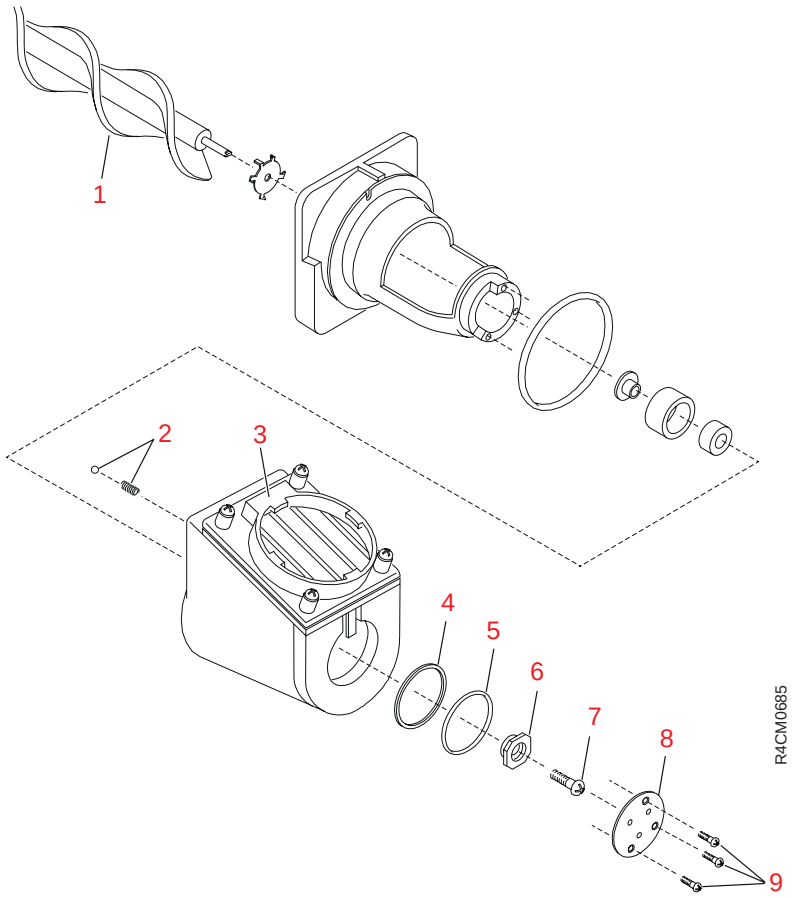
    The O-Ring **(6)** sits on top of the plastic ring **(5)**.
15. Hold the toner auger shaft **(1)**. Remove the key **(8)** and cam **(7)** at the center of the shaft.

Note: Be careful not to lose the ball bearing and spring **(3)** at the back of the toner inlet assembly.

16. Pull on the toner inlet cover **(4)** to separate it from the rest of the inlet assembly.
17. If you are replacing the toner supply motor, remove the other parts from the end of the toner auger shaft until the toner motor mounting bracket **(2)** is free to remove.
18. Replace the motor capacitor (C112).

(continued on next page)

Table 617. Toner Supply Motor (M112) (continued)



Installation and Adjustment

1. Clean developer mix from the screws and holes.

Notes:

a. When you install the toner auger pulley, ensure that the punch mark on the pulley faces out (away from the side of the developer).

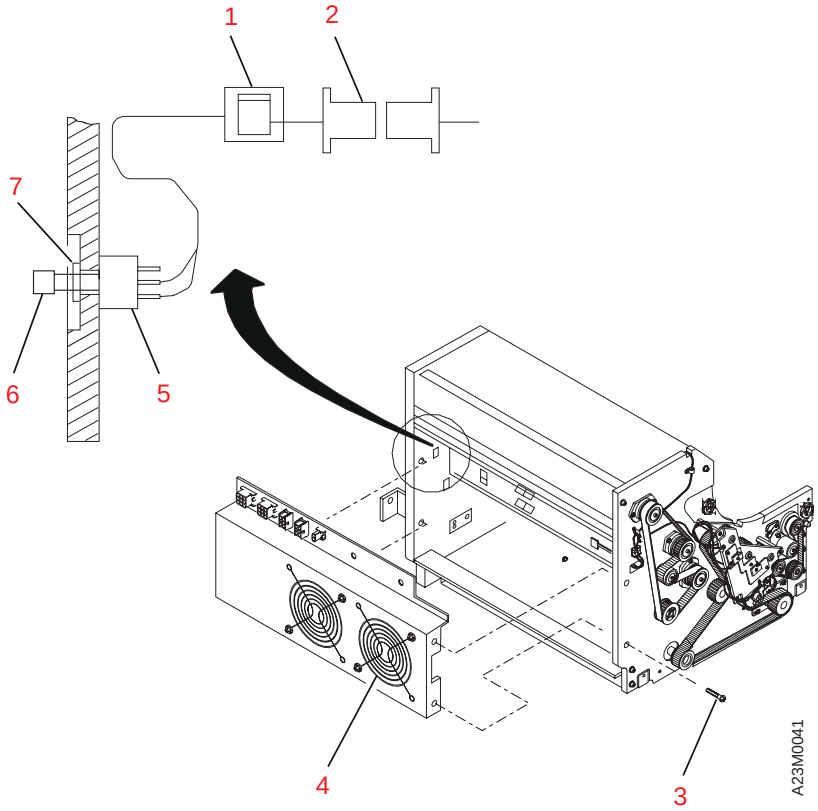
b. If the Enhanced Toner Loading Feature is installed, the pulley should rotate in both directions without rotating the toner auger.

c. If the Enhanced Toner Loading Feature is **not** installed, the pulley should drive the auger when turned in a clockwise direction looking from the rear of the developer.

2. Reverse the motor removal procedure.
3. Install the toner feed belt and perform the belt adjustment.
4. If the Enhanced Toner Loading Feature is installed, perform the toner supply belt adjustment.
5. Perform the Developer Installation & Checks Procedures.
6. Power on the printer.
7. If the Enhanced Toner Loading Feature is installed, press the **Toner Supply** pushbutton to ensure that the toner auger works correctly.
8. If the Enhanced Toner Loading Feature is **not** installed, run driver routine 34 to ensure the toner auger works correctly.
9. Run Print Pack to verify print quality.

Toner Supply Switch (S121)

Table 618. Toner supply Switch (S121)



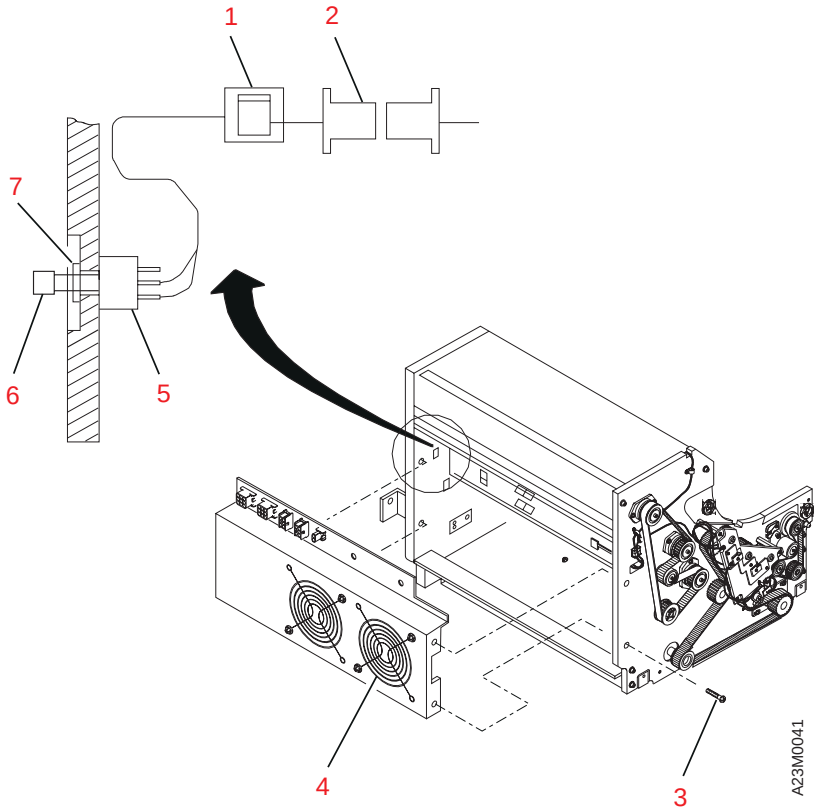
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the four screws **(3)** (two in front and two in back), and remove the developer fan bracket assembly **(4)**.
4. Disconnect connector PJ190 **(2)**.
5. Remove the cable from the cable clamp **(1)**.
6. Remove the cap **(6)** and the nut **(7)** and remove the toner supply switch **(5)**.

(continued on next page)

Table 618. Toner supply Switch (S121) (continued)



Installation

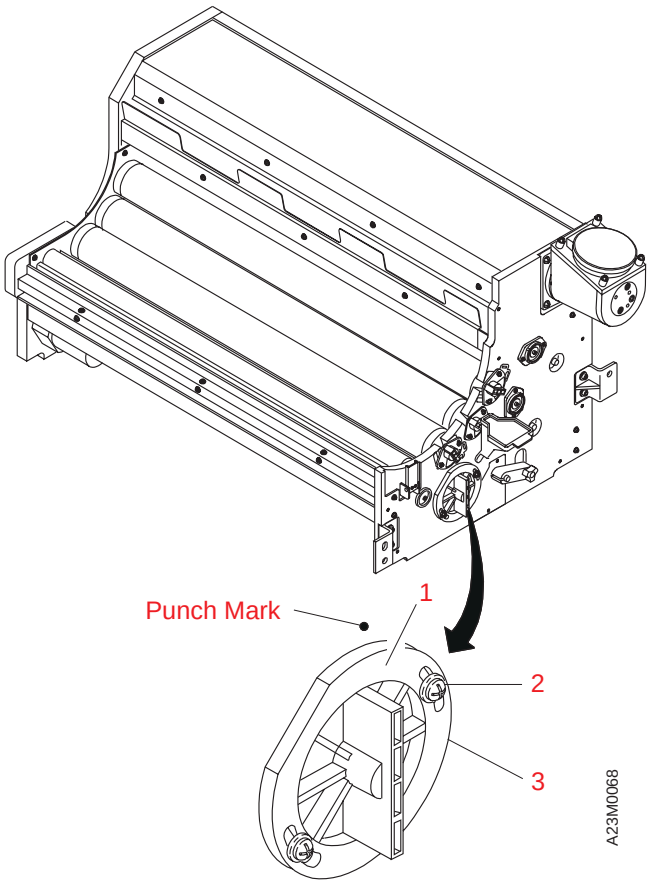
1. Reverse the switch removal procedure.
2. Perform the Developer Installation & Checks Procedures.
3. Run Sensor Routine 8B to ensure that the switch works correctly.
4. Run Print Pack to verify print quality.

Developer Adjustments

Attention: Check the developer to PC drum clearance every time you reinstall the developer in the printer.

Conveyor Roll Angle

Table 619. Conveyor Roll Angle



Check and Adjustment

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Leave the developer in the printer.
3. Remove the front developer cover.
4. Ensure that the correct mark on the conveyor roll flange scale is aligned with the punch mark above the scale.

Note: The conveyor roll angle is 0° for all printers.

If it is not aligned correctly, perform the following adjustment.

a. Loosen the two screws **(2)**.

b. Adjust the conveyor roll angle by turning the flange **(3)** until the correct position on the scale **(1)** is aligned with the punch mark above the scale.

c. Tighten the two screws **(2)**.

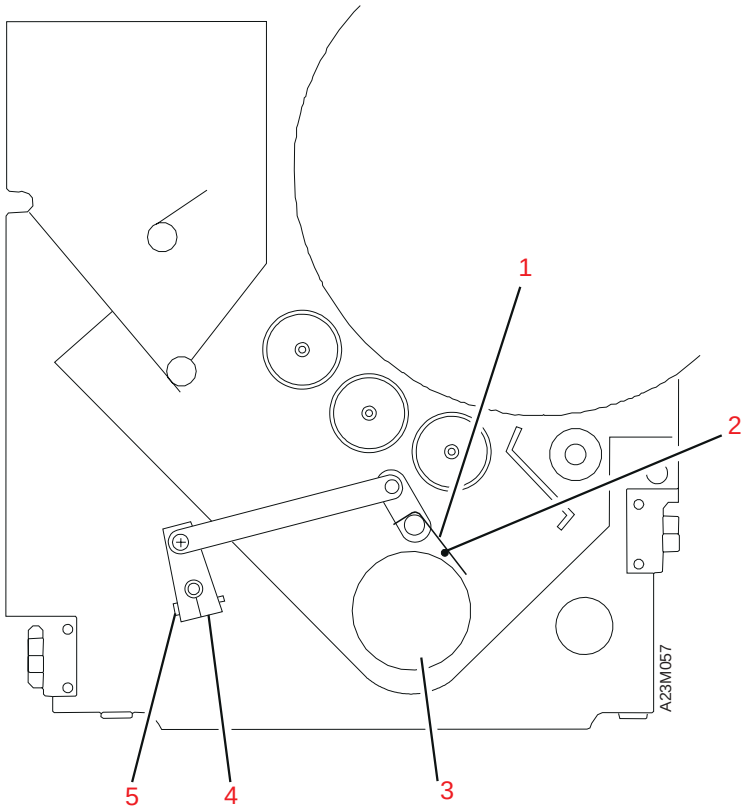
d. Install the front developer cover.

Check

Run Print Pack to verify print quality.

Conveyor Roll Lift Plate

Table 620. Conveyor Roll Lift Plate

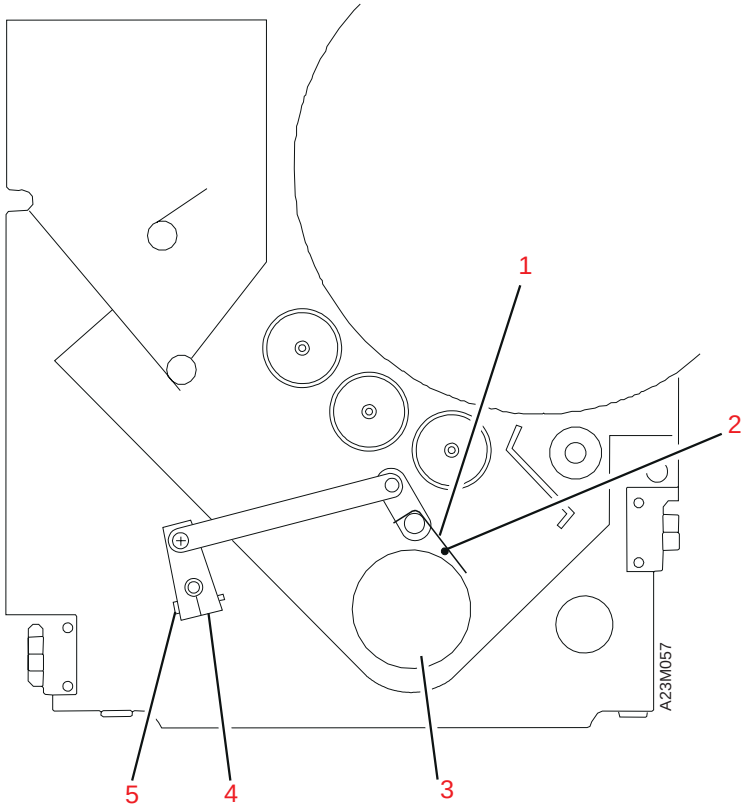


Adjustment

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.

(continued on next page)

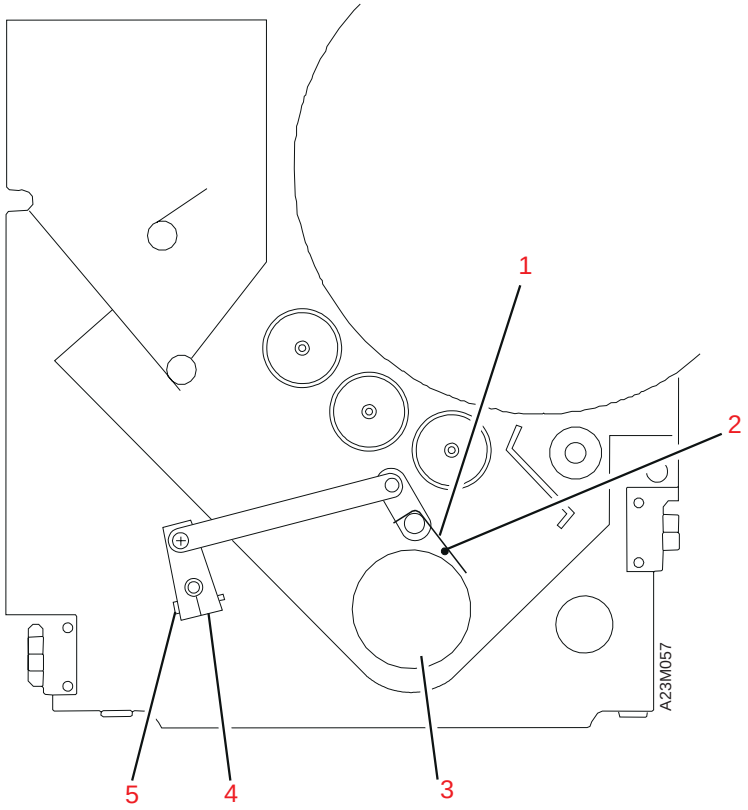
Table 620. Conveyor Roll Lift Plate (continued)



3. Remove the Fine Filter Case.
4. Ensure that the drain door is completely closed.
5. Loosen the lift plate adjustment screw **(5)**.

(continued on next page)

Table 620. Conveyor Roll Lift Plate (continued)



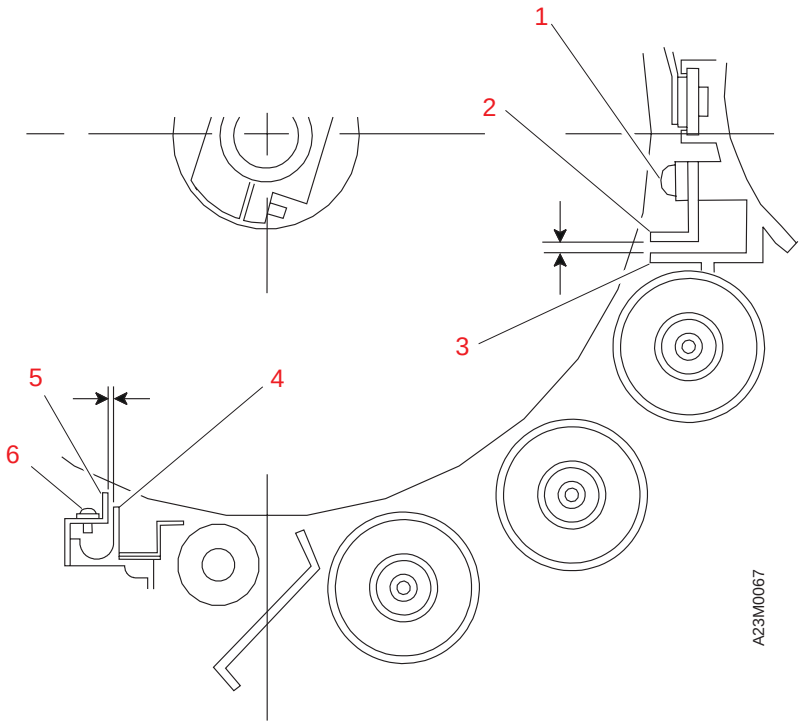
6. Remove all of the play in the lift plate linkage so that the lift plate **(1)** is resting on the pins **(2)**. Tighten adjustment screw **(5)**.
7. Install the developer belt cover.
8. Install the Fine Filter Case.
9. Perform the Developer Installation & Checks Procedures.

Check

Run Print Pack to verify print quality.

Developer Housing Vacuum Seal Gap

Table 621. Developer Housing Vacuum Seal Gap



Special Tools Required

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Drum clearance gauge (PN 06F1029)
- IBM vacuum cleaner (PN 9900735)

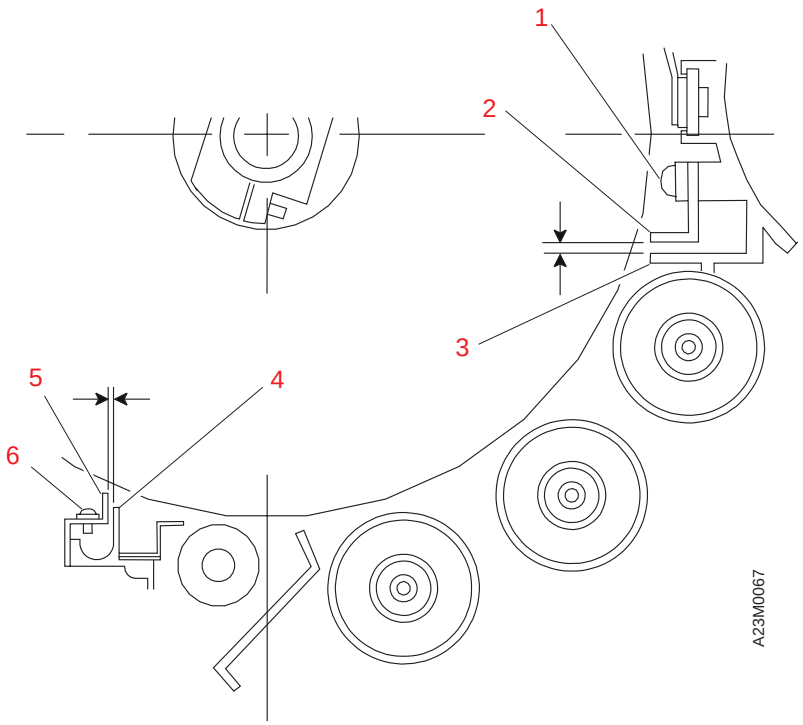
Check

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box. See PC Drum Removal.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

(continued on next page)

Table 621. Developer Housing Vacuum Seal Gap (continued)



4. There are two vacuum seals in the developer area: an upper vacuum seal **(2)** and a lower vacuum seal **(5)**. Measure the gap between each of these seals and the adjacent developer housing **(3)** or **(4)**.
5. Use a feeler gauge to ensure that the gap between the upper and lower vacuum seals and the adjacent developer housing is at least 2 mm (0.079 in.).
6. If either gap is not within the specified range, perform the following adjustment.

Adjustment

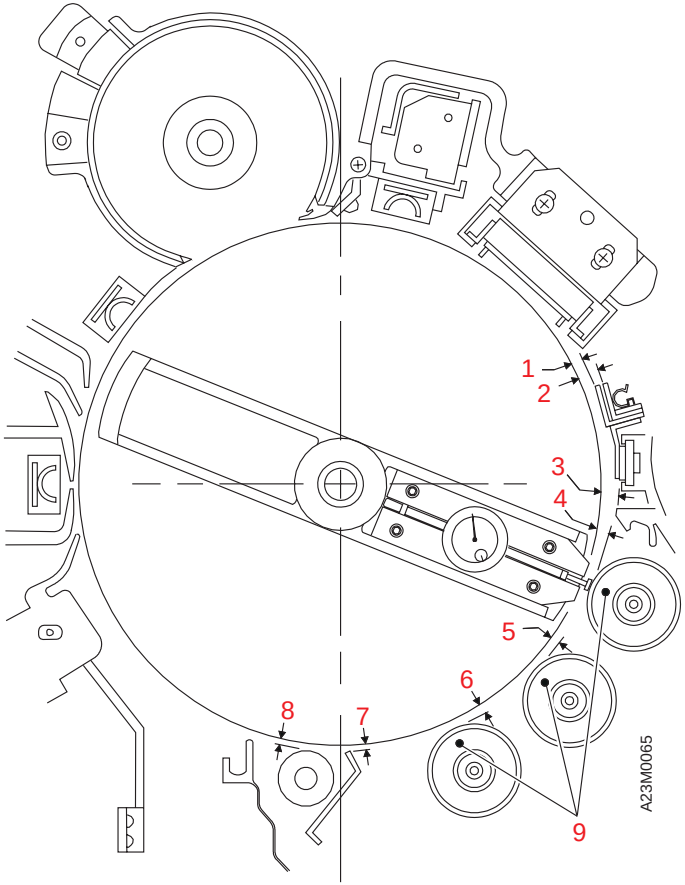
If the gap is not at least 2 mm (0.079 in.), loosen the three screws **(1)** or **(6)** (upper or lower seal) and adjust the gap by sliding the vacuum seal closer or further away from the developer housing.

Check

Run Print Pack to verify print quality.

Developer to PC Drum Gap

Table 622. Developer to PC Drum Gap



The developer to PC drum gap adjustment consists of the following checks and adjustments:

- Mag brush A to PC drum clearance
- Mag brush B to PC drum clearance
- Mag brush C to PC drum clearance
- Scavenger roll to PC drum clearance
- Developer upper seal to PC drum clearance
- Developer lower seal to PC drum clearance
- ESV holder to PC drum clearance
- Air deflector plate to PC drum clearance.

You should check all of the adjustments listed above whenever you pull out the developer unit for service.

Special Tools Required

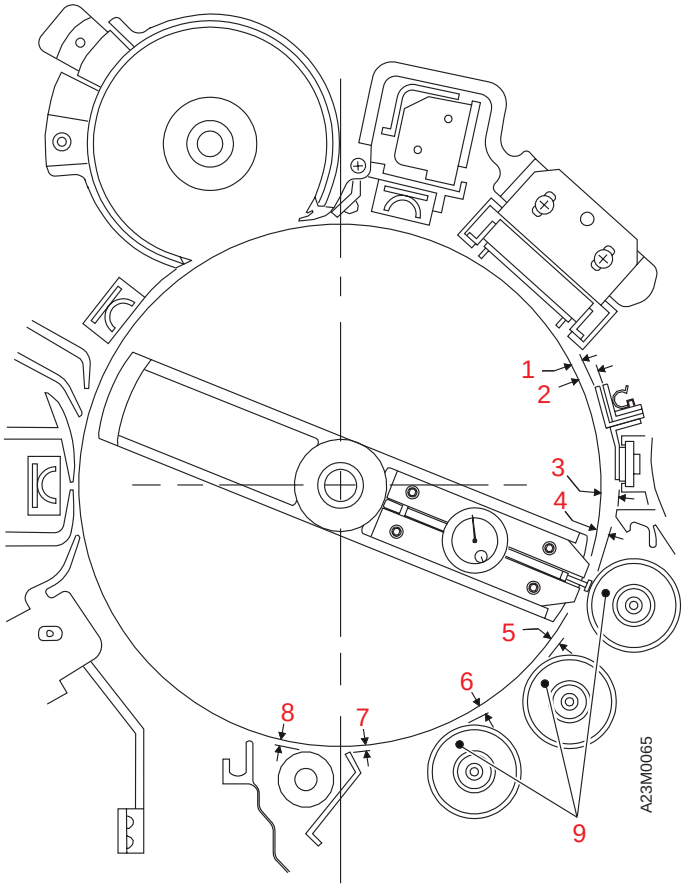
- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Drum clearance gauge (PN 06F1029)
- Lint free cloth (PN 2108930)
- IBM vacuum cleaner (PN 9900735)

Check

1. Request that the system operator stop activity on the printer. Disable all host attachments.

(continued on next page)

Table 622. Developer to PC Drum Gap (continued)



2. The developer mix usage counter is automatically reset to zero when you move the developer drain lever from the open to the closed position with power on.

   Read and save the values in developer mix usage values from counters FF IE and FF IF. You will reenter these values into the usage counter at the end of this procedure. To read the developer mix usage values, perform the following procedure from the maintenance panel:

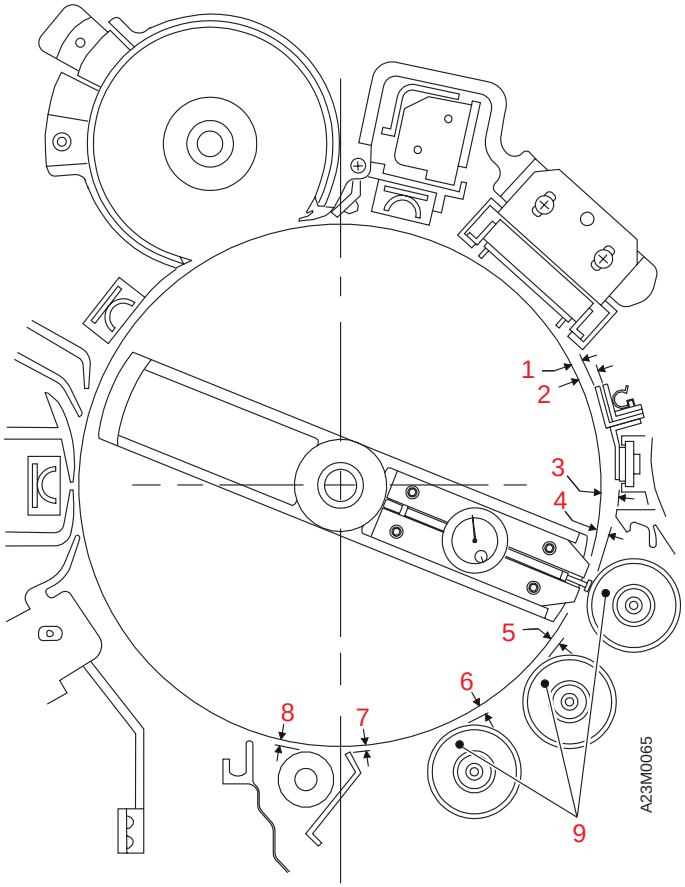
   a. Set the diagnostic switch to **2**.
   b. Key in **3** and press **Enter**.
   c. Key in **01** and press **Enter**.
   d. Key in **FF 1E** and press **Enter** to read the low-order byte.
   e. Press **Enter** to read the high-order byte, **FF 1F**.
3. Remove the developer mix. See the *Operator's Guide*.
4. Shutdown and power off the printer.
5. Remove the PC drum and store it in a drum bag or in a box. See PC Drum Removal.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

6. Remove the drum shaft extension.
7. Remove the Fine Filter Case.
8. Leave the developer in the printer.

(continued on next page)

Table 622. Developer to PC Drum Gap (continued)



9. Rotate the mag brush rolls until the punch marks **(9)** (high point) on the front end of the mag brush rolls are aligned toward the PC drum.
10. Use the vacuum to remove the toner and mix from the mag brush rolls, scavenger roll, ESV holder, lower seal, and upper seal. Use a lint-free cloth to clean remaining mix from the developer.
11. Use a lint-free cloth to clean off the drum shaft and the interior of the drum clearance gauge.
12. Check calibration of the drum clearance gauge. See Drum Clearance Gauge.
13. Install the drum clearance gauge onto the drum center shaft.

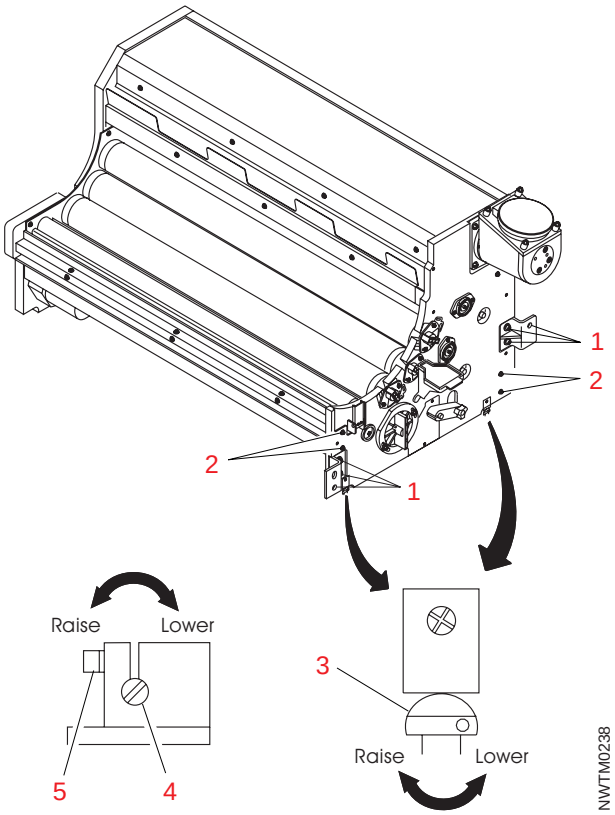
Hint: Subtract 5 mm from the reading on the drum gauge to obtain the correct clearance values.

Attention: To avoid damage to the drum, you *must* raise the scavenger roll lever before you perform the scavenger roll check in the next step.

14. Ensure that the PC Drum & Developer Clearances/Gaps (front and rear) are as shown in the table. Record the clearances for reference if adjustment is necessary.

(continued on next page)

Table 622. Developer to PC Drum Gap (continued)



Adjustment

1. Remove the belt cover from the rear of the developer.
2. Remove the Developer Rear Seal.
3. Remove the front developer cover.
4. Loosen the eight slide rail holding screws at the front and rear **(2)** of the developer.
5. Loosen the six screws **(1)**.
6. Loosen the two set screws to adjust the front jack screws **(3)**.
7. Loosen the two locking screws **(5)** for the developer rear gap adjusting shafts **(4)**.
8. Use the clearance values you recorded during the check to determine which jacking screws or adjusting shafts you need to adjust.

Notes:

a. You can adjust the front side bearings of mag brush roll A and the scavenger roll if necessary.

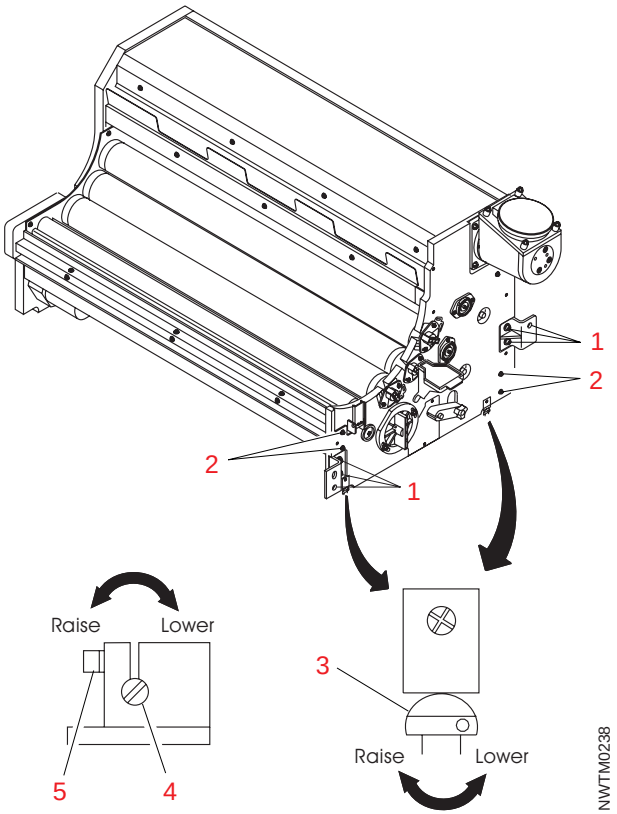
b. You can adjust mag brush roll B only by using the jacking screws and adjusting shafts.

c. Never adjust the front side bearing for mag roll C. Use mag roll B and mag roll C as reference points for the developer when the initial mag brush roll position is set. Moving this bearing will make it very difficult to obtain proper developer to PC drum gap adjustment.

9. Ensure that the punch marks (high points) on all of the rolls are still aligned towards the PC drum.
10. Continue to check the dimensions at both ends of the shafts as you make adjustments until the front and rear clearances are correct.

(continued on next page)

Table 622. Developer to PC Drum Gap (continued)



11. After you adjust the three mag brush rolls and the scavenger roll to specification, tighten screws **(1)**, **(2)**, set screws for the jacking screws **(3)**, and adjusting shaft locking screws **(5)**.
12. Check the clearances again to be sure that the adjustment has not changed.
13. Adjust the lower seal, ESV holder and upper seal.
14. Check all clearances to ensure that they are correct.
15. Lower the scavenger roll and then install the PC drum. See PC Drum Removal.
16. Install the developer belt cover.
17. Install the front developer cover.
18. Install the PC drum cover.
19. Power on the printer.
20. Reenter the developer mix usage values if you are installing the old mix.

    To write the developer mix usage values, perform the following procedure at the maintenance panel:

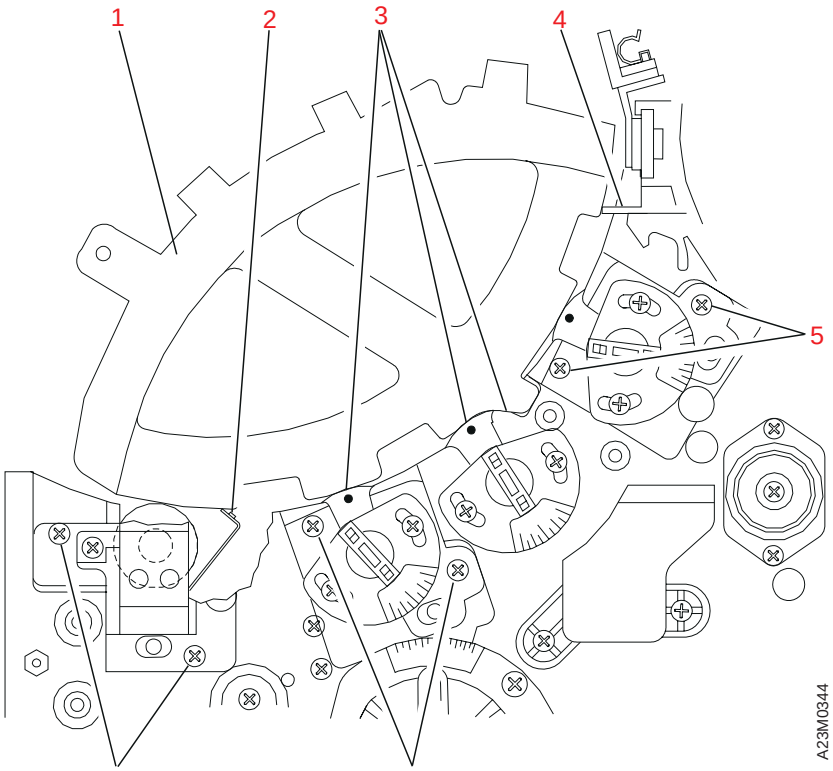
    a. Set the diagnostic switch to **2**.
    b. Key in **3** and press **Enter**.
    c. Key in **F1** and press **Enter**.
    d. Key in **FF 1E** and press **Enter**.
    e. Key in the correct value for byte **1E** and press **Enter**.
    f. Key in the correct value for byte **1F** and press **Enter**.

Check

Run Print Pack to verify print quality.

Initialize Mag Brush Rolls Position

Table 623. Initialize Mag Brush Rolls Position



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Notes:

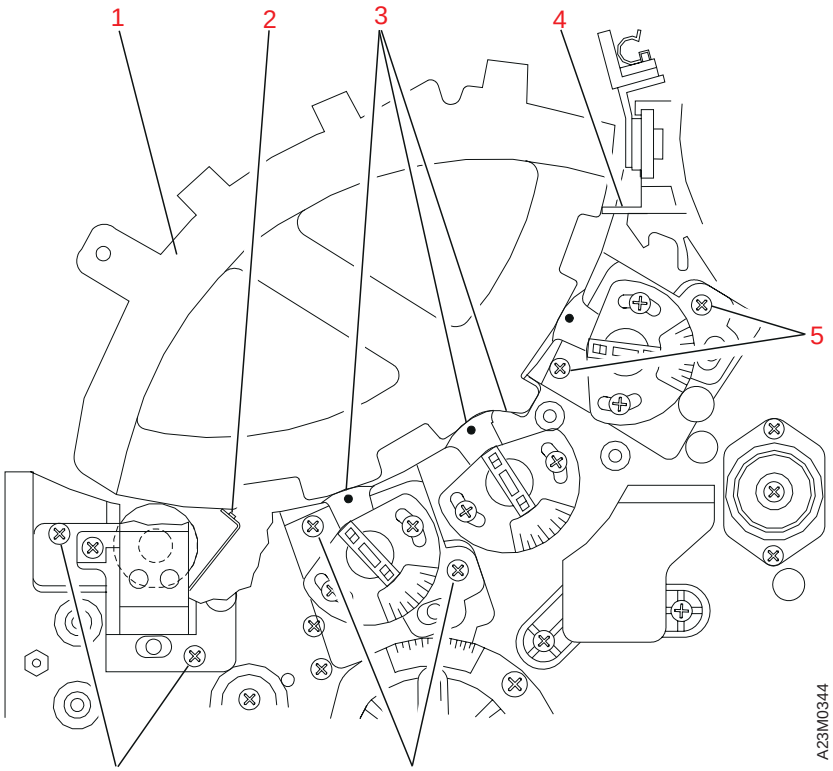
1. Use this adjustment procedure only if the developer to PC drum gap can not be adjusted to specification any other way.
2. If during this procedure the mag brush roll A is moved, you must readjust the doctor blade and the A scraper.

Adjustment

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the front developer cover.
4. Remove the Developer Rear Seal.

(continued on next page)

Table 623. Initialize Mag Brush Rolls Position (continued)



5. Use the vacuum cleaner to clean the developer mix off of the mag brush rolls.

   Ensure that there is no developer mix under the mag roll shafts. If you are not sure, remove the mag rolls and clean the area under the shafts, then reinstall the mag rolls.

Note: If the mag brush roll C front position plate holding screws **(6)** (factory only adjustment) have been loosened this adjustment can not correct this problem.

6. Rotate the mag brush rolls so that the punch marks are toward the PC drum.
7. Install the developer front seal gauge **(1)**.

   The gauge **(1)** must contact mag brush rolls B and C at the three contact points **(3)**.

Notes:

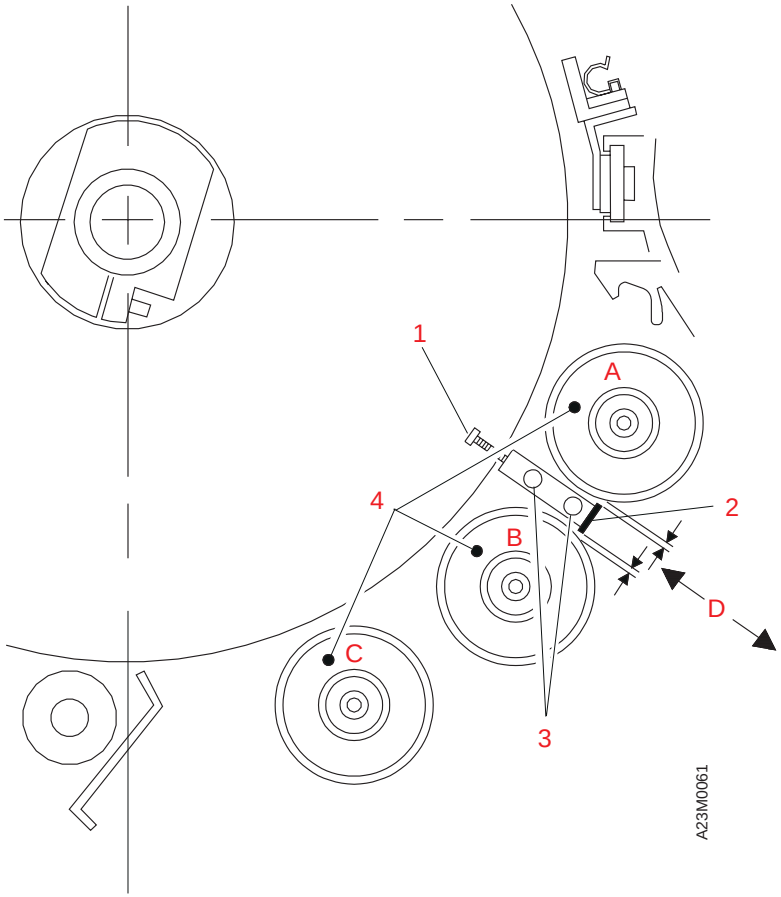
a. The gauge should rest on the shinny ends of the mag brush rolls.

b. If there is anything preventing the gauge from resting on the above three contact points, move the object out of the way.

8. Adjust mag brush roll A **(5)**, scavenger roll **(7)**, lower seal **(2)** , and upper seal **(4)** to just touch the developer front seal gauge.
9. If mag brush roll A is moved, you must readjust the doctor blade and A scraper adjustments.
10. Install the Developer Rear Seal.
11. Perform Developer Installation & Checks procedures.

Mag Brush Rolls to Doctor Blade Gap

Table 624. Mag Brush Rolls to Doctor Blade Gap



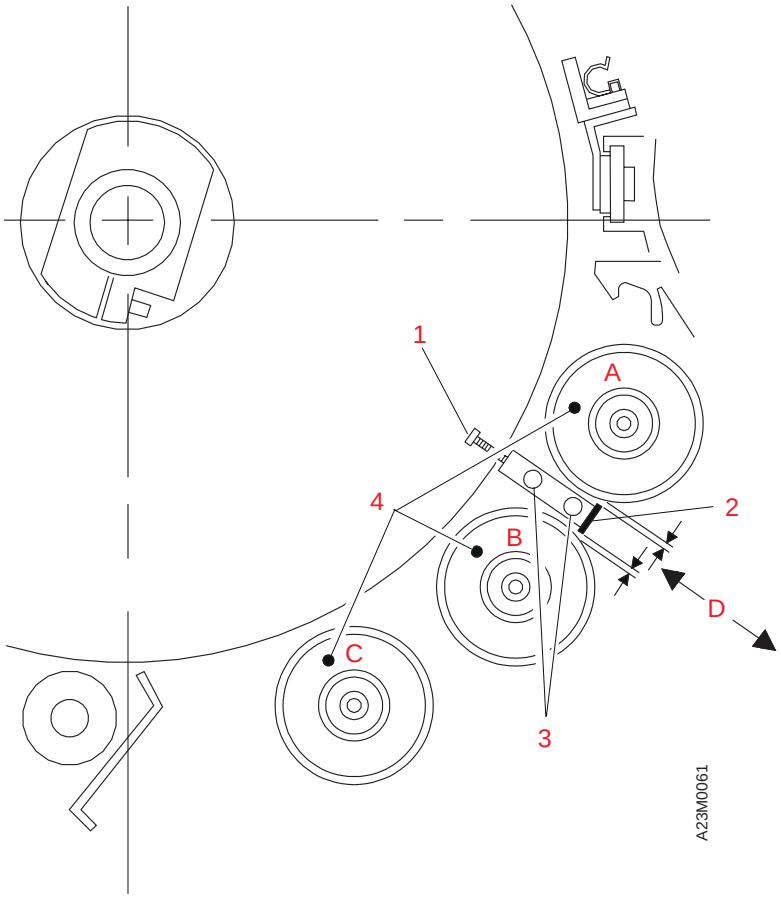
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Check

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the Developer Rear Seal.
4. Use the vacuum cleaner to clean off the doctor blade **(2)** and mag brush rolls A and B.
5. Rotate the mag brush rolls so that the punch marks **(4)** are toward the PC drum.

(continued on next page)

Table 624. Mag Brush Rolls to Doctor Blade Gap (continued)



6. Measure the clearance between the mag brush rolls and the doctor blade **(2)**. Measure the doctor blade gaps at the shiny ends of the mag brush rolls and ensure that the front and rear gaps are as shown in PC Drum & Developer Clearances/Gaps table.

Notes:

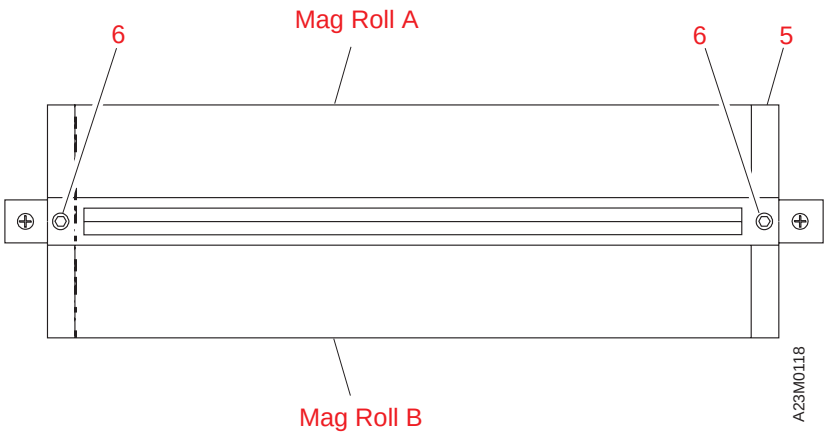
a. The 0.9 mm gauge should not go between mag roll A and the doctor blade but an 0.8 mm gauge should.

b. The 1.0 mm gauge should not go between mag roll B and the doctor blade but a 0.9 mm gauge should.

If the gaps are not within the specified range, perform the following adjustment.

(continued on next page)

Table 624. Mag Brush Rolls to Doctor Blade Gap (continued)



Adjustment

1. Remove the front developer cover.
2. When you make this adjustment, use the doctor/scraper gauges and place them between the doctor blade and mag brush rolls at the front and rear of the developer.

Notes:

a. Measure the doctor blade gap at the shiny ends **(5)** of the mag brush rolls.

b. You can use two of the screws that hold the developer rear cover. See **(1)** in the figure on page2419.

3. Loosen two screws **(6)**.

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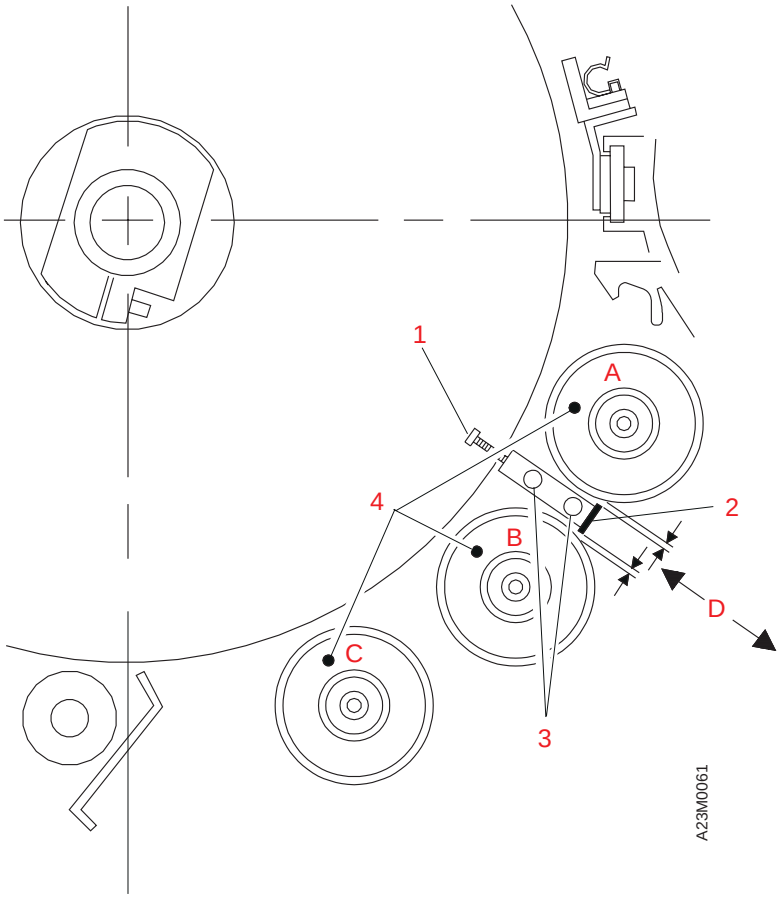
Table 624. Mag Brush Rolls to Doctor Blade Gap (continued)



Note: The doctor blade assembly can be pulled up against the mag brush rolls, by using two M4 screws **(1)**, one on each end of the doctor blade assembly.

4. Loosen the four screws **(3)** (two front and two rear).

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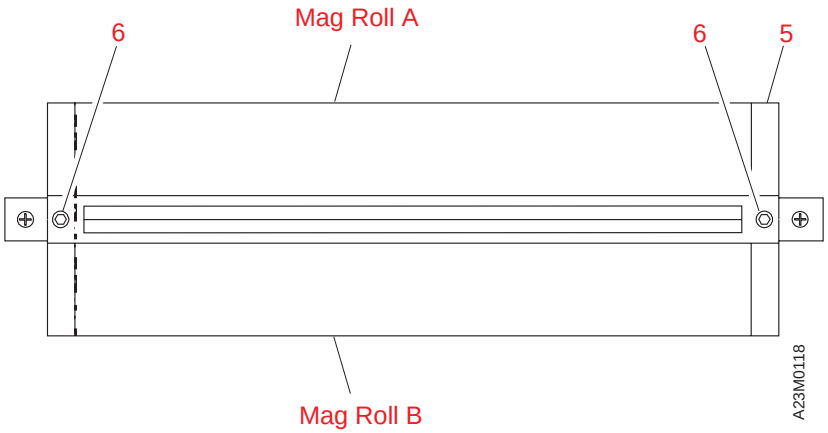
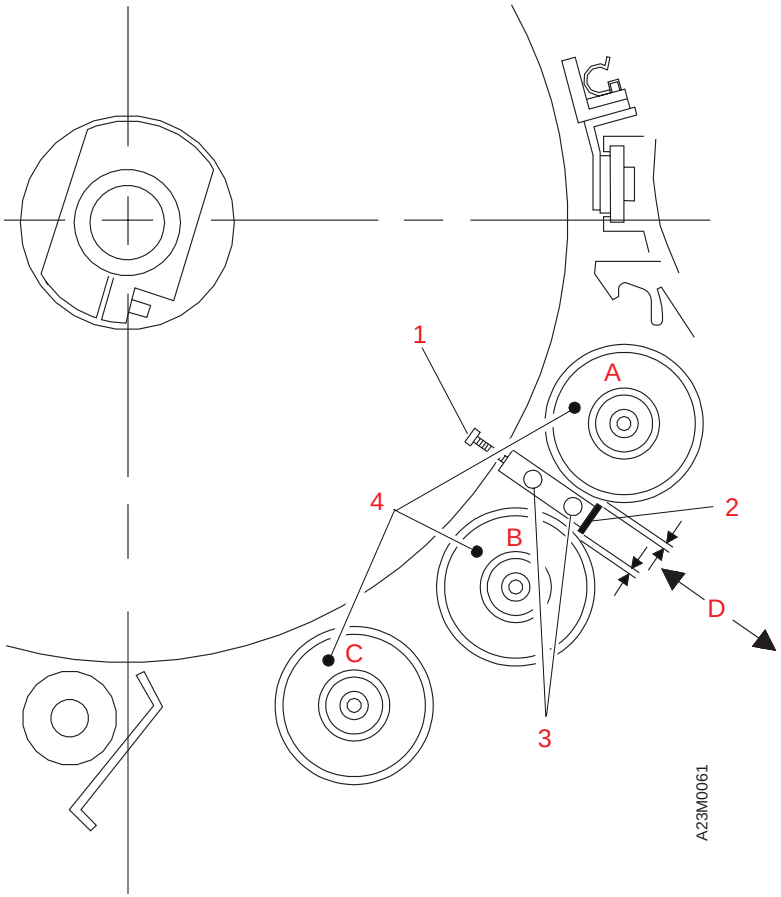
Table 624. Mag Brush Rolls to Doctor Blade Gap (continued)



5. Insert the doctor/scraper gauges, two at each end. Pull up on the doctor blade so that the blade centers its self between the two rolls. Tighten the two screws **(6)**.

(continued on next page)

Table 624. Mag Brush Rolls to Doctor Blade Gap (continued)



6. Adjust the gap by pushing or pulling the doctor blade **(2)** in the **D** direction.
7. Tighten the four holding screws **(3)** and check that the gap is still correct.

Notes:

a. The 0.9 mm gauge should not go between mag roll A and the doctor blade but an 0.8 mm gauge should.

b. The 1.0 mm gauge should not go between mag roll B and the doctor blade but a 0.9 mm gauge should.

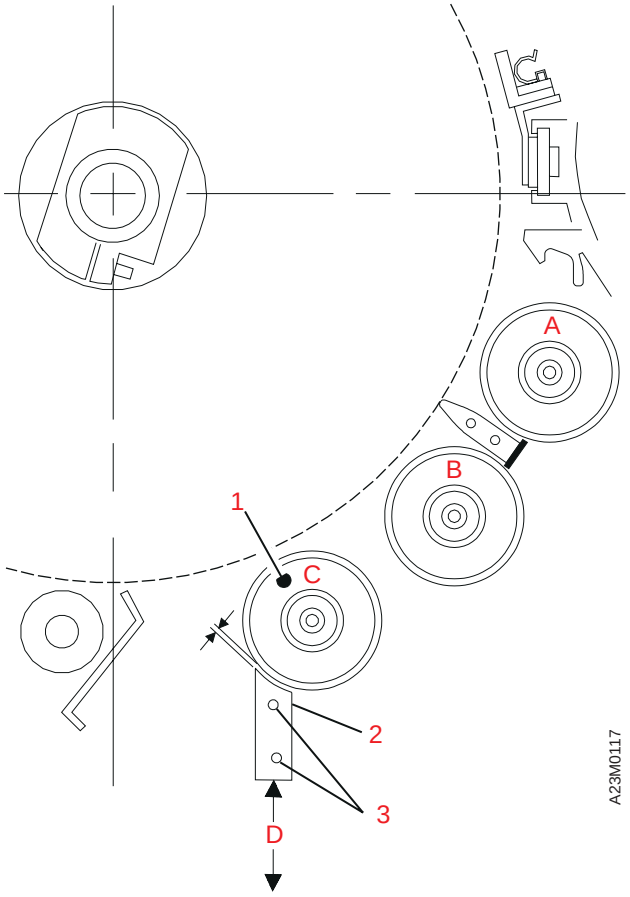
8. Install the Developer Rear Seal.
9. Install the developer belt cover.
10. Perform the Developer Installation & Checks Procedures.

Check

Run Print Pack to verify print quality.

Mag Brush C to Scraper Gap

Table 625. Mag Brush C to Scraper Gap



CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Special Tools Required

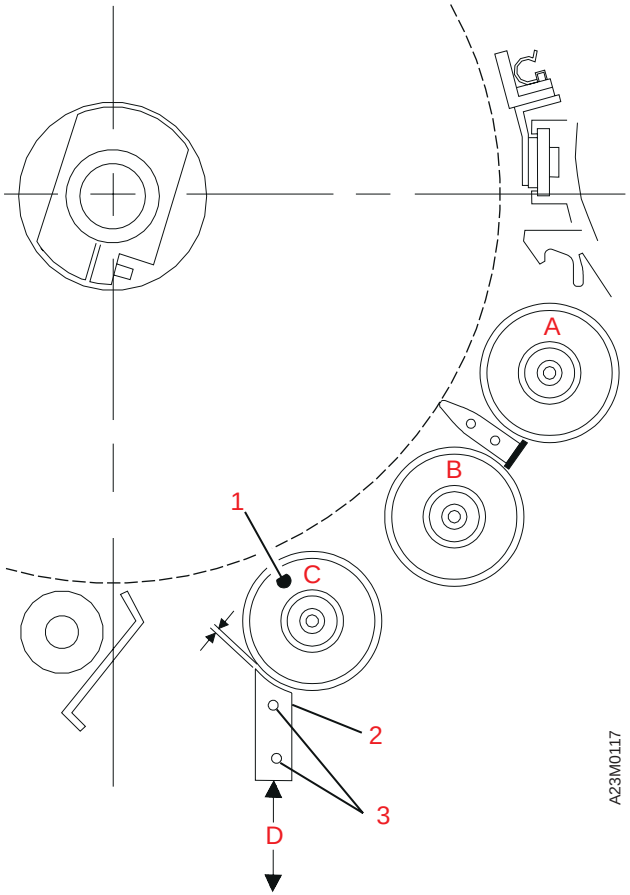
- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Gauge 0.8 mm 2 each (PN 45G2080)
- IBM vacuum cleaner (PN 9900735)

Check

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box. See PC Drum Removal.

(continued on next page)

Table 625. Mag Brush C to Scraper Gap (continued)



Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

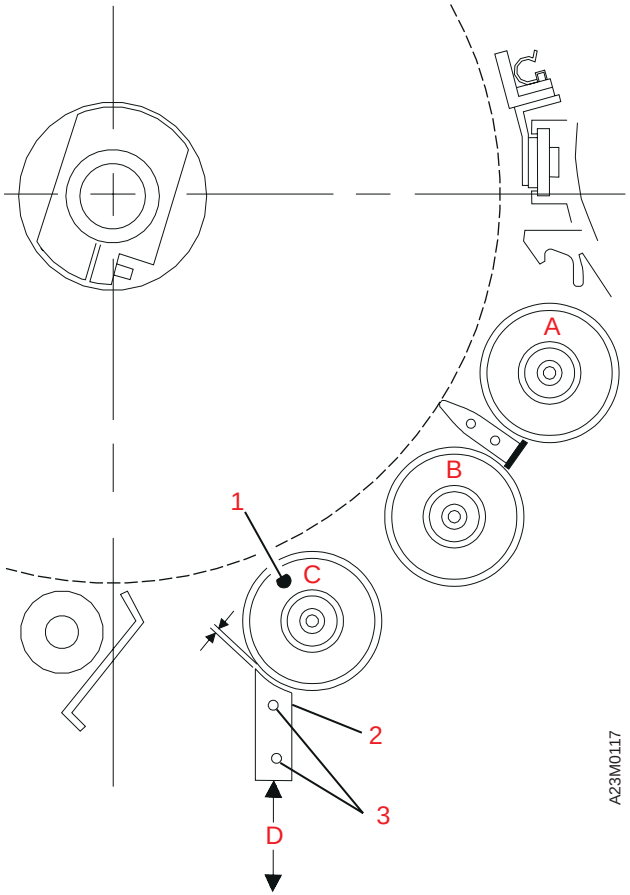
4. Leave the developer in the printer.
5. Use the vacuum cleaner to clean off the scraper blade and mag brush C.
6. Align the punch mark **(1)** on the mag brush roll toward the PC drum.
7. Remove the Developer Rear Seal.
8. Place the doctor/scraper gauge or a feeler gauge between the mag brush roll C and the scraper **(2)** to ensure that the front, and rear gaps are 0.8 ±0.2 mm (0.032 ±0.008 in.).

Note: Measure the clearance on the shiny ends of mag brush roll C.

9. If the gaps are not within the specified range, perform the adjustment procedure.

(continued on next page)

Table 625. Mag Brush C to Scraper Gap (continued)



Adjustment

Note: When you make this adjustment, use the two doctor/scraper gauges and place them between the scraper blade and the shiny ends of the mag brush roll. Move the scraper blade against the doctor/scraper gauges and then tighten the screws. Ensure that the gap remains correct after you tighten the screws.

1. Remove the Fine Filter Case.
2. Remove the belt cover from the rear of the developer.
3. Remove the front developer cover.
4. Remove the Developer Rear Seal.
5. Align the punch mark (high point) **(1)** towards the PC drum.
6. Loosen the four screws **(3)** (two front and two rear) and adjust the gap by pushing or pulling the scraper **(2)** in the **A** direction.

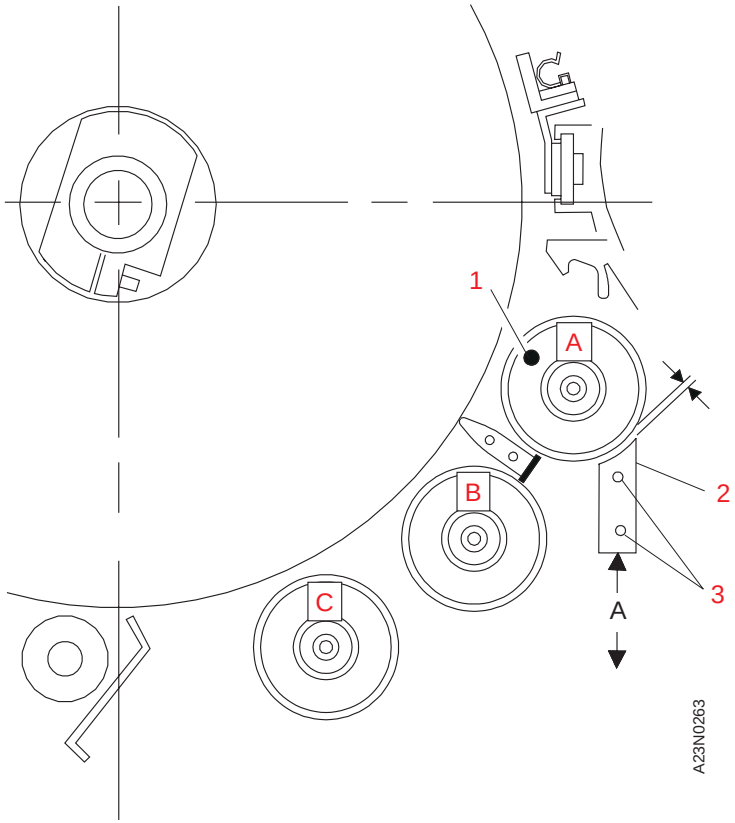
   Ensure that the front, and rear gaps are 0.8 ±0.2 mm (0.032 ±0.008 in.).
7. Install the Developer Rear Seal.
8. Install the developer belt cover.
9. Install the Fine Filter Case.
10. Install the front developer cover.
11. Install the PC drum. See PC Drum Removal.
12. Install the PC drum cover.

Check

Run Print Pack to verify print quality.

Mag Brush A to Scraper Gap

Table 626. Mag Brush A to Scraper Gap



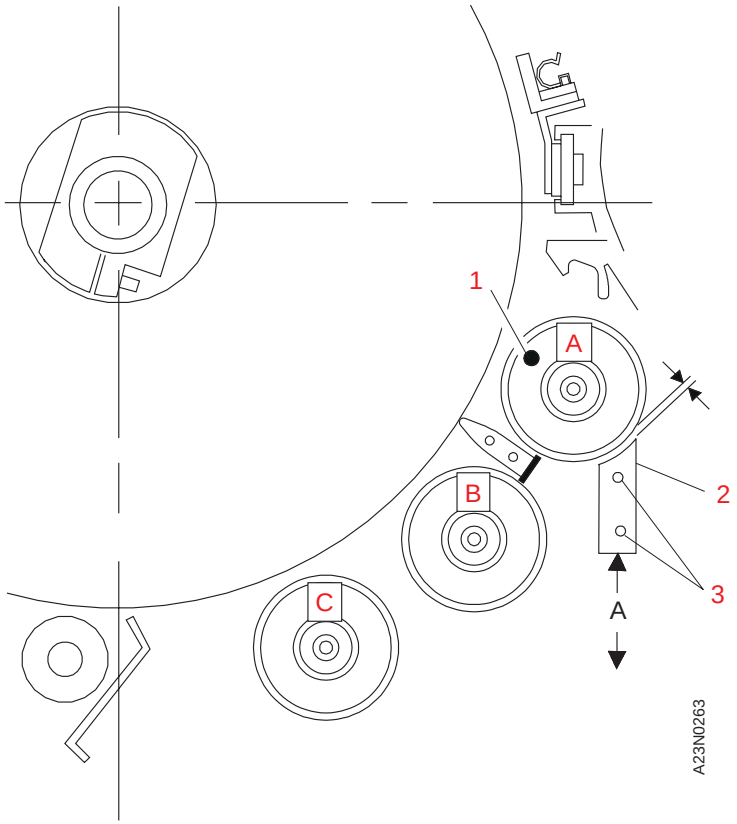
CAUTION:
<62> The multi-roll developer weighs more than 56 kg (125 lb). If the entire multi-roll developer must be lifted, use three or more persons.

Adjustment

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Perform the Developer Removal Procedure and place it on a solid, clean service area.
3. Remove the Developer Rear Seal.

(continued on next page)

Table 626. Mag Brush A to Scraper Gap (continued)



4. Use the vacuum cleaner to clean off the doctor blade **(2)** and mag brush rolls A.
5. Align the punch mark (high point) **(1)** on the mag brush roll toward the PC drum.
6. Place the 1.0 mm gauge between the mag brush roll A and the scraper **(2)**.

Notes:

a. Measure the clearance on the shiny ends of mag brush roll A.

b. When you make this adjustment, use two 1.0 mm gauges and place them between the scraper blade and the shiny ends of the mag brush roll. Move the scraper blade against the gauges and then tighten the screws. Ensure that the gap remains correct after you tighten the screws.

7. Loosen the four screws **(3)** (two front and two rear) and adjust the gap by pushing or pulling the scraper **(2)** in the **A** direction.

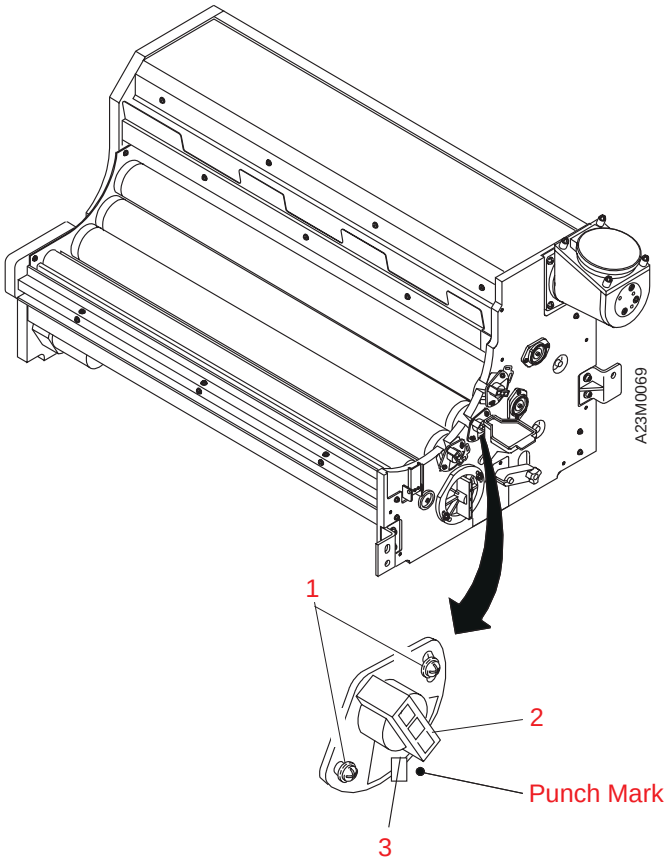
   Ensure that the front, and rear gaps are 1.0 ±0.2 mm (0.040 ±0.008 in.).
8. Install the Developer Rear Seal.
9. Install the developer belt cover.
10. Install the developer front cover.
11. Perform the Developer Installation & Checks.

Check

Run Print Pack to verify print quality.

Mag Brush Angle

Table 627. Mag Brush Angle

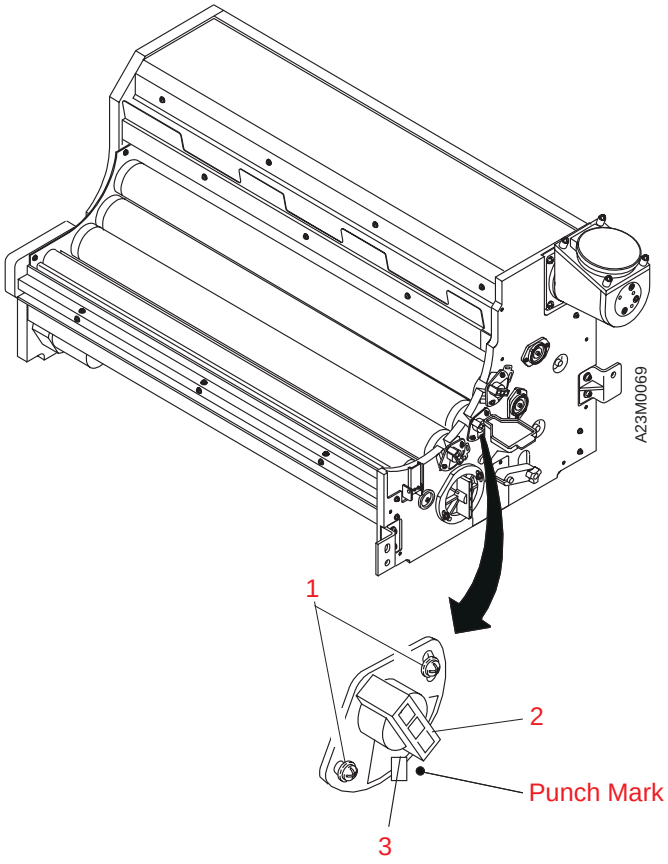


Check and Adjustment

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Leave the developer in the printer.
3. Remove the front developer cover.
4. For mag brush A, align the punch mark below the mag brush knob to +2.5 degrees.
   a. Loosen the two screws **(1)**.
   b. Adjust the mag brush angle by turning the knob **(2)** until the “+2.5” degree mark is aligned with the punch mark below the knob.
   c. Tighten the two screws **(1)**.

(continued on next page)

Table 627. Mag Brush Angle (continued)



5. Loosen the two screws **(1)**.
6. For mag brushes B and C, align the punch mark below the mag brush knobs with the correct value.
   - Adjust the mag brush angle by turning the knob **(2)** until the 0° mark is aligned with the punch mark below the knob.
7. Tighten the two screws **(1)**.
8. Install the developer front cover.

Check

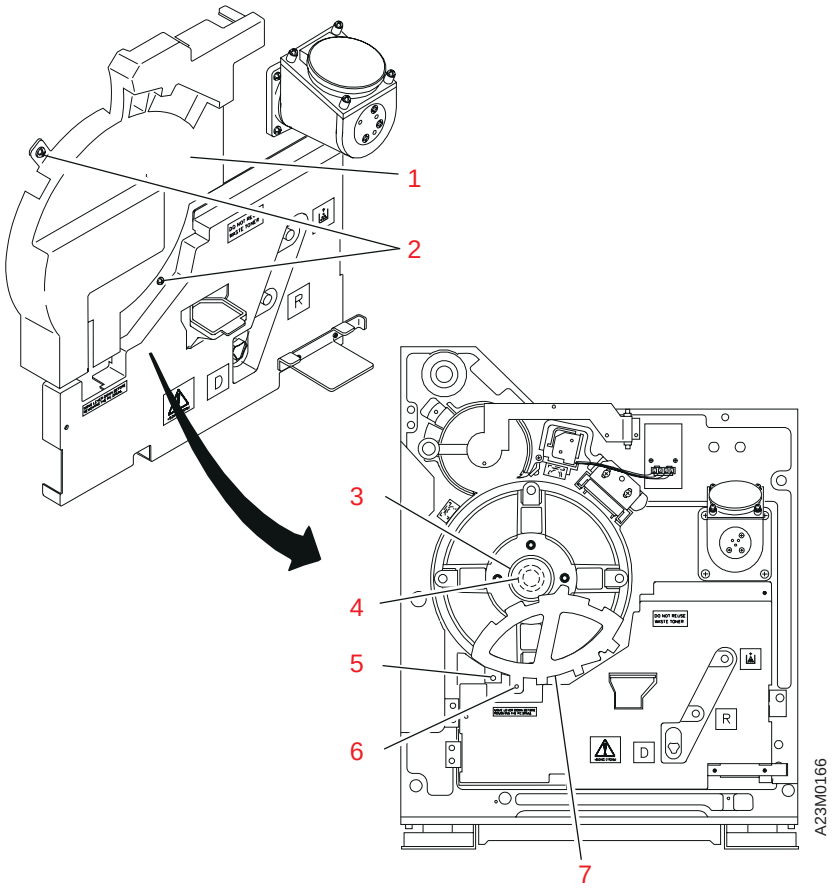
Run Print Pack to verify print quality.

Drum Drive and Photoconductor (PC)

PC Drum Removal 2467
PC Drum Cleaning 2474
PC Drum Cover Interlock Switch (S122) 2476
Drum Ground Brush 2478
Drum Motor (M107) and Drive Belt 2479
PC Drum & Developer Clearances/Gaps 2486

PC Drum Removal

Table 628. PC Drum Removal



Attention: The photoconductive surface of the drum is sensitive.

- Do not expose the photoconductive surface to light for more than **5 minutes**.
- Do not touch the photoconductive surface; handle the drum from the inside only or wear plastic gloves. The drum is easily scratched and is sensitive to all contamination.

Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Molycoat G (PN 0357830)
- Gloves, plastic (PN 2200041)

Removal

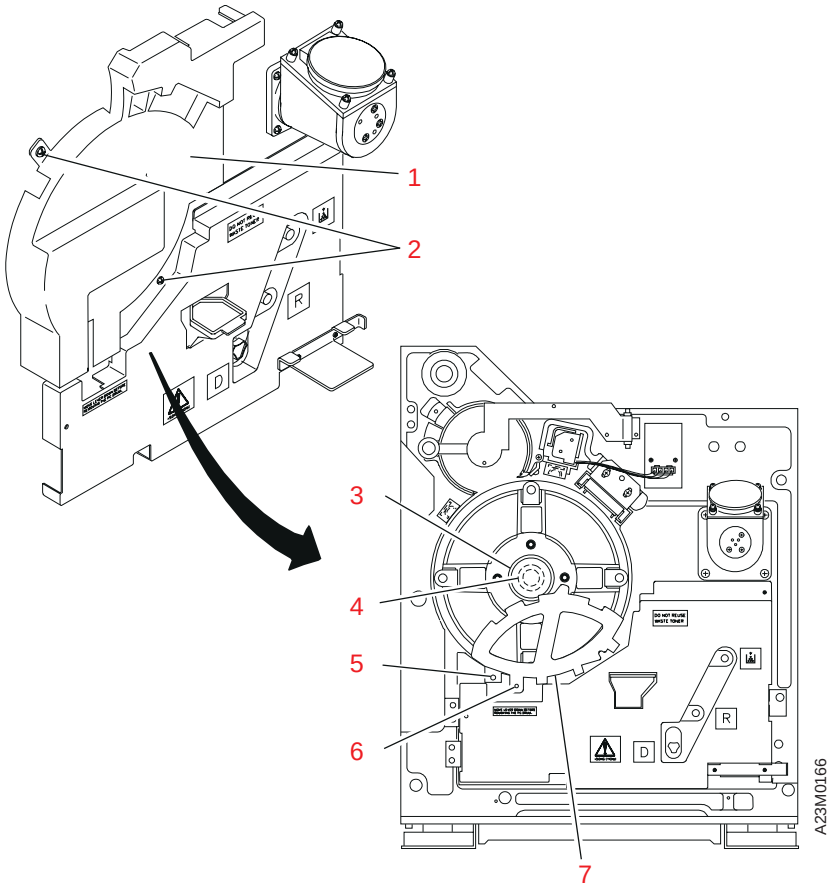
Hint: If you are planning to replace the PC drum, run and fuse approximately 50 pages of Print Pack.

After you have replaced the PC drum, run and fuse approximately 50 pages of Print Pack and compare the two print samples for background, solid area fill, and stroke width. If the print quality changed from good to bad with the new PC drum, the PC Drum Surface Voltage may need to be adjusted.

1. Request that the system operator stop activity on the printer. Disable all host attachments.

(continued on next page)

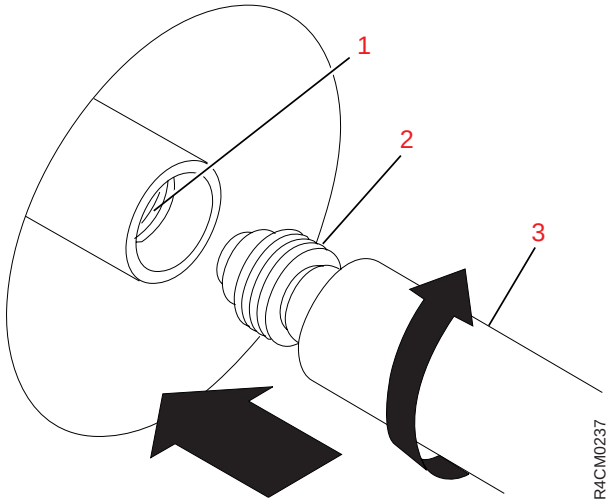
Table 628. PC Drum Removal (continued)



2. Shutdown and power off the printer.
3. Remove the two screws **(2)** to remove the drum cover **(1)**.
4. Remove the screw **(6)** and remove the developer front seal **(7)**.
5. Turn the knob **(3)** counterclockwise to unscrew and remove it from the drum shaft **(4)**.

(continued on next page)

Table 628. PC Drum Removal (continued)



CAUTION:
<58> Drum shaft threads are sharp. To avoid cutting yourself, do not use excessive pressure when wiping the threads.

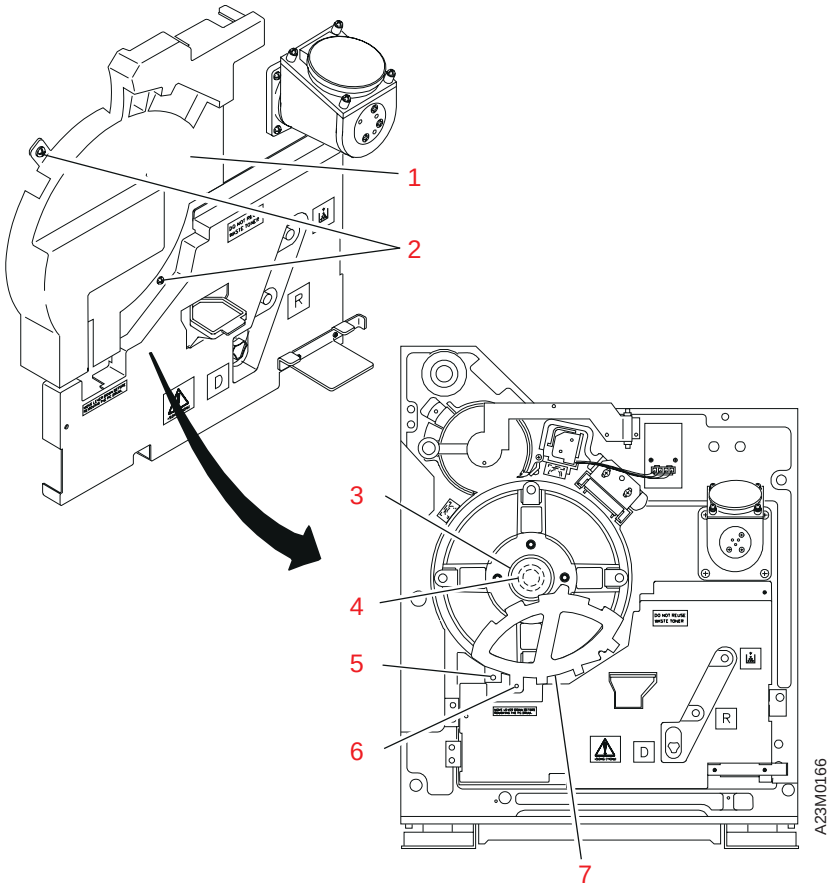
6. If necessary, lightly coat the threads with Molycoat G (PN 0357830).
7. Open the control unit side cover by pushing down on the two latch-release pins in the opening above the top of the cover.
8. Remove the drum shaft extension from the brackets on the side of the control unit.
9. With several thickness's of lint-free cloths, remove any loose developer beads or other foreign material on the threads by:
   a. Wiping the internal threads **(1)** of the drum shaft.
   b. Wiping the external threads **(2)** of the drum shaft extension **(3)**.
10. Install the drum shaft extension **(3)** where you removed the knob.

Note: The drum shaft extension should be only hand-tightened.

11. Wipe the surface of the drum shaft extension with a lint-free cloth.

(continued on next page)

Table 628. PC Drum Removal (continued)



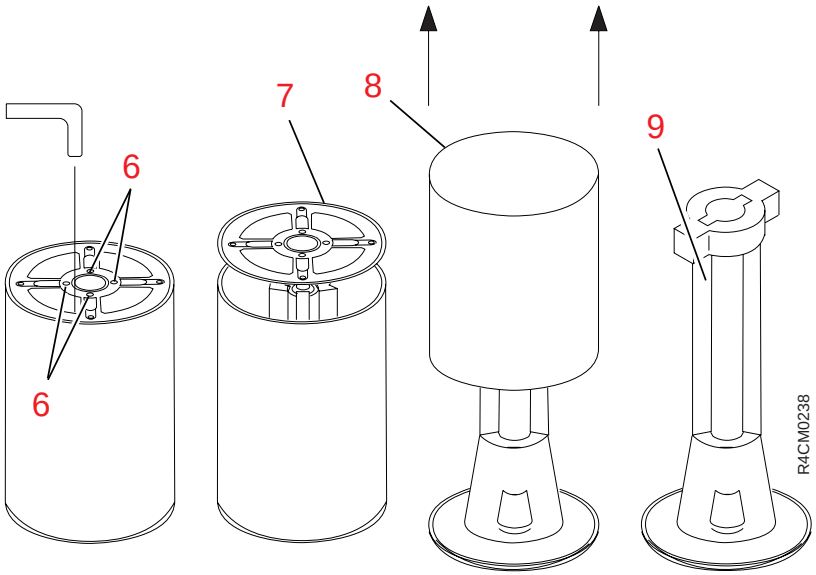
12. Lower the scavenger roll lever **(5)**.
13. Open the transfer station.

Attention: Do not apply downward pressure on the drum while you remove it. This could result in scratches on the drum.

14. Carefully slide the PC drum onto the drum extension shaft.
15. Remove the PC drum from the extension shaft and store it in a drum bag or box.

(continued on next page)

Table 628. PC Drum Removal (continued)



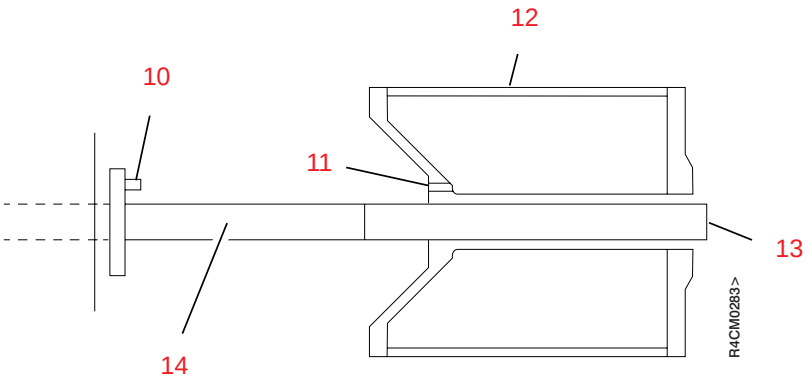
Installation

If you are installing a new drum, perform the following steps. If not, go to step 10.

1. Run the PM Log to reset the drum PM counter.
2. Remove the four screws **(6)** that secure the front end plate **(7)** to the PC drum support **(9)**.
3. Remove the front end plate **(7)**.
4. Lift the PC drum **(8)** from the PC drum support **(9)**.
5. Clean excess toner from the front end plate **(7)**, the PC drum support **(9)**.
6. Remove the new PC drum from its box and install it on the PC drum support.
7. Place the old PC drum in the box. Follow the instructions that were shipped with the box to dispose of the old drum.
8. Align the hole in the front end plate **(7)** with the aligning pin on the PC drum support **(9)**.
9. Alternately tighten the four screws **(6)**, one turn at a time to evenly seat the end plate **(7)** to the PC drum **(8)** and the drum support **(9)**.
10. Clean the drum shaft and the drum shaft extension before you reinstall the PC drum.

(continued on next page)

Table 628. PC Drum Removal (continued)



11. Rotate the drum shaft extension **(13)** and the drum shaft **(14)** clockwise until the pin **(10)** on the rear of the drum frame is at the top position.

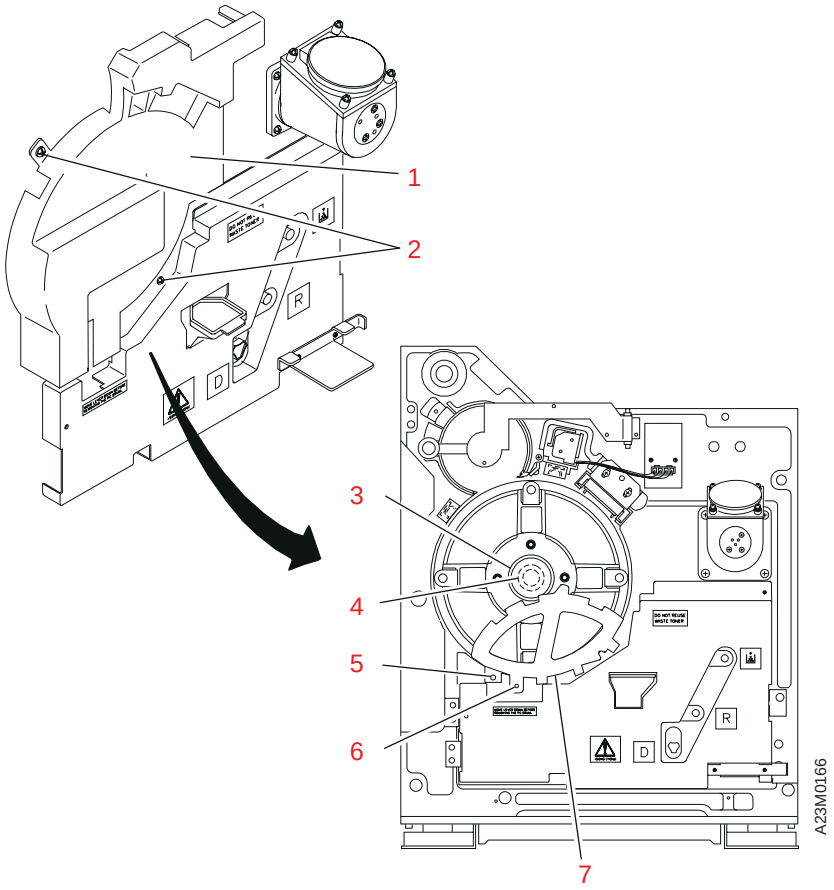
Attention: Ensure the scavenger roll lever (see **(5)** in the figure on page 2470) is fully lowered to prevent damage to the PC drum.

Attention: Do not apply downward pressure on the drum while you are installing it. This may scratch the drum surface against the developer lower seal.

12. Carefully slide the PC drum **(12)** onto the drum shaft extension **(13)** until the pin **(10)** is fully seated into the hole **(11)** of the PC drum support.

(continued on next page)

Table 628. PC Drum Removal (continued)



13. Remove the drum shaft extension and place it tin the storage brackets in the control unit.
14. Hand-tighten the drum knob **(3)**. Do not overtighten.
15. Lift the scavenger roll lever to close the scavenger roll.
16. Perform PC Drum Surface Voltage check.

Attention: Be sure the foam on the developer front seal fits all the way down into the slots in the front of the developer. If the foam is not correctly seated, toner and bead leakage occurs.

Attention: Do not apply downward pressure on the drum while you are installing it. This may scratch the drum surface against the developer lower seal.

17. Install the developer front seal **(7)** with screw **(6)**. (The slot on the lower right side of the developer front seal is installed on the shoulder screw on the front of the developer near mag roll A.
18. Install the drum cover.
19. Power on the printer.
20. The PC Drum Surface Voltage should be checked after the drum is changed. If and electrostatic voltmeter (ESV) is not available, it is OK to postpone the voltage check until an ESV is available.

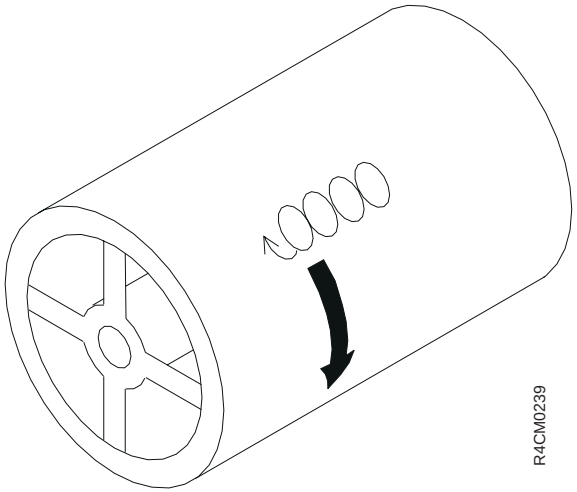
Check

Run Print Pack to verify print quality.

Note: If background or light print occurs, check the PC Drum Surface Voltage.

PC Drum Cleaning

Table 629. PC Drum Cleaning



Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Lint free cloth (PN 2108930)
- Isopropyl alcohol (PN 2200200)
- Gloves, plastic (PN 2200041)

Purpose

Follow this procedure to remove fused toner or adhesives from the photoconductive surface of the PC drum. Wear gloves while you perform this procedure.

Removal

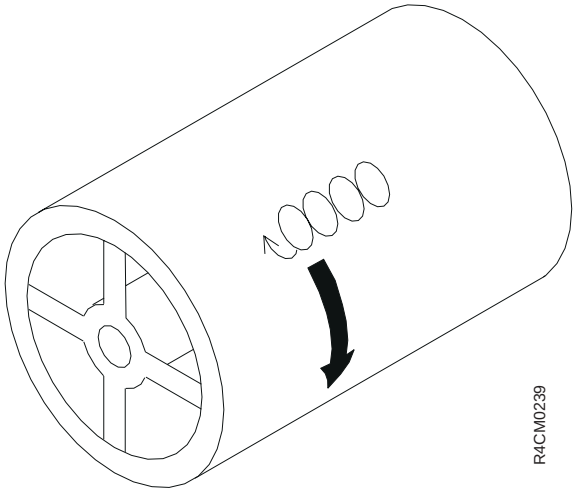
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Do PC drum removal steps 3 through 13.
4. Pull the PC drum out just far enough onto the drum shaft extension to access the drum surface. Do not remove the drum from the drum shaft extension.

Notes About Cleaning

1. Always rotate the PC drum clockwise to prevent unscrewing the drum shaft extension.
2. Always wipe the drum with an overlapping circular motion.

(continued on next page)

Table 629. PC Drum Cleaning (continued)



3. Begin at the rear and work toward the front of the printer during each step of this cleaning procedure.
4. Do not apply excessive pressure when cleaning the drum.
5. Do not attempt to completely remove discoloration during a single cleaning. Several cleanings reduce the risk of scratching the PC.
6. The drum surface is made of a soft coating that can be damaged easily.

Note: If there are deep scratches in the drum surface, you may have to replace the drum.

1. Wipe the PC drum with a dry, lint-free cloth to remove any loose toner and developer beads.
2. Moisten a lint-free cloth with alcohol. Do not pour the alcohol directly onto the PC drum.

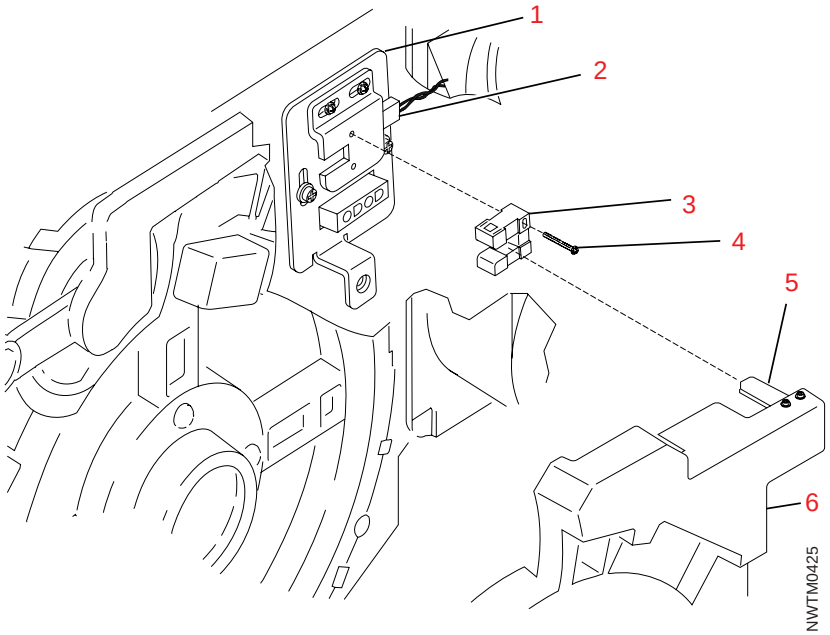
Attention: Ensure that no alcohol spills onto printer parts.

3. Wipe the PC surface with the moistened cloth.
4. Use a clean, dry, lint-free cloth to wipe the PC surface to remove streaks or film. Rotate the PC drum clockwise as you clean it.
5. Ensure that the drum is free of streaks. If it is not, perform the cleaning procedure again.
6. Perform PC drum installation steps 11 through 18.
7. Power on the printer.
8. Run Print Pack to verify print quality. Run 100 to 200 pages.

   If the background defects continue, run another 200 pages before you go back to the print quality MAP.

PC Drum Cover Interlock Switch (S122)

Table 630. PC Drum Cover Interlock Switch (S122)



Note: Do **not** remove the developer to perform this procedure.

Removal

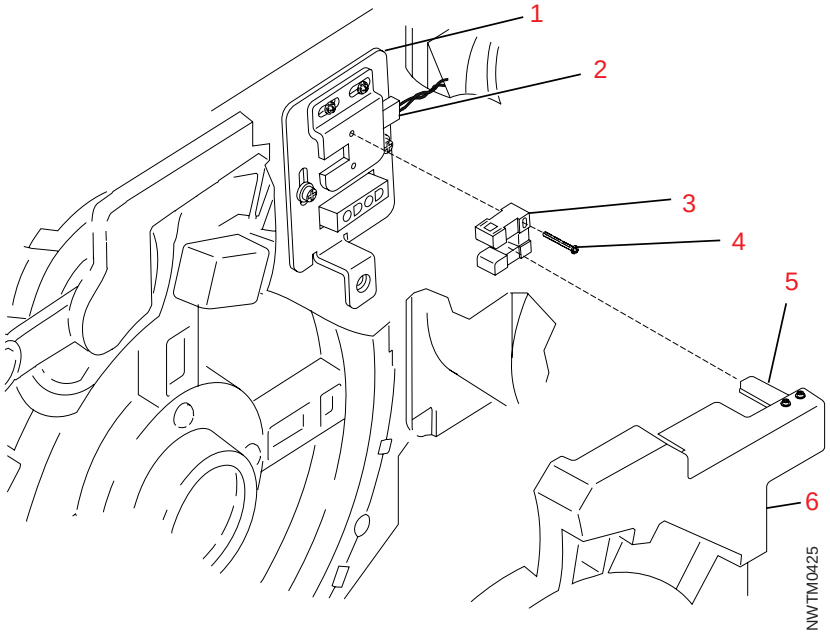
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the two screws and remove the drum cover **(6)**.
4. Rotate the toner inlet counterclockwise 120°.
5. Remove the toner inlet cover.
6. Disconnect connector PJ198 **(2)**.
7. Remove the screw **(4)**, and remove the cover interlock switch **(3)** from the bracket **(1)**.

Installation

Reverse the removal procedure.

(continued on next page)

Table 630. PC Drum Cover Interlock Switch (S122) (continued)



Adjustment

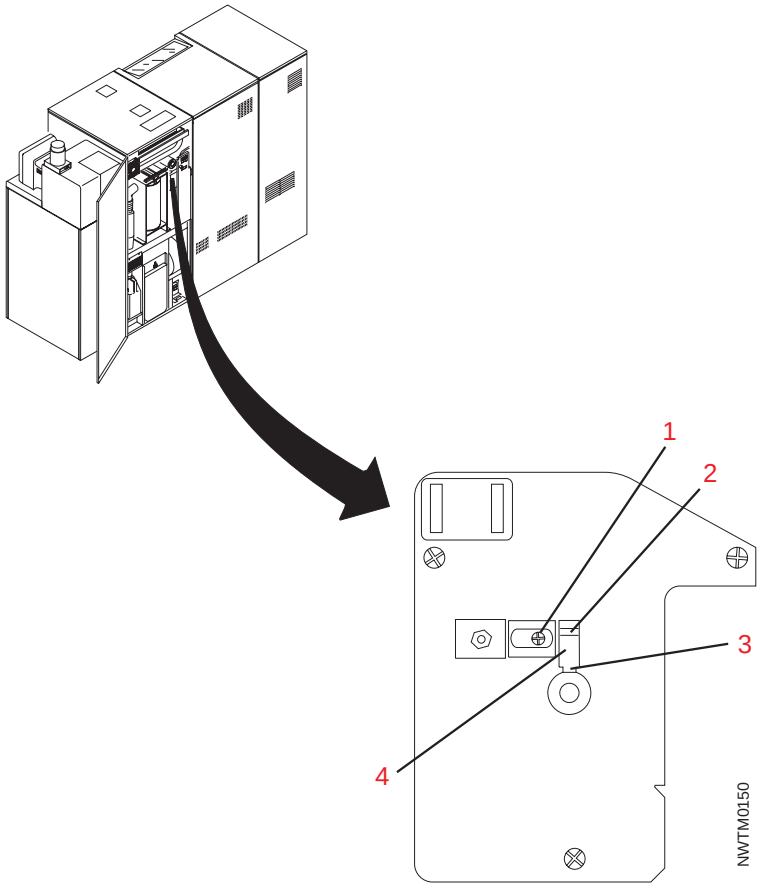
1. With the toner inlet cover removed, loosen the two screws which hold the bracket **(1)**.
2. Without installing the two screws, put the drum cover **(6)** in its installed position.
3. Adjust the bracket **(1)** so that as the drum cover is removed and installed the following conditions are met:
   a. The tab **(5)** on the drum cover passes through the switch without hitting it.
   b. The right edge of the tab **(5)** is close enough to the inner surface of the switch for the switch to transfer reliably, approximately 1 mm (0.040 in.).

Check

1. Power on the printer.
2. Run Sensor Routine **59** to ensure that the switch is working correctly.

Drum Ground Brush

Table 631. Drum Ground Brush



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the right rear process cover.
4. Remove the screw **(1)** to remove the drum ground brush cover **(4)**.
5. Slide the drum ground brush **(3)** to remove it from the housing **(2)**.

Installation

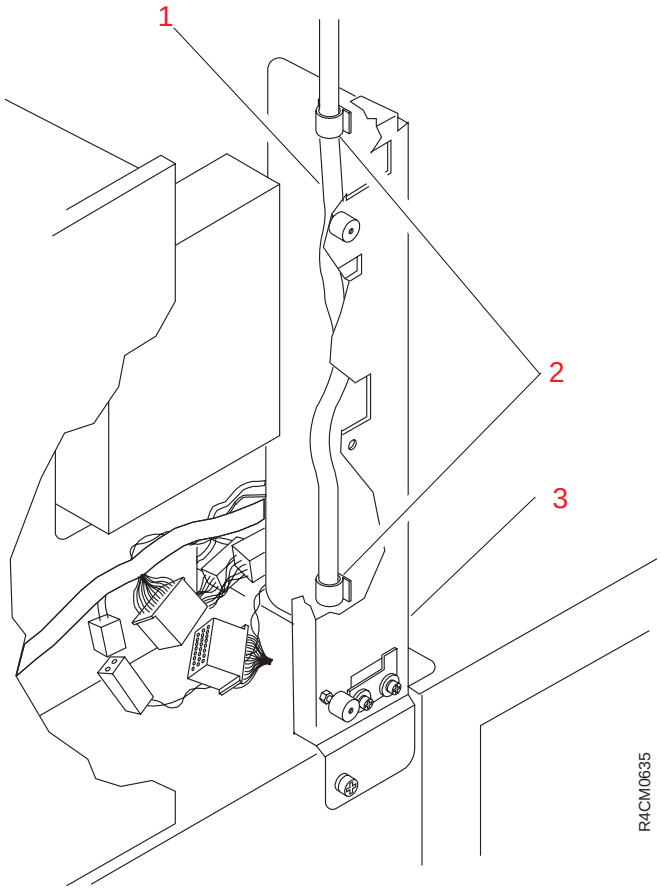
Reverse the removal procedure.

Check

1. Ensure that the drum ground makes contact with the end of the shaft.
2. Ensure that the drum ground brush moves freely. Sometimes it binds and the brush does not make good contact with the drum.

Drum Motor (M107) and Drive Belt

Table 632. Drum Motor (M107), Drive Belt



Special Tools Required:

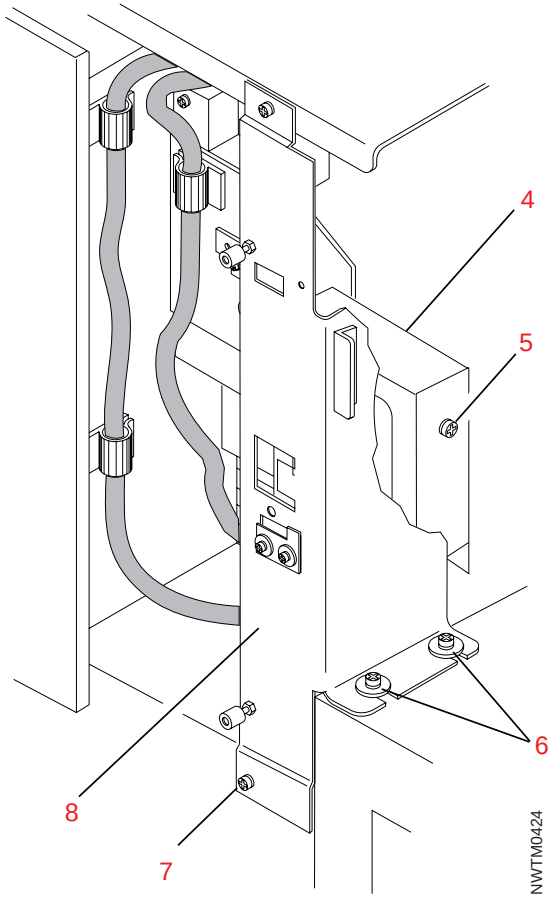
Push-pull scale (PN 0460870)

Covers Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the righ rear process cover.
4. Remove the cable harness **(1)** from the clamps **(2)** on the inside of the connecting stay **(3)**.

(continued on next page)

Table 632. Drum Motor (M107), Drive Belt (continued)



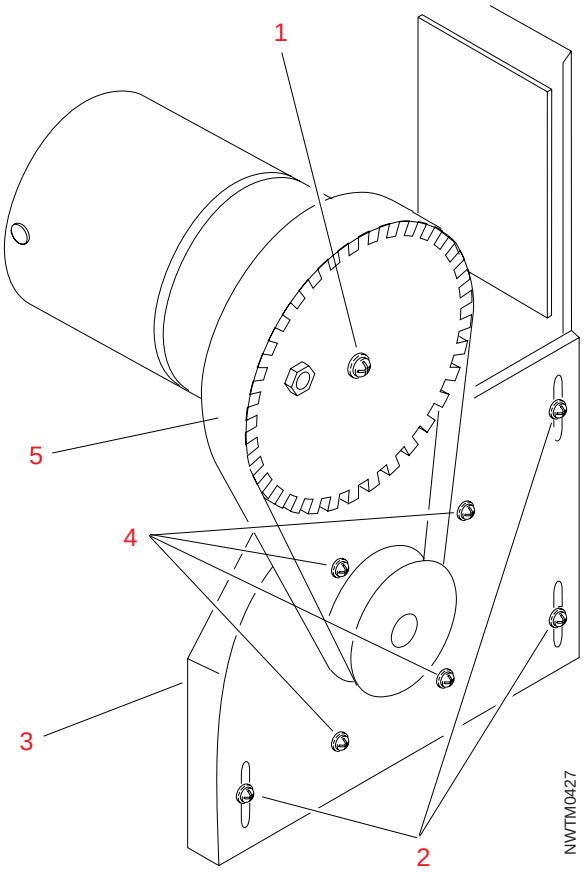
5. Remove the screw **(7)**, loosen the two screws **(6)** and remove the screw at the top to remove the connecting stay.
6. Remove the large screw **(5)**, and remove the drum belt cover **(4)**.

Installation

Reverse the removal procedure.

(continued on next page)

Table 632. Drum Motor (M107), Drive Belt (continued)



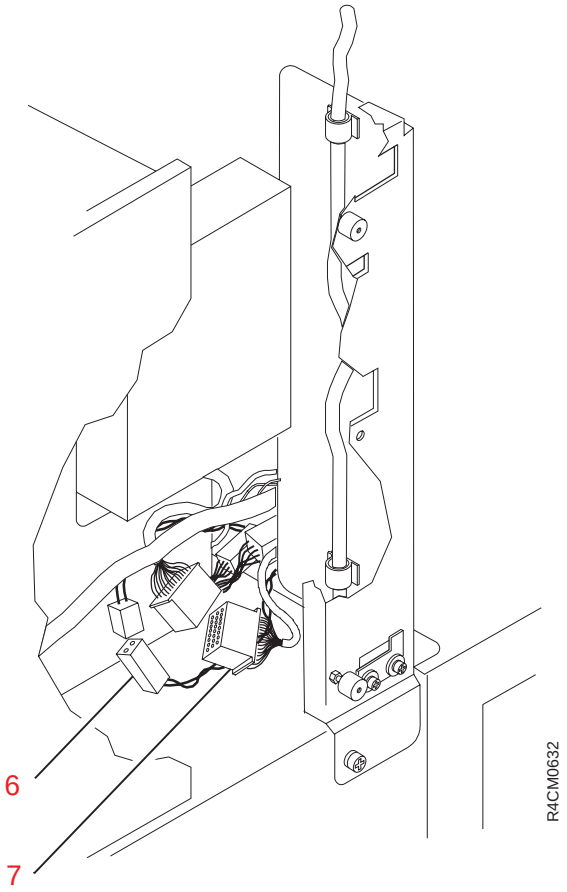
Drum Drive Belt and Motor Removal

1. Remove the right rear process cover and connecting stay, and remove the drum drive belt cover.
2. Loosen the three screws **(2)** and push up on the motor plate **(3)** to remove the drive belt **(5)**.

Note: If only the drum drive belt is being replaced, go directly to Installation and Adjustment.

(continued on next page)

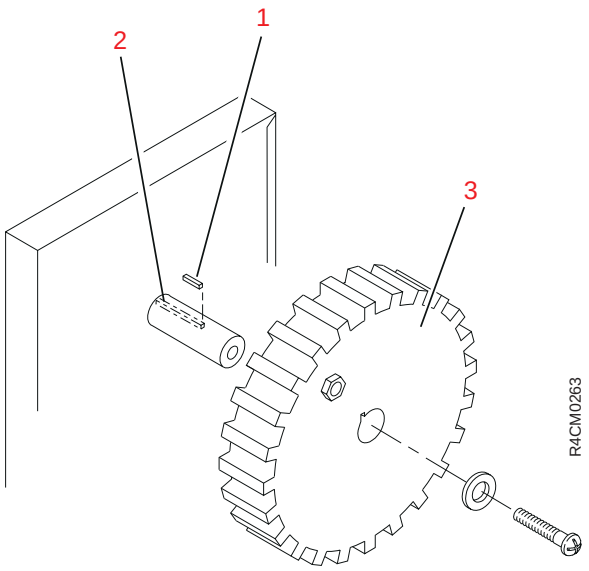
Table 632. Drum Motor (M107), Drive Belt (continued)



3. Disconnect connectors PJ173 **(6)** and PJ132 **(7)**.
4. Remove the screw **(1)** (reference the figure on page 2481), and washer.

(continued on next page)

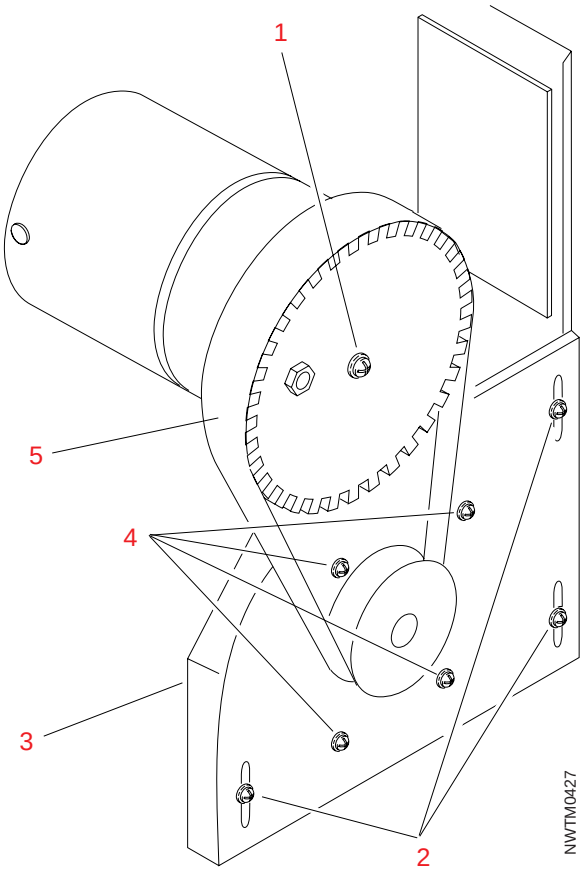
Table 632. Drum Motor (M107), Drive Belt (continued)



5. Turn the large pulley **(3)** so that the keyway **(2)** is on top.
6. Remove the pulley **(3)**. Be careful not to lose the key **(1)**.
7. Remove the key **(1)** from the keyway **(2)** in the shaft.

(continued on next page)

Table 632. Drum Motor (M107), Drive Belt (continued)



8. Remove the three screws **(2)** that hold the motor plate **(3)** to remove the drum motor.
9. Remove the four screws **(4)** to remove the drum motor from the motor plate **(3)**.

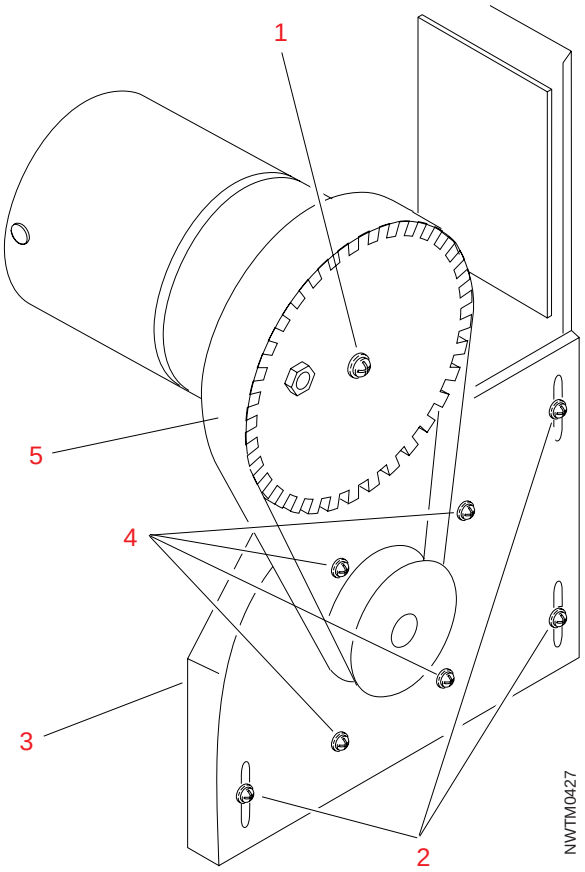
Installation and Adjustment

Note: If you replaced only the drive belt, go to step 2

1. Perform steps 3 through 9 in reverse order. Do not tighten the three screws holding the motor plate at this time.
2. Install the drive belt on the pulleys.
3. Tighten the three screws **(2)** enough to allow adjustment of the motor plate **(3)**.
4. Slide the motor plate **(3)** so that the belt deflects 1.4 ±0.5 mm (0.055 ±0.020in.) when a force of 740 g (1.6 lb) is applied at the center point of the belt.
5. Tighten the three screws **(2)**, and fasten the motor plate **(3)**.
6. Install the right rear process cover and connecting stay, and install the drum drive belt cover.

(continued on next page)

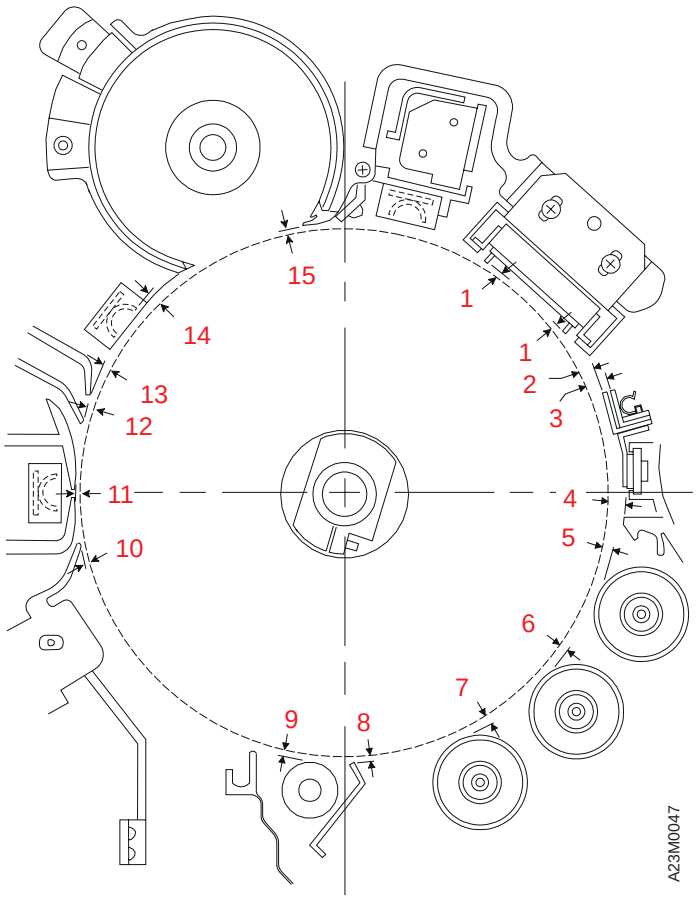
Table 632. Drum Motor (M107), Drive Belt (continued)



Check

1. Ensure that the drive belt deflects 1.4 ±0.5 mm (0.055 ±0.020 in.) when a force of 740 g (1.6) lb) is applied at the center point of the belt.
2. Run Print Pack to verify print quality.

PC Drum & Developer Clearances/Gaps



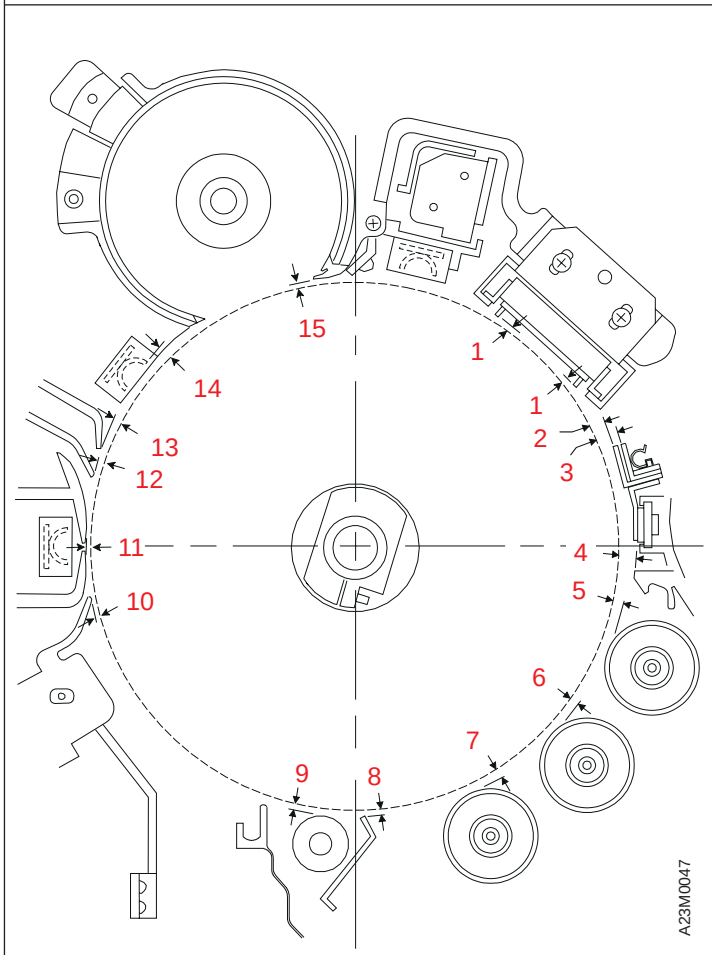
The figure indicates the locations around the PC drum where you must measure the gap to ensure the correct clearance between individual parts and the PC drum.

If you are getting scratches on the PC drum, use the values in the appropriate table to correctly adjust the gap between the PC drum and the parts listed in the table.

IMPORTANT:

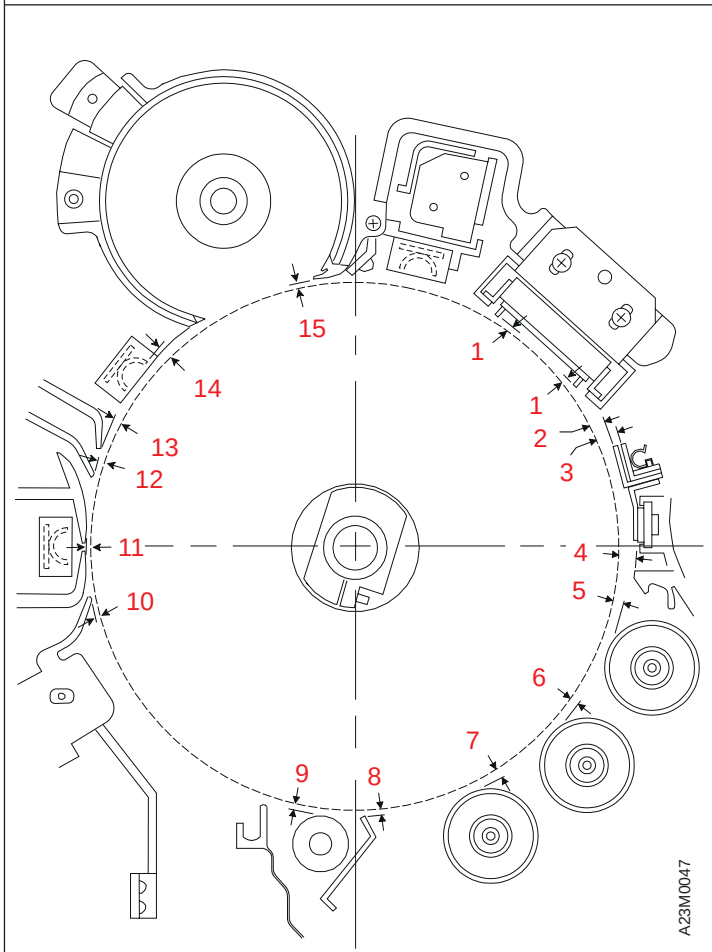
- Ensure that the mag brush rolls and the scavenger roll punch marks (high points) are towards the PC drum.
- Ensure that the Drum Clearance Gauge is calibrated.
- Remember to subtract 5 mm from the reading on the drum gauge to obtain the values shown in the following tables.

Table 633. Drum Gap Dimensions for 229 PPM Printers

Drum Gap Dimensions	#	Part	Check	Adjust	Refer to:
	**(1)**	Charge corona	2.5 ±0.3 mm	2.5 ±0.3 mm	Charge Corona to PC Drum Gap
	(2)	Air deflector plate	1.0 ±0.2 mm	1.0 ±0.2 mm	
	(3)	ESV holder	3.0 ±1.0 mm	3.0 ±0.5 mm	
	(4)	Upper seal plate	1.5 ±0.5 mm	1.5 ±0.5 mm	
	(5)	Mag brush A Front Rear Parallel accuracy	 1.4 ±0.15 mm 1.37 ±0.15 mm ≤0.05 mm	 1.4 ±0.15 mm 1.37 ±0.15 mm ≤0.05 mm	
	(6)	Mag brush B Front Rear	 1.1 ±0.07 mm 1.05 ±0.07 mm	 1.1 ±0.07 mm 1.05 ±0.07 mm	
	(7)	Mag brush C Front Rear	 1.2 ±0.07 mm 1.15 ±0.07 mm	 1.2 ±0.07 mm 1.15 ±0.07 mm	
	(8)	Lower seal	1 to 3 mm	1 to 3 mm	

(continued on next page)

Table 633. Drum Gap Dimensions for 229 PPM Printers (continued)

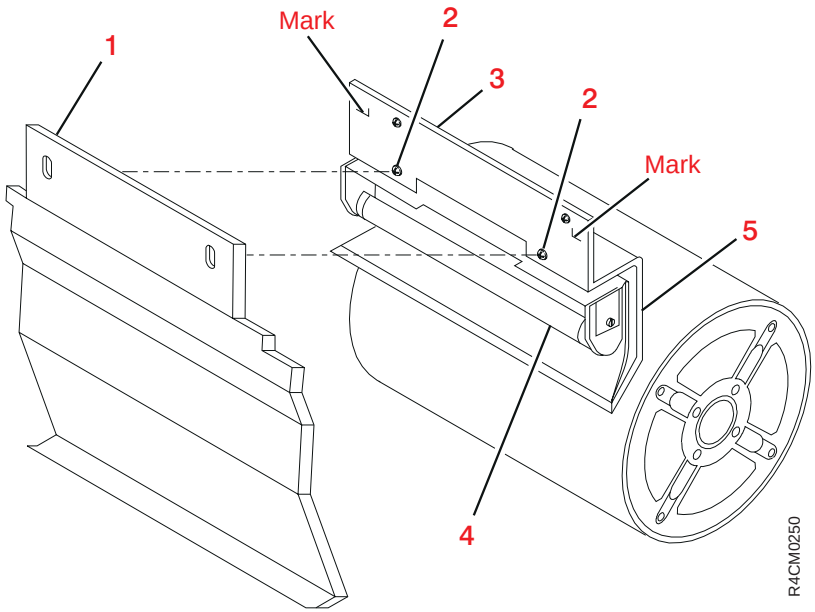
Drum Gap Dimensions	#	Part	Check	Adjust	Refer to:
	**(9)**	Scavenger roll Parallel accuracy	0.7 ±0.2 mm	0.65 ±0.1 mm ≤0.1 mm	
	(10)	Deflector plate	2.0 ±0.5 mm	2.0 ±0.5 mm	Deflector Plate to PC Drum Gap
	(11)	Upper retractor	0.6 ±0.08 mm	0.6 ±0.05 mm	Deflector Plate to PC Drum Gap
	(11)	Lower retractor	0.5 ±0.08 mm	0.5 ±0.05 mm	Deflector Plate to PC Drum Gap
	(12)	Upper forms guide	0.55 ±0.80 mm	0.55 ±0.80 mm	Deflector Plate to PC Drum Gap
	(13)	Erase lamp cover	5 ±1 mm	5 ±1 mm	Primary Erase Lamp Cover to PC Drum Gap
	(14)	Preclean corona	10 ±1 mm (0.39 ±0.04 in.) (See note below)	10 ±1 mm	Preclean Corona to PC Drum Gap
	(15)	Cleaner skirt	0.9 ±0.2 mm)	0.9 ±0.2 mm)	Cleaner Skirt
	Note: The preclean corona dimension cannot be checked with the indicator portion of the drum clearance gauge.				

Erase Lamps

Primary Erase Lamp (PL102) 2490
Primary Erase Lamp Sensor (Q101) 2492
Secondary Erase Lamp (PL101) 2493
Secondary Erase Lamp Sensor (Q102) 2495
Erase Lamp Starters (ST101, ST102) 2498
Primary Erase Lamp Cover to PC Drum Gap 2499

Primary Erase Lamp (PL102)

Table 634. Primary Erase Lamp (PL102)



Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box

Removal

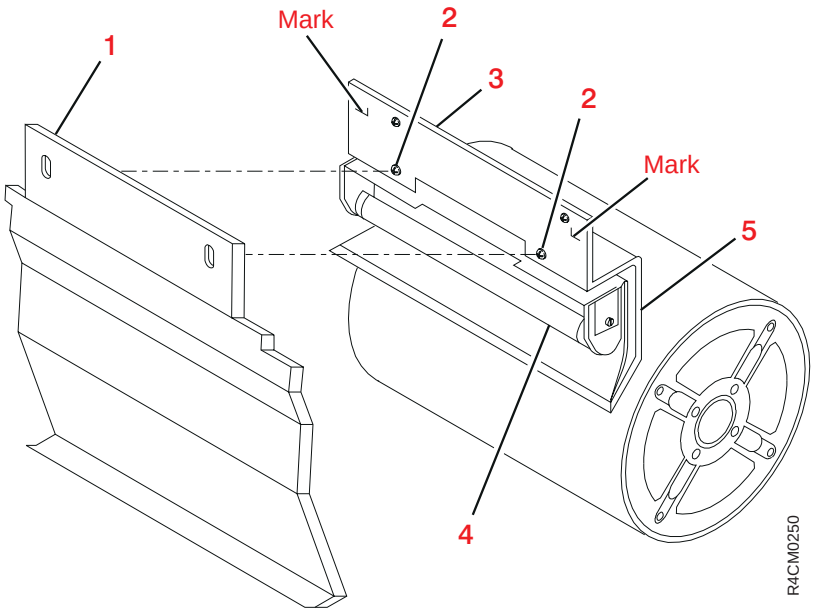
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the PC Drum Removal procedure and store it in a drum bag or box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Open the transfer station.
5. Remove the erase lamp shield.
6. To avoid having to adjust the gap between the primary erase lamp cover **(1)** and the PC drum, mark the cleaner side cover **(3)** where it attaches to the primary erase lamp cover.
7. Remove the two screws **(2)**, and remove the primary erase lamp cover **(1)** from the cleaner side cover.
8. Turn the erase lamp **(4)** counterclockwise and remove it from the sockets.

(continued on next page)

Table 634. Primary Erase Lamp (PL102) (continued)



Installation

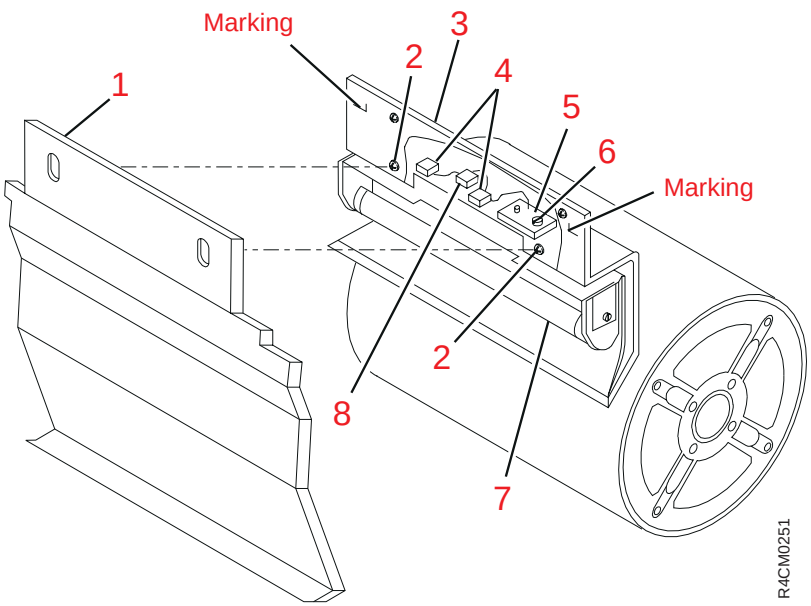
1. Use a clean, dry cloth to wipe toner, paper dust, or other contamination from the blue filter **(5)**. Do not use any chemical cleaners.
2. Check the Primary Erase Lamp Cover to PC Drum Gap.
3. Reverse the removal procedure.

Check

Run Print Pack to check that the erase lamp is working correctly.

Primary Erase Lamp Sensor (Q101)

Table 635. Primary Erase Lamp Sensor (Q101)



Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the PC Drum Removal procedure and store it in a drum bag or box.
4. Open the transfer station.
5. To avoid having to adjust the gap between the erase lamp cover and the PC drum, mark the cleaner side cover **(3)** where it attaches to the erase lamp cover **(1)**.
6. Remove the two screws **(2)** and remove the erase lamp cover **(1)** from the cleaner side cover.
7. Disconnect PJ147 **(8)** and remove the lamp sensor cable from the cable clamps **(4)**.
8. Turn the primary erase lamp **(7)** counterclockwise to remove it.
9. Remove the two screws **(6)**, and remove the lamp sensor **(5)**.

Installation

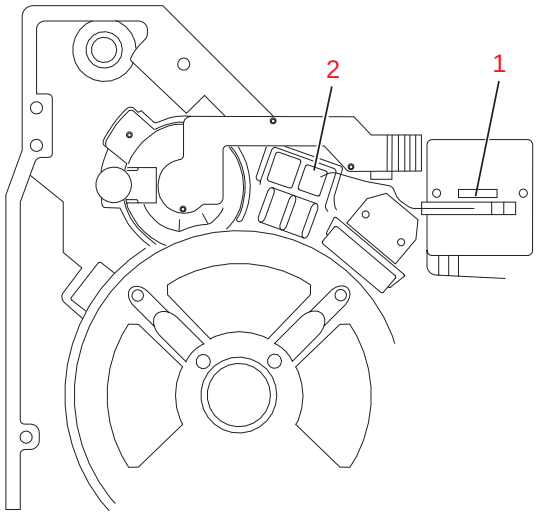
Reverse the removal procedure.

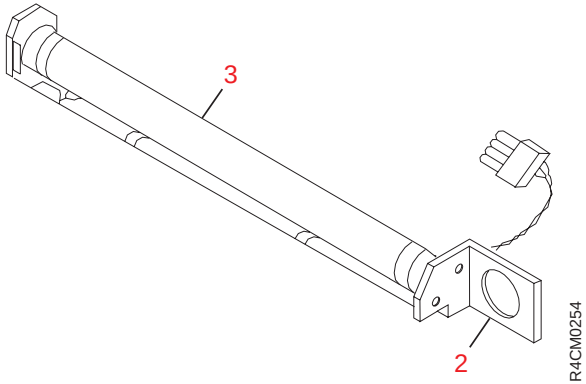
Check

1. Check the Primary Erase Lamp Cover to PC Drum Gap.
2. Run Print Pack to check that the erase lamp is working correctly.

Secondary Erase Lamp (PL101)

Table 636. Secondary Erase Lamp (PL101)





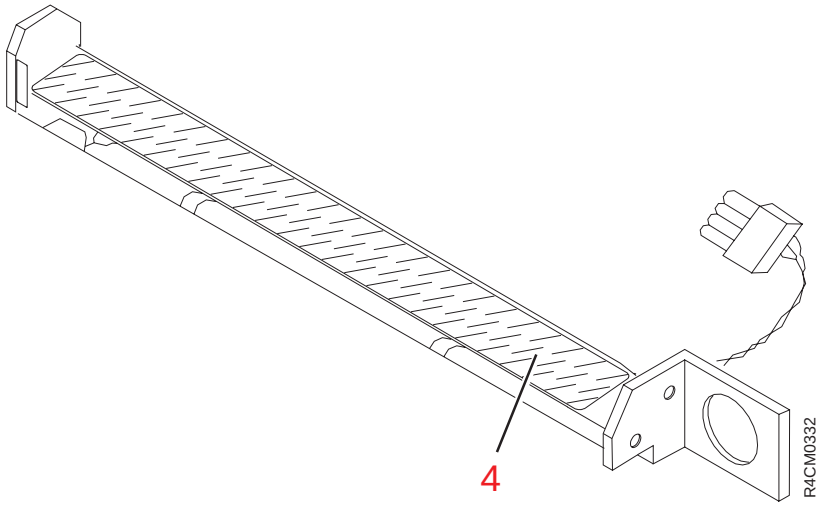
Special Tools Required:

Lint free cloth (PN 2108930)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the PC drum cover.
4. Disconnect PJ161 **(1)**.
5. Remove the lamp, holder **(2)**, and filter bracket.
6. The lamp filter is attached to the filter bracket. Use a clean, dry cloth to wipe toner, paper dust, or other contamination from the blue filter. Do not use any chemical cleaners.
7. Use a lint-free cloth to clean the erase lamp cavity.
8. Remove the upper section of the erase lamp cavity to make cleaning easier.
9. At a clean work place, turn the erase lamp **(3)** counterclockwise and lift the lamp from the holder **(2)**.

Table 636. Secondary Erase Lamp (PL101) (continued)



Cleaning

Clean the lamp filter **(4)** on the holder with a lint-free cloth.

Installation

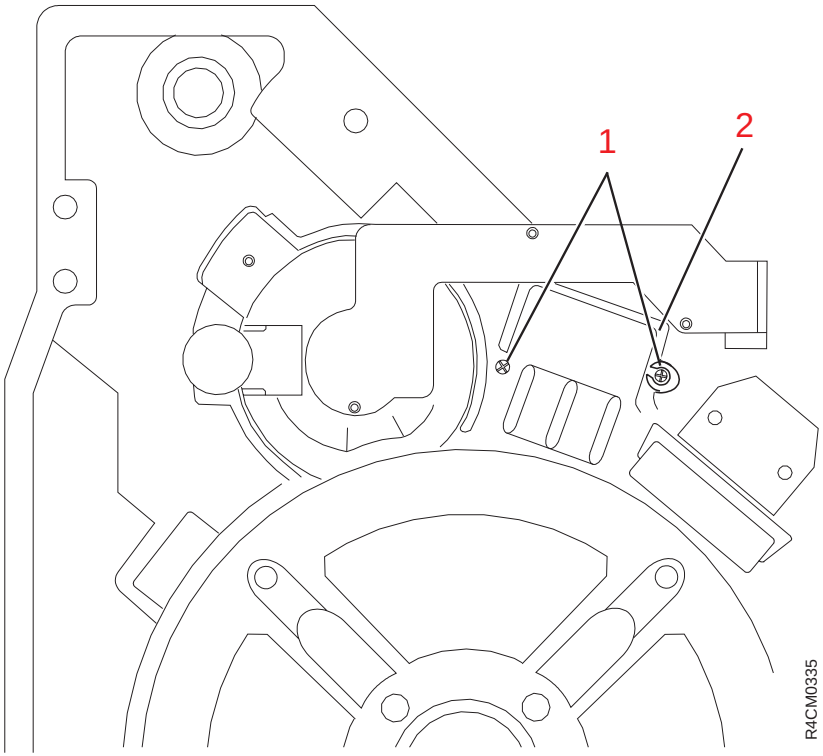
Reverse the removal procedure.

Check

Run Print Pack to check that the erase lamp is working correctly.

Secondary Erase Lamp Sensor (Q102)

Table 637. Secondary Erase Lamp Sensor (Q102)



Special Tools Required:

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the PC Drum Removal procedure and store it in a drum bag or box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

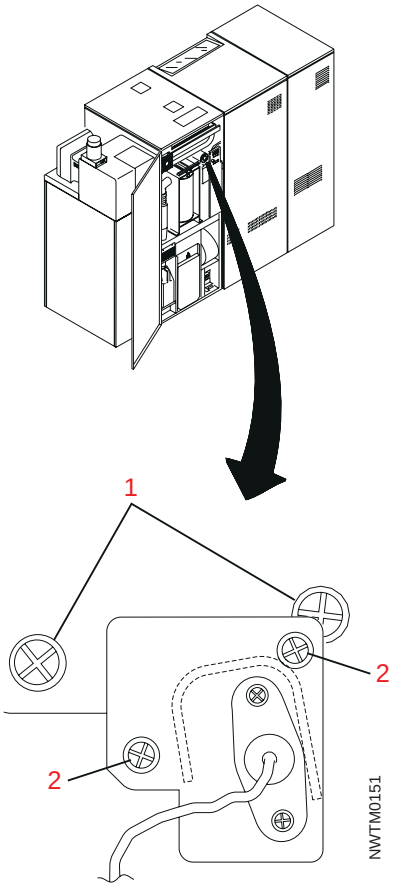
4. Open the transfer station.
5. Remove the Secondary Erase Lamp (PL101).

Hint: Do not remove the charge corona housing during this procedure. Adjustment of the charge corona to PC drum gap is difficult and time consuming.

6. Remove the Charge Corona.
7. Remove the precharge corona. (See page 2320.)
8. Loosen the two screws **(1)** on the front of the secondary lamp and precharge corona housing **(2)**.
9. Open the printer left and center rear covers.
10. Remove the printer left and right rear process covers.

(continued on next page)

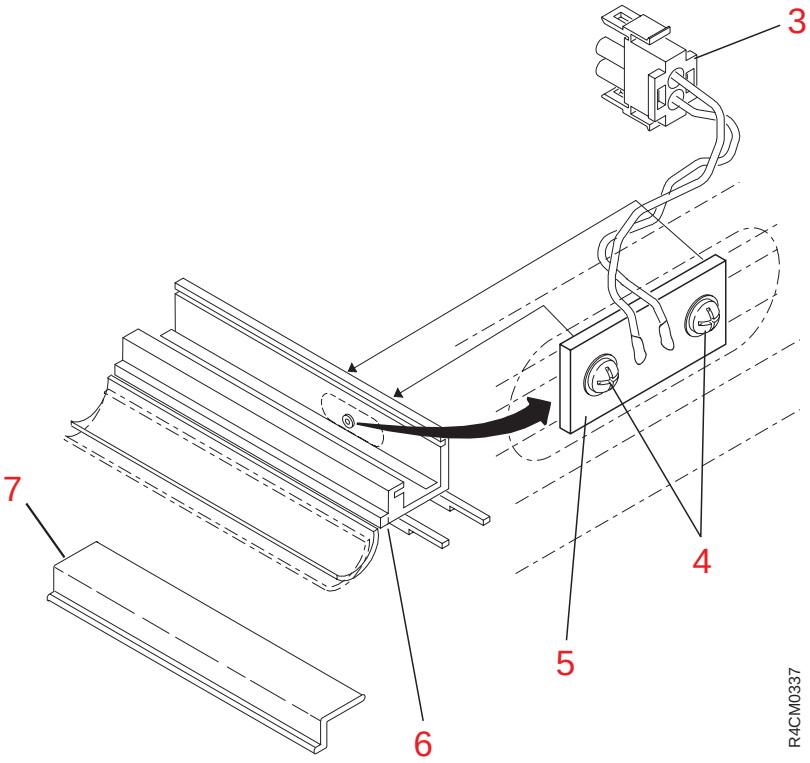
Table 637. Secondary Erase Lamp Sensor (Q102) (continued)



11. Remove the two screws **(2)** to remove the precharge corona plug assembly.
12. Remove the two screws **(1)** on the back of the secondary erase lamp and precharge corona housing.
13. Remove the two screws you loosened in step 8.

(continued on next page)

Table 637. Secondary Erase Lamp Sensor (Q102) (continued)



14. Slide the secondary erase cover **(7)** out the front of the printer.
15. Lower the precharge corona housing **(6)**.
16. Disconnect PJ148 **(3)**.
17. Remove the secondary erase lamp and precharge corona housing **(6)**.
18. Remove the two screws **(4)** to remove the secondary erase lamp sensor **(5)**.

Installation

1. Check the cleaner skirt to PC drum gap. See Cleaner Skirt.

Attention: When you replace the two screws on the front and back of the secondary erase lamp and precharge corona housing, be sure to lift up on the housing to avoid possible damage to the PC drum.
Hint: When you replace the secondary erase lamp and precharge corona housing, use a long screwdriver to help align the rear mounting holes.

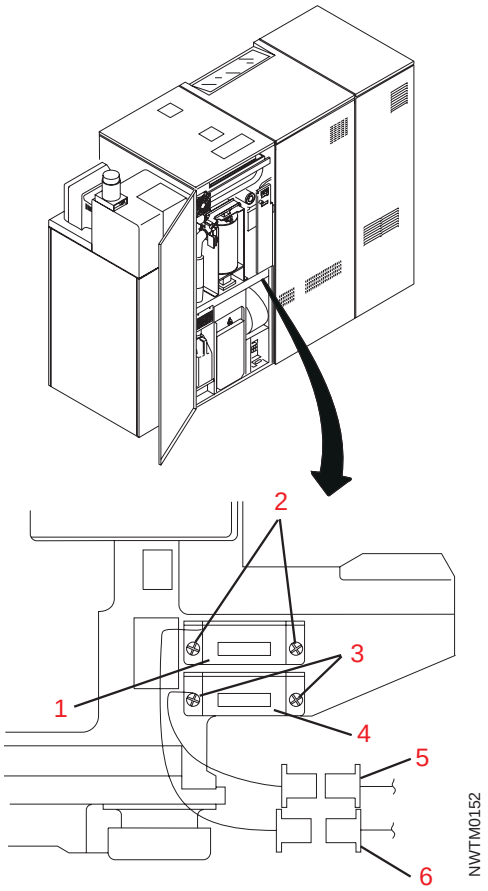
2. Reverse the removal procedure.

Check

Run Print Pack to check that the erase lamp is working correctly.

Erase Lamp Starters (ST101, ST102)

Table 638. Erase Lamp Starters



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left and center rear covers.
4. Remove the printer left and right rear process covers.
5. Disconnect connector PJ160 **(6)** or PJ159 **(5)**.
6. Remove the cables from the clamps on the inside of the connecting stay and remove the connecting stay. See Drum Covers Removal.
7. Remove the two screws **(2)** to remove the starter (ST102) **(1)**.
8. Remove the two screws **(3)** to remove the starter (ST101) **(4)**.

Installation

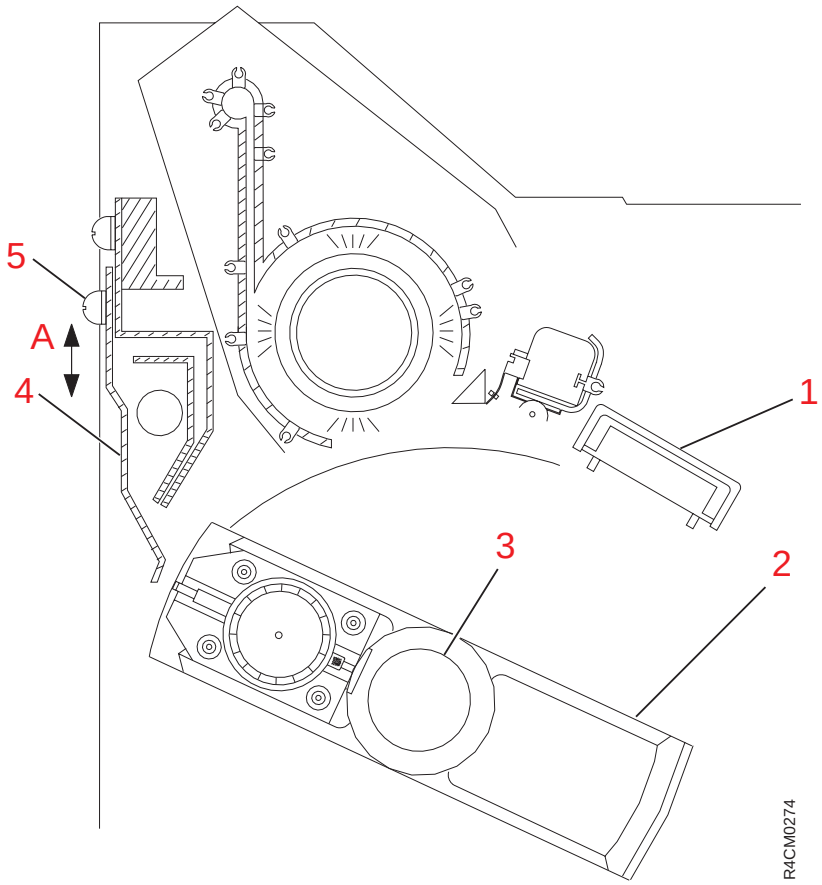
Reverse the removal procedure.

Check

Run Print Pack to check print quality.

Primary Erase Lamp Cover to PC Drum Gap

Table 639. Primary Erase Lamp Cover to PC Drum Gap



Special Tools

- Drum shaft extension (PN 06F1025)
- Drum clearance gauge (PN 06F1029)
- Drum bag or empty box

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the PC Drum Removal procedure and store it in a drum bag or box.
4. Remove the Charge Corona **(1)**.

Adjustment

1. Calibrate the Drum Clearance Gauge.
2. Put the drum gauge **(2)** on the drum shaft **(3)**.
3. Use the drum gauge to ensure that the gap (front and rear) between the primary erase lamp cover **(4)** and the PC drum is as shown in the PC Drum & Developer Clearances/Gaps table.
4. If the gap is not correct, loosen the two screws **(5)** and adjust the gap by sliding the primary erase lamp cover in the **(A)** direction.

Check

Run Print Pack to check print quality.

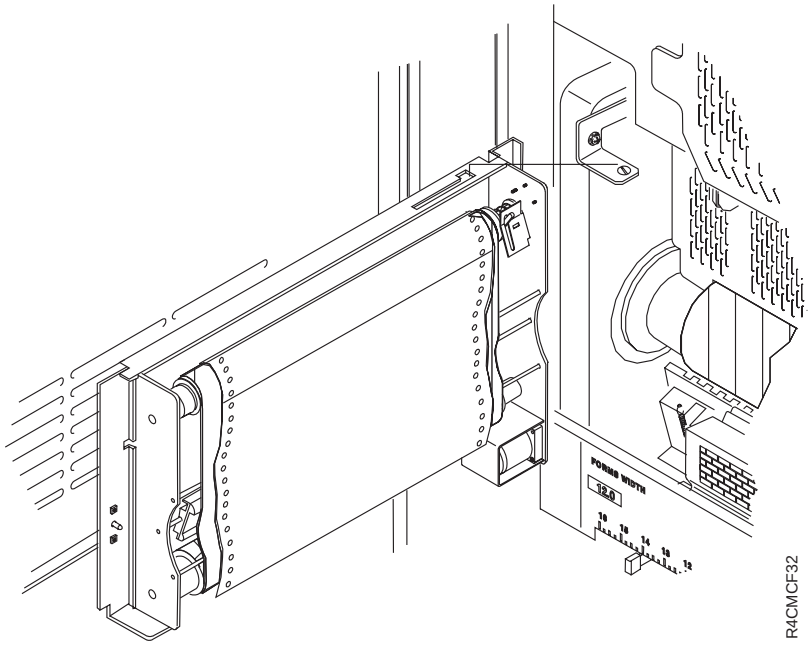
Fuser

Before You Begin 2502
Backup Roll 2503
Backup Roll Discharge Brush 2505
Backup Roll Encoder (EN131) 2507
Backup Roll Lift Motor (M610) 2509
Backup Roll Lift Motor Drive Belt 2512
Backup Roll Lift Position Sensor (S624) 2520
Backup Roll Load Motor (M603) 2521
Backup Idler Roll 2522
Backup Idler Roll Motor (M609) 2524
Backup Idler Roll Position Encoder Board (EN131) 2526
Fuser Control Card (FSxxx) 2528
Fuser Cooling Fan (B605) 2529
Fuser Wrap Sensor (S617 and S618) 2530
Fuser Wrap Sensor (S620) 2532
Hot Roll Control Card - HR091 2534
Hot Roll Drive Assembly and Lubrication 2535
Hot Roll and Collars 2537
Hot Roll Drive Collar 2540
Hot Roll Drive Motor (M607) 2541
Hot Roll Drive Motor Blower (B602) 2546
Hot Roll Front Hub 2548
Hot Roll Lamps 2550
Hot Roll Lamp End Cap 2554
Hot Roll Lamp Receptacle Contacts 2556
Hot Roll Temperature Control Sensor (L601) 2558
Hot Roll Over-temperature Sensor (S613) 2560
Oiler Belt End Switch (S610) 2562
Oiler Belt Motor (M706) 2564

Oiler Gate Interlock Switch (S605) 2566
Oil Port Assembly 2568
Oil Pumps (L70x) 2569
Paper Cooling Fans (B623, B624, and B625) 2574
Paper Cooling Fan (B626) 2575
Preheat Platens, Upper (PH601) and Lower (PH602) 2576
Preheat Platen Lift Plate Assembly 2580
Preheat Control 2583
Scuff Pressure Rollers 2586
  Scuff Roller Pressure Check 2588
Scuff Roll 2590
Scuff Roll Drive Motor (M704) and Belt 2592
Scuff Roll Release Cable 2594
Vacuum Shutter and Cable 2596
Vacuum Shutter Home Sensor (S604) 2599
Shutter Motor (M602) 2603
Skew Sensor (D603) 2604
Steering Motor (M601), Pulleys, and Cables 2611
Thermistors (S621, S622, S623) 2613

Before You Begin

Throughout this section of Removals and Adjustments, you are asked to work in a high-temperature area or with the fuser oiler belt gate open. Keep the following suggestions in mind as you work in these areas.



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

When you see this Caution notice, do the following to aid in cooling the fuser area:

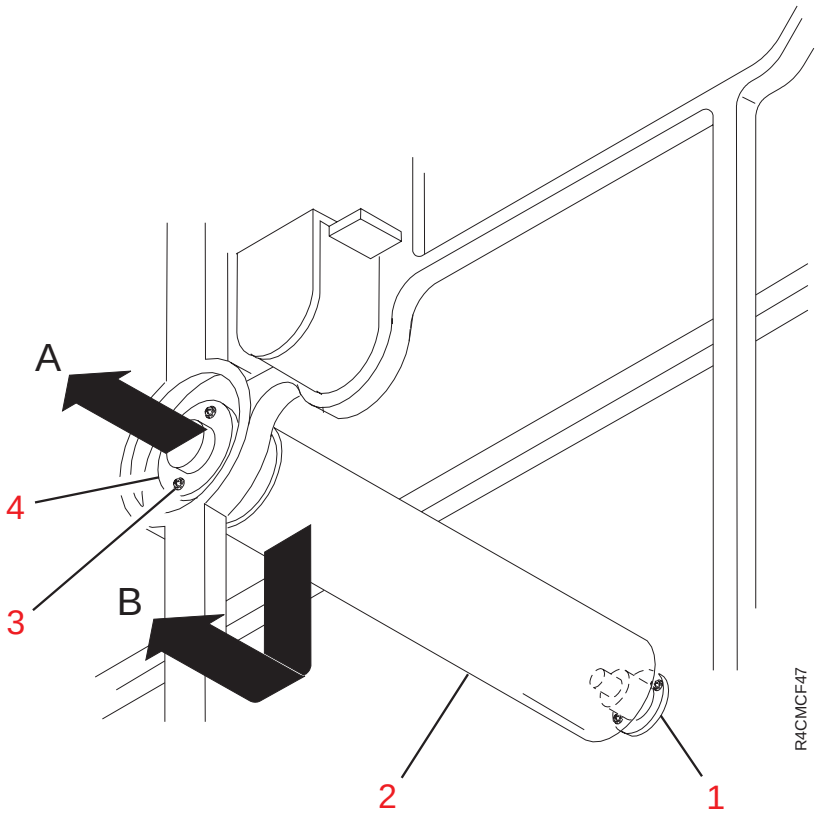
1. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

2. Open and lock the fuser oiler belt gate.

Backup Roll

Table 640. Backup Roll



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Remove the fuser front cover.

Attention: Screws in this area can damage the backup roll surface.

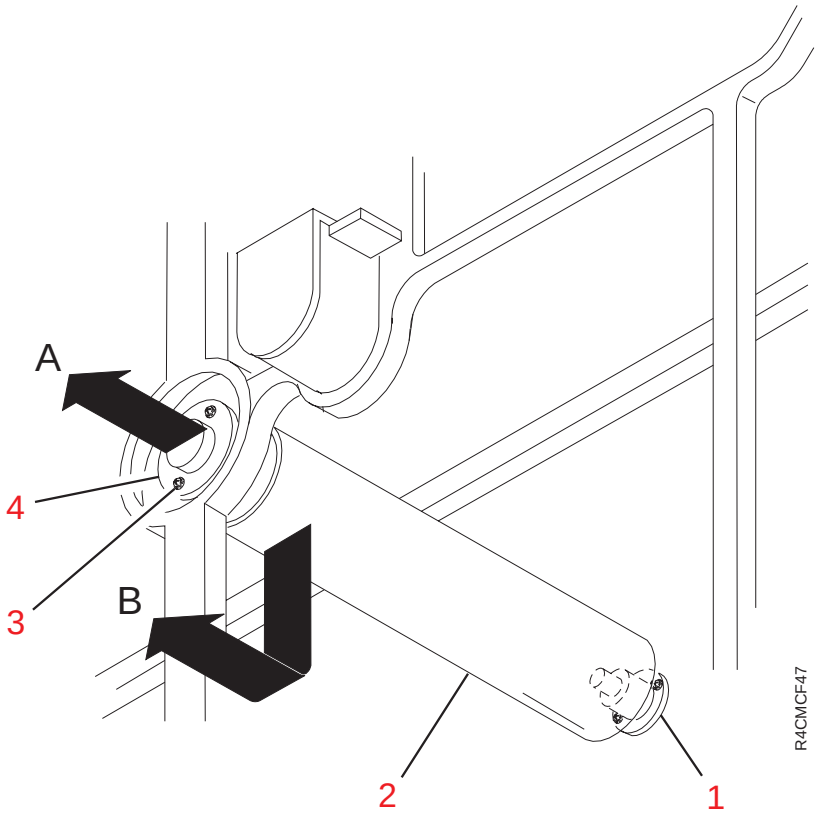
Place several layers of paper in the area under the backup roll and over the scuff roll drive motor and scuff roll cooling fan covers.

5. Remove the two screws **(3)** in the backup roll front support pin **(4)**.
6. While holding the backup roll **(2)**, pull the front support pin in the **(A)** direction out through the front of the printer frame.

Note: *Do not* remove the backup roll through the hole in the fuser front casting.

(continued on next page)

Table 640. Backup Roll (continued)



Removal (cont'd)

7. Carefully move the backup roll to the front to disengage it from the rear support pin **(1)** and then remove the backup roll in the direction of arrow **(B)**.

Installation

1. Reverse the removal procedure.

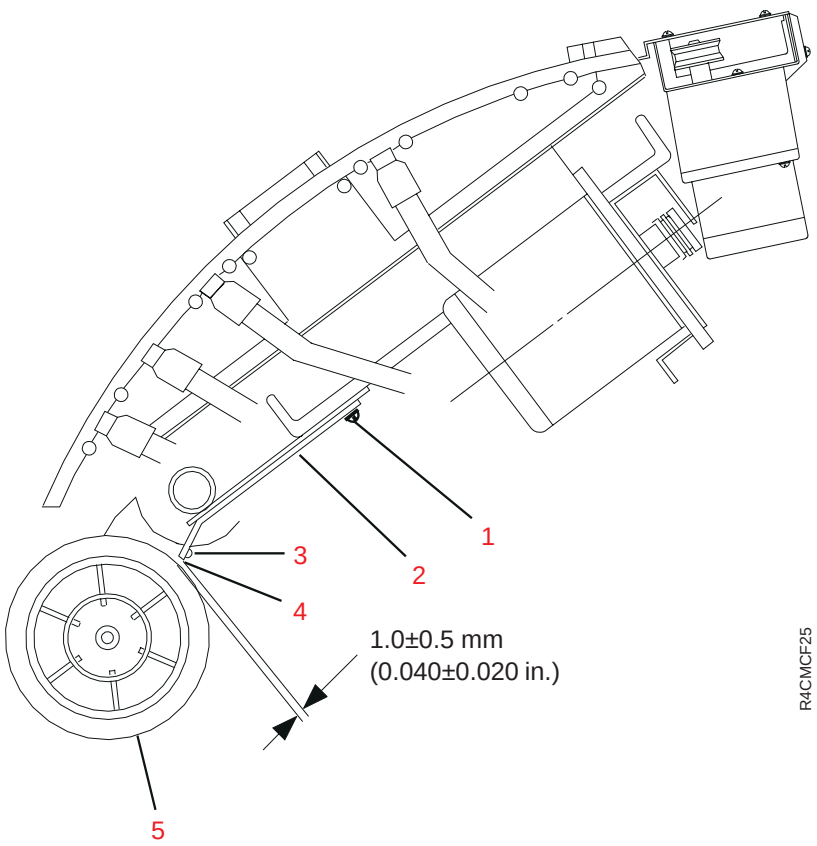
   A new backup roll is wrapped in paper. To protect the backup roll, do not remove the paper until the roll is installed.
2. Ensure that the rear support pin is seated correctly in the backup roll rear bearing.
3. Power on the printer.
4. When you have installed a new backup roll, select **PM Log** on the Logs menu to reset the backup roll counter to **0**.

Check

Run Print Pack to verify print quality.

Backup Roll Discharge Brush

Table 641. Backup Roll Discharge Brush



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine 21 to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
3. Shutdown and power off the printer.
4. Open the printer left front cover.
5. Remove the fuser right side cover.
6. Remove the fuser front cover.
7. Loosen the two screws **(1)**, remove the discharge brush holder **(2)**.
8. Remove the two screws **(3)**, remove the discharge brush **(4)**.

(continued on next page)

Table 641. Backup Roll Discharge Brush (continued)

Installation

1. Reverse the removal procedure.
2. Perform the backup roll discharge brush adjustment procedure.

Adjustment

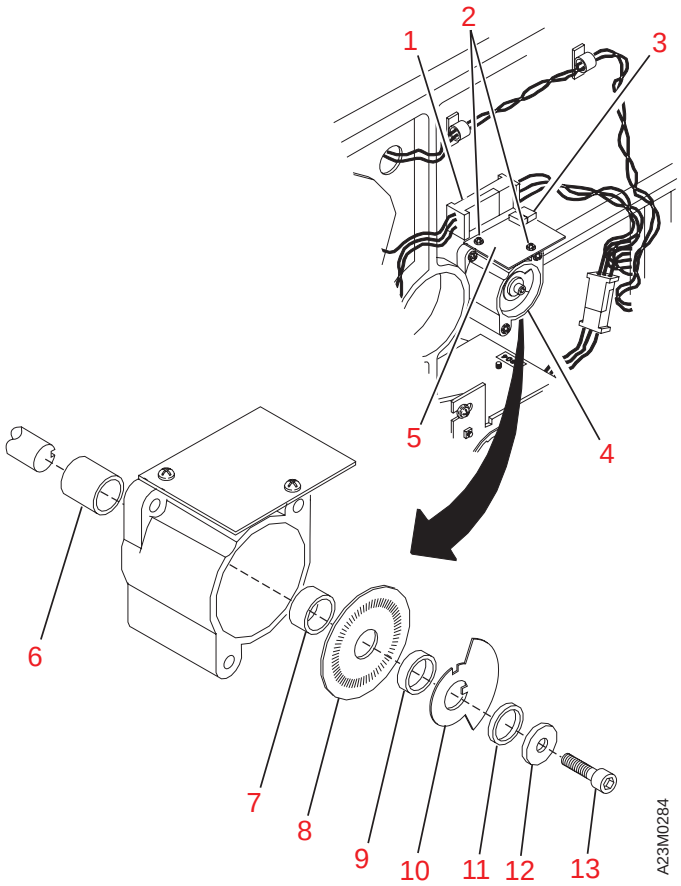
Adjust the discharge brush holder **(2)** so that the gap between the discharge brush **(4)** and the backup roll **(5)** is 1.0 mm ±0.5 mm (0.040 ±0.020 in.).

Check

Run Print Pack to verify print quality.

Backup Roll Encoder (EN131)

Table 642. Backup Roll Encoder (EN131)



Removal

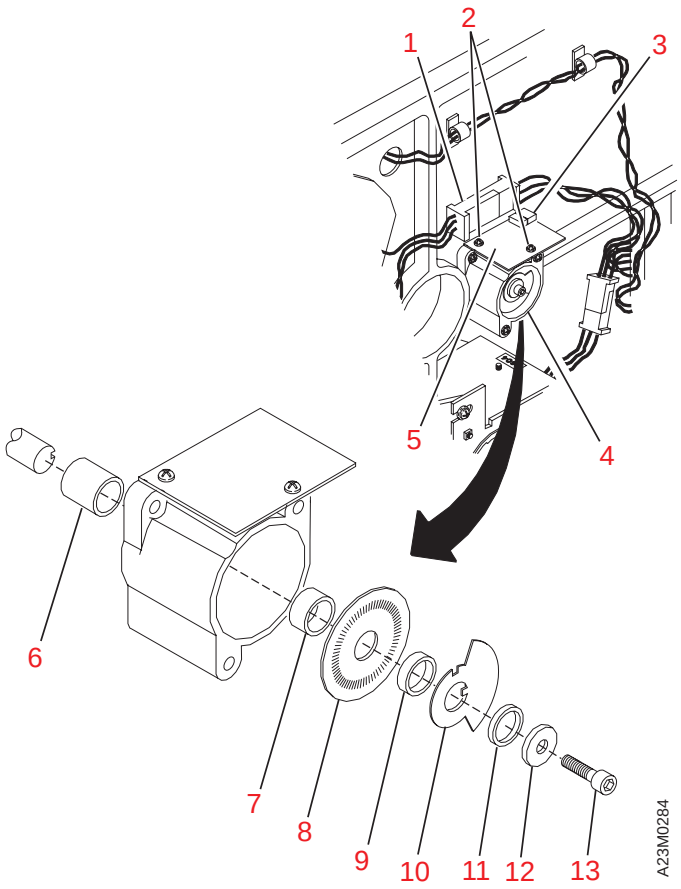
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Remove the fuser front cover.
5. Disconnect connector PJ666 **(1)** to gain access to the two screws **(2)**.
6. Disconnect connector PJ606 **(3)**.
7. Remove the two screws **(2)** to remove the backup roll encoder board **(5)**.

Attention: The timing wheel and disk bend easily.

8. Remove the screw **(13)** and carefully disassemble the encoder.

(continued on next page)

Table 642. Backup Roll Encoder (EN131) (continued)



Installation

Reverse the removal procedure.

Notes:

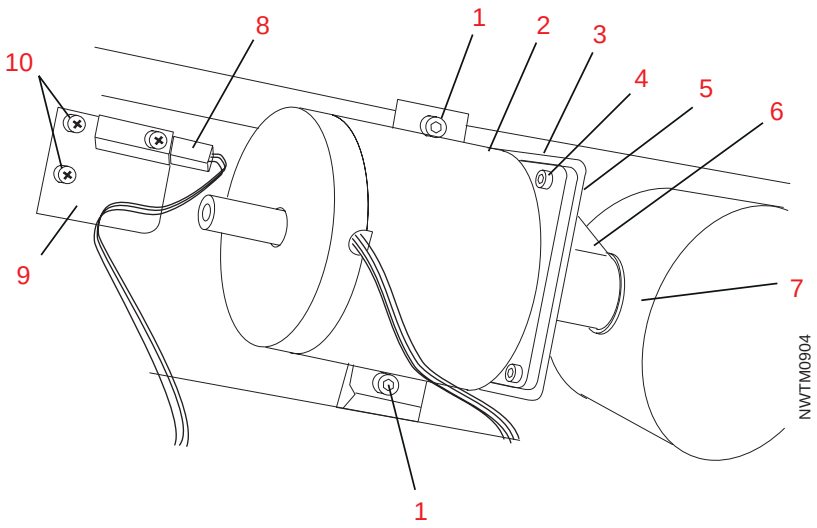
1. The five spacers **(6)**, **(7)**, **(9)**, **(11)**, and **(12)** are different sizes. Ensure that these spacers are installed correctly, or the timing disk and timing wheel can be damaged.
2. The timing disk **(10)**. The notch must be oriented as shown during assembly.
3. The timing wheel **(8)**. The shiny surface must face the front of the printer.

Check

1. Run Driver Routine 25 to run the backup roll motor and to ensure that the encoder shaft is turning properly.
2. Run Sensor Routine 71 to ensure that the backup roll encoder works correctly.
3. Run Print Pack to verify print quality.

Backup Roll Lift Motor (M610)

Table 643. Backup Roll Lift Motor (M610)

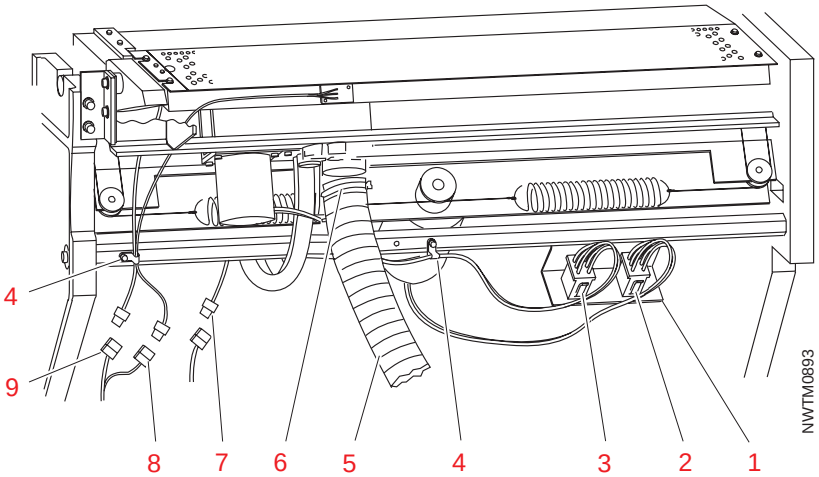


Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine 21 to raise the auto load bridge. Press the **Enter** key to stop the bridge at its uppermost position.
3. Shutdown and power off the printer.
4. Open the printer left front cover, the printer center front cover, and the printer center top cover.
5. Remove the fuser right side cover and the auto load bridge front cover.

(continued on next page)

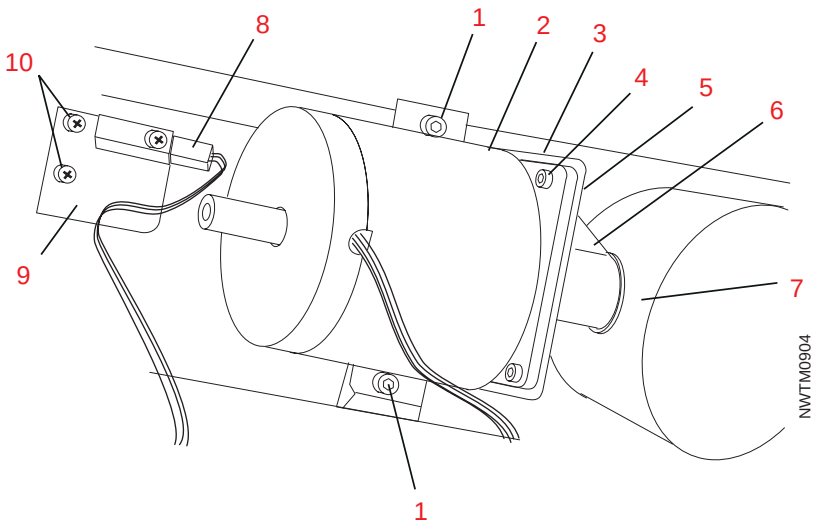
Table 643. Backup Roll Lift Motor (M610) (continued)



6. Disconnect connector PJ6018 **(7)**.

(continued on next page)

Table 643. Backup Roll Lift Motor (M610) (continued)



Note: The backup roll lift motor **(2)** is located to the left (towards the front of the printer) of the backup roll steering motor **(7)**.

7. Remove the two hex socket head bolts **(1)** holding the backup roll lift motor holder **(3)** to the preheat platen frame. Slip the drive belt **(6)** off of the lift motor pulley as you remove the lift motor/holder assembly.
8. Remove the two hex socket head bolts **(4)** that attach the lift motor **(2)** to the holder **(3)** with a nut plate **(5)** (not shown).

Installation

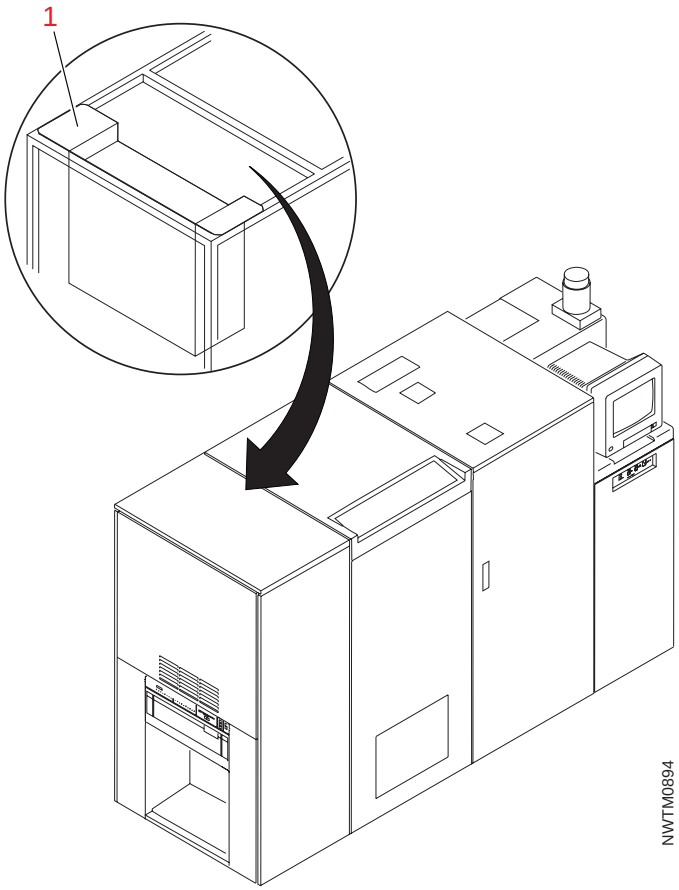
1. Reverse the removal procedure.
2. Push the motor mounting bolts to the top of the slotted holes in the motor holder to put tension on the drive belt and then tighten the bolts.

Check

1. Run Driver Routine 4D to ensure that the lift motor and sensor are operating correctly.
2. Run Print Pack to verify print quality.

Backup Roll Lift Motor Drive Belt

Table 644. Backup Roll Lift Motor Drive Belt

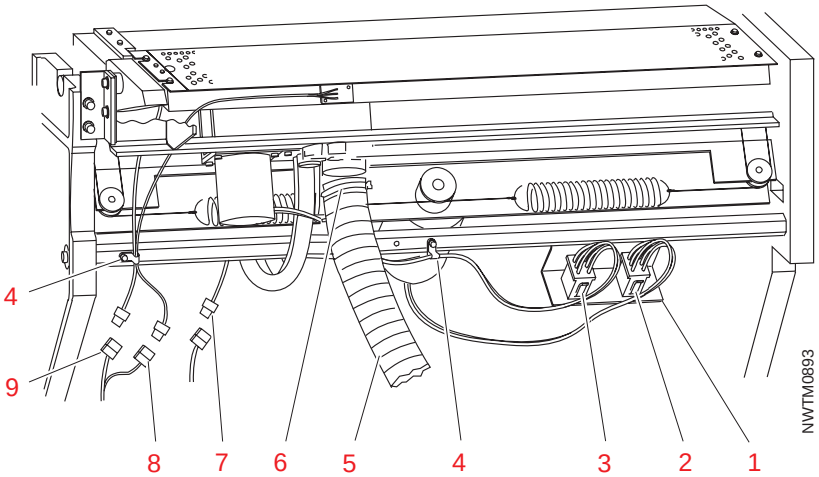


Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Remove the Auto Load Bridge Assembly.
3. Shutdown and power off the printer.
4. Remove the printer left front cover, and the printer left top cover, and the printer center top cover.
5. Open the printer center front cover and the stacker end cover.
6. Remove the right rear cover.
7. Remove the fuser right side cover and the auto load bridge front cover.
8. Remove the preheat platen front and rear covers, the fuser front cover, the hot roll shield, and the fuser heat shield.
9. Remove the fuser oil filter assembly **(1)**.
10. Remove the Hot Roll Lamps.
11. Remove the Hot Roll and Collars.
12. Remove the Backup Idler Roll.
13. Remove the Backup Roll.

(continued on next page)

Table 644. Backup Roll Lift Motor Drive Belt (continued)



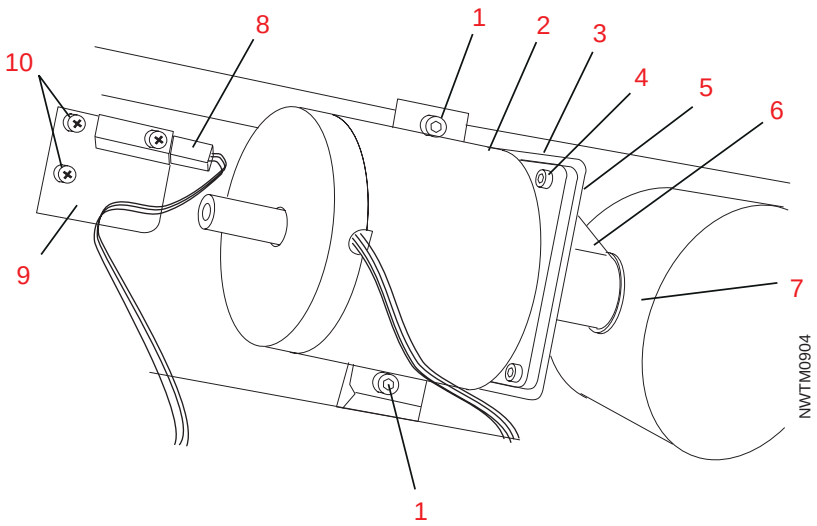
14. Remove the Preheat Platens, Upper (PH601) and Lower (PH602)

Remove the Preheat Platen Frame Assembly

1. Remove two cable clamps **(4)**.
2. Disconnect cable connectors PJ636 **(8)**, PJ638 **(9)**, PJ616 **(3)**, PJ615 **(2)**, and PJ6018 **(7)**.
3. Remove cable connectors J615 and J616 from their holding bracket **(1)**.
4. Loosen the clamp **(6)**, holding the vacuum hose **(5)** to the fuser vacuum manifold, and remove the vacuum hose from the manifold.

(continued on next page)

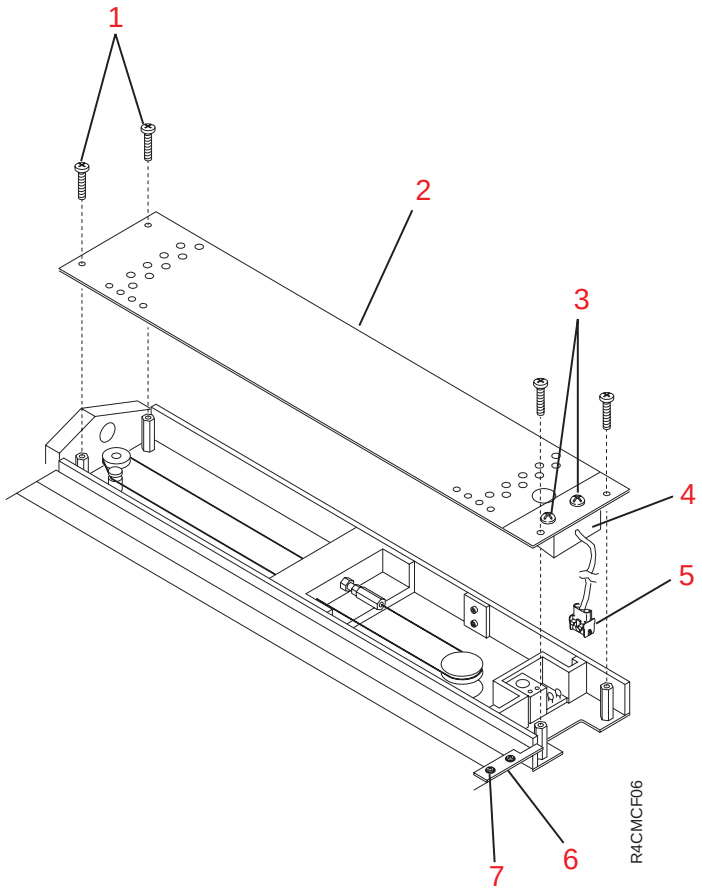
Table 644. Backup Roll Lift Motor Drive Belt (continued)



5. Disconnect cable connector P6019 **(8)** from the backup roll lift position sensor **(9)**.

(continued on next page)

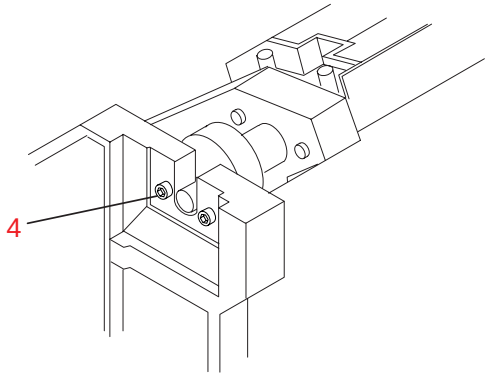
Table 644. Backup Roll Lift Motor Drive Belt (continued)



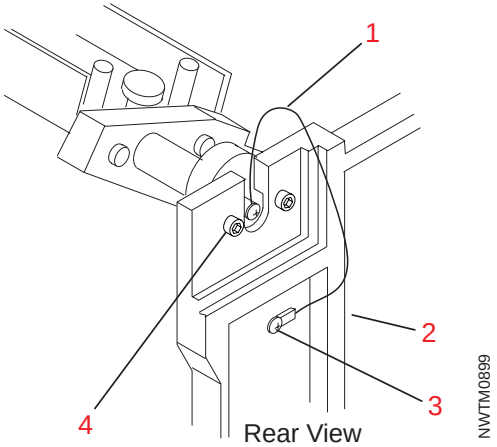
6. Remove the four screws **(1)** from the shutter vacuum plate **(2)** and lift the vacuum plate from the shutter assembly while feeding connector P638 **(5)** and its cable through the bottom of the shutter assembly.

(continued on next page)

Table 644. Backup Roll Lift Motor Drive Belt (continued)



Front View



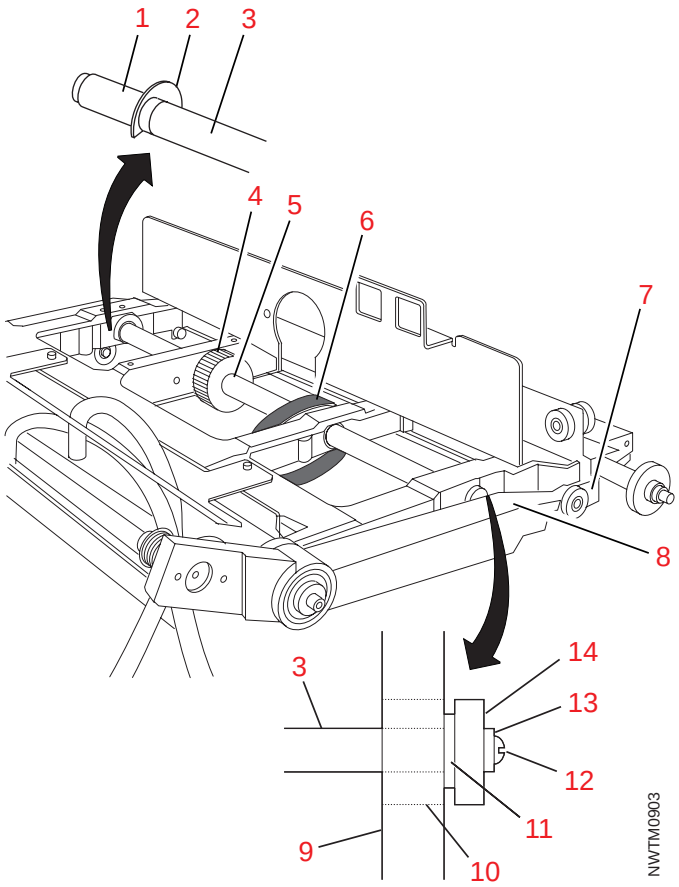
Rear View

7. Remove the screw and washer **(3)** holding the preheat platen frame ground wire **(1)** at the rear of the fuser frame **(2)**.
8. Remove the four bolts **(4)** (two on the front side and two on the rear side) holding the preheat platen frame assembly to the fuser frame.
9. Lift the preheat platen frame assembly out of the fuser frame.

Note: Two people are required to lift the preheat platen frame assembly out of the fuser frame and to reinstall it.

(continued on next page)

Table 644. Backup Roll Lift Motor Drive Belt (continued)

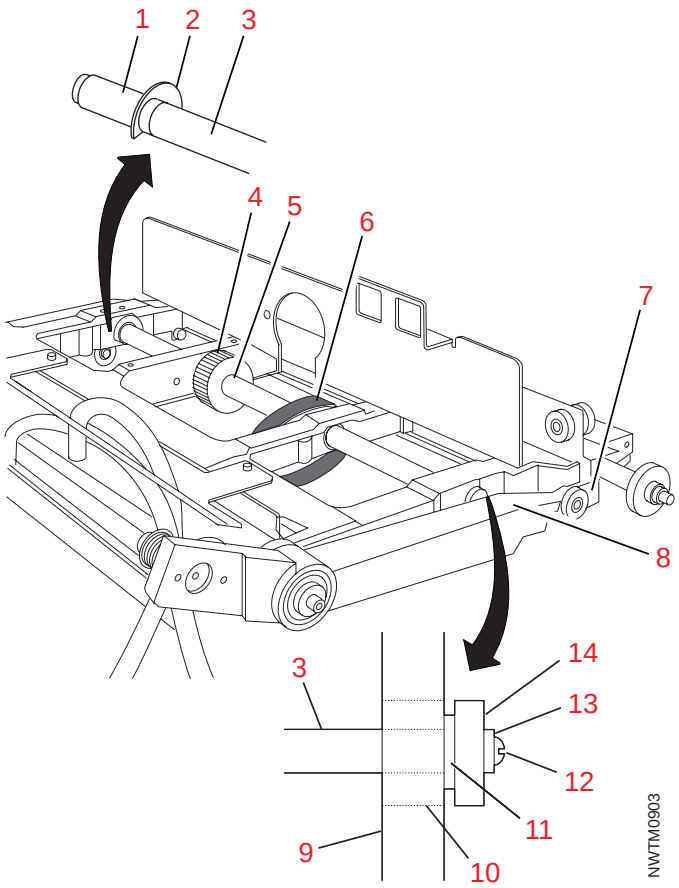


Replace the Backup Roll Lift Motor Drive Belt

1. Lay the frame assembly on a flat working surface with the backup roll lift motor and the steering motor facing upward.
2. Use Backup Roll Lift Motor (M610) to remove the backup roll lift motor/holder from the preheat platen frame.
3. Use Steering Motor (M601), Pulleys, and Cables to remove and keep the two steering motor cable springs, the steering motor short cable, and the steering motor/pulley.
4. Lift up both the front and rear backup roll arms **(8)** to gain access to the stopper plates **(7)** and drive shaft cams **(14)**.
5. Remove the two bolts mounting each of the front and rear stopper plates **(7)** (the stopper plate is identified by the included hex socket head set screw and locking nut).
6. Use the removal procedures in Backup Roll Lift Position Sensor (S624) to remove the lift position sensor block from the preheat platen frame.
7. Remove the two c-clips **(5)** on either side of the drive gear **(4)**, slide the gear on the drive shaft **(3)**, and remove the gear key (not shown).
8. Remove the screw **(13)** and washer **(12)** from both the front and rear cams **(14)** on the ends of the drive shaft **(3)**.

(continued on next page)

Table 644. Backup Roll Lift Motor Drive Belt (continued)

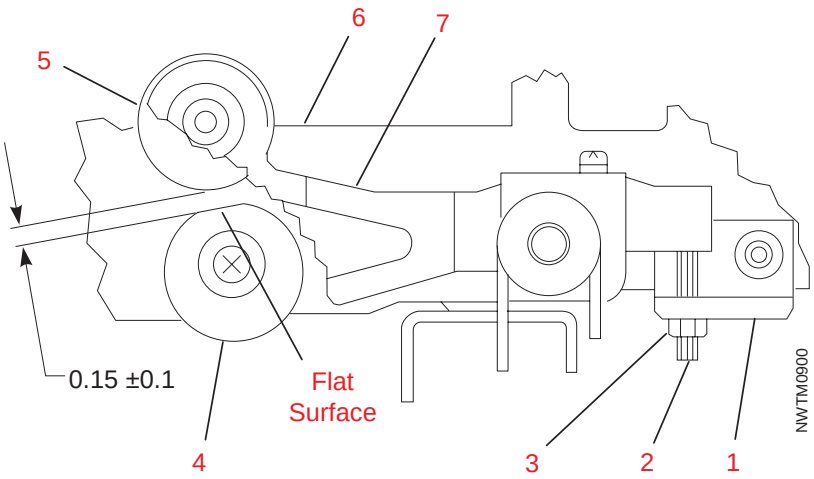


9. Remove both the front and rear cams **(14)**, along with a spacer **(11)** and a key (not shown) for each cam, from the ends of the drive shaft.
10. Pull the drive shaft **(3)** out the rear side of the preheat platen frame through the rear bearing **(10)** about two inches.
11. Pull the sleeve **(1)** off of the front end of the drive shaft, and remove the keyed drive shaft sensor disk **(2)**.
12. Pull the drive shaft completely out of the rear side of the frame so that the drive belt **(6)** may be removed off of the shaft and replaced.
13. Perform steps 2 through 12 above in reverse order to reassemble the drive shaft containing a new drive belt.

Note: Ensure that the spacer **(11)** is installed between the bearing **(10)** and the cam **(14)** when you reinstall both the front and rear cams.

(continued on next page)

Table 644. Backup Roll Lift Motor Drive Belt (continued)



Preheat Platen Frame Assembly Adjustment

1. Loosen the locking nut **(3)** on the front stopper plate **(1)**.
2. Adjust the hex socket head set screw **(2)** so that the gap between the flat surface on the cam **(4)** and the opposing roller **(5)** is 0.15 ±0.1 mm.
3. Apply grease to the in-contact surfaces of both the cam and the opposing roller.
4. Perform the three steps above on the rear stopper plate.

Installation

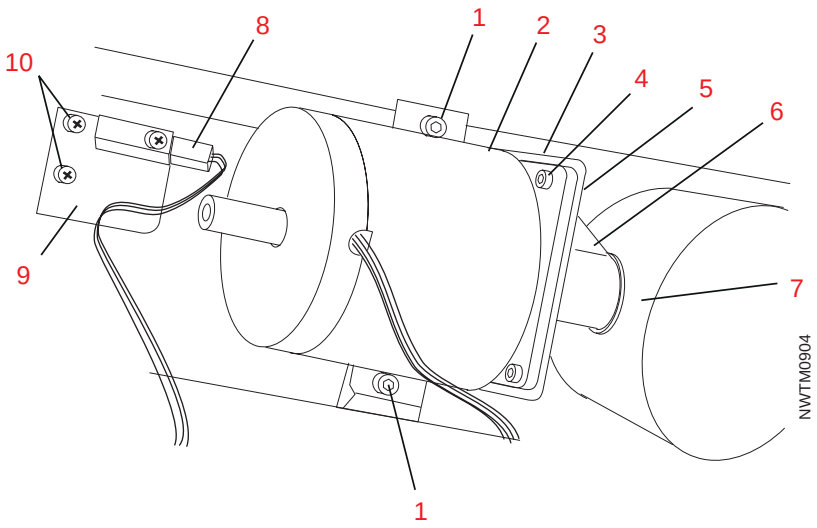
Reverse the removal procedure.

Check

1. Run Driver Routine 4D to ensure that the lift motor and sensor are operating correctly.
2. Run Print Pack to verify print quality.

Backup Roll Lift Position Sensor (S624)

Table 645. Backup Roll Lift Position Sensor (S624)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine 21 to raise the auto load bridge. Press the **Enter** key to stop the bridge at its uppermost position.
3. Shutdown and power off the printer.
4. Open the printer left front cover, the printer center front cover, and the printer center top cover.
5. Remove the fuser right side cover and the auto load bridge front cover.
6. Remove the two Phillips pan head screws **(10)** and remove the backup roll lift position sensor assembly **(9)**.
7. Disconnect connector PJ6019 **(8)** from the sensor assembly.

Installation

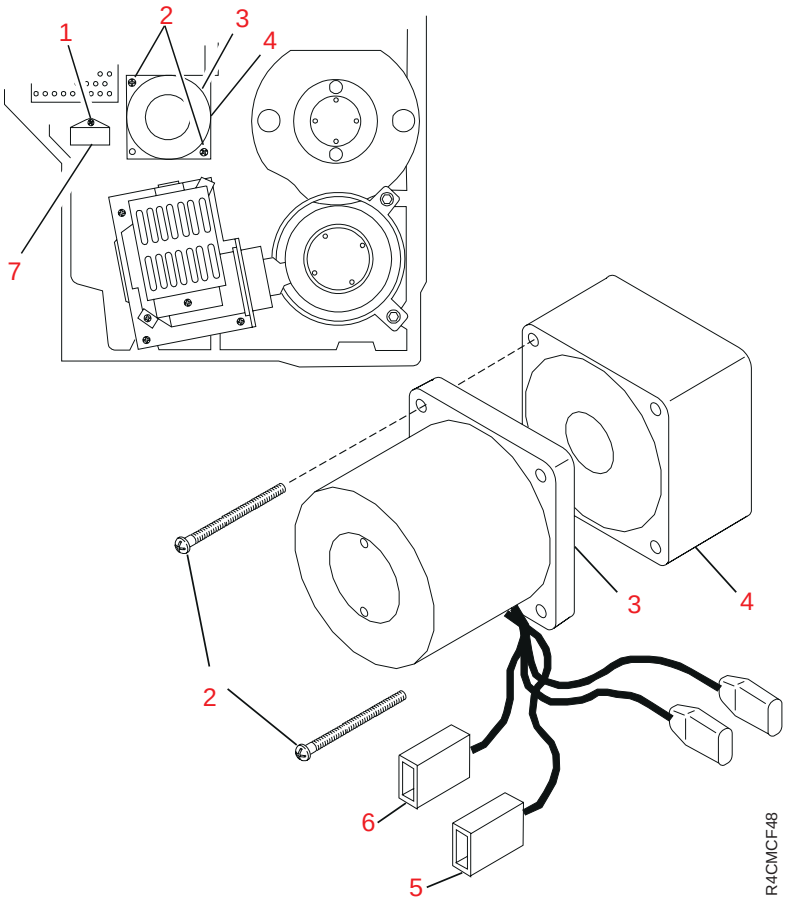
Reverse the removal procedure

Check

1. Run Sensor Routine 9C to ensure that the sensor is operating correctly.
2. Run Print Pack to verify print quality.

Backup Roll Load Motor (M603)

Table 646. Backup Roll Load Motor (M603)



Special Tools Required:

IBM SBB Grease No. 3 (PN 1665927)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Open the printer right rear cover.
3. Shutdown and power off the printer.
4. Disconnect connectors PJ646 **(5)** and PJ652 **(6)**.
5. Remove the screw **(1)** and remove the motor capacitor **(7)**. Leave the capacitor attached to its leads.
6. Hold the motor **(3)** and the gearbox **(4)** while you remove the two screws **(2)**, remove the motor and gearbox.

Installation

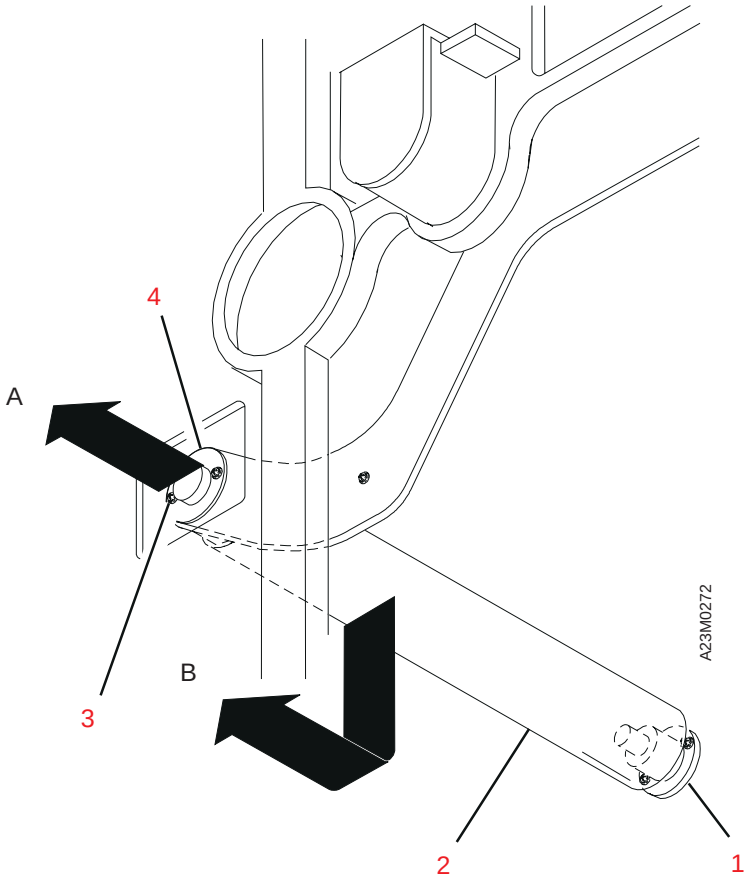
1. If necessary, apply IBM SBB Grease No. 3 (PN 1665927) to the backup roll load motor gear and IBM lubricant No. 23 to the backup roll open/close mechanism.
2. Reverse the removal procedure.

Check

Run Print Pack to verify print quality.

Backup Idler Roll

Table 647. Backup Idler Roll



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Remove the fuser front cover.

Attention: Screws in this area can damage the backup idler roll surface.

Place several layers of paper in the area under the backup idler roll and over the scuff roll drive motor and scuff roll cooling fan covers.

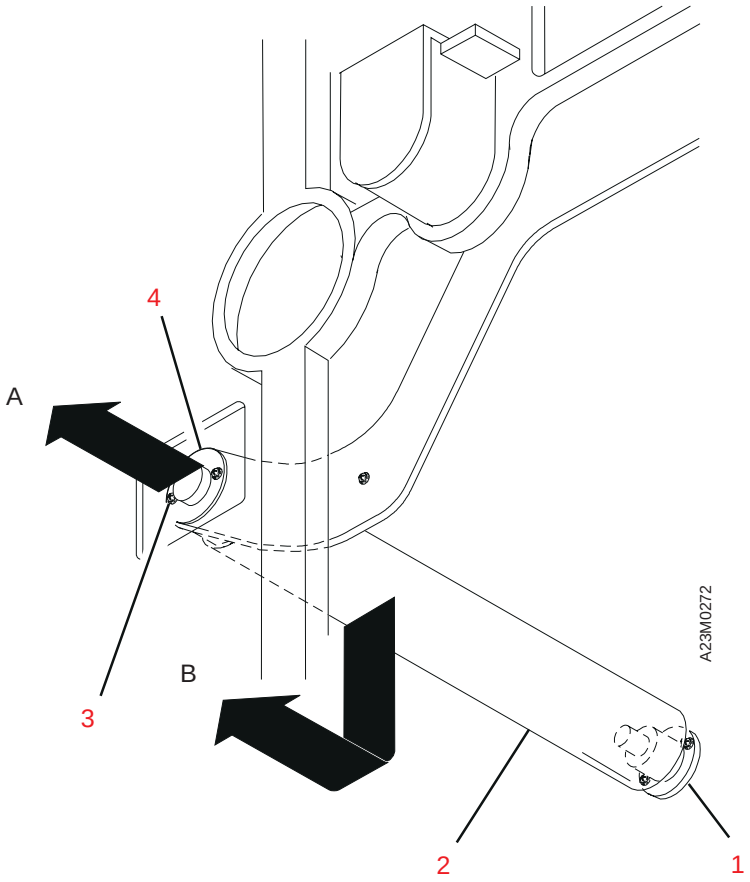
5. Remove the two screws **(3)** in the backup idler roll shaft **(4)**.
6. While holding the backup idler roll **(2)**, pull backup idler roll shaft in the **(A)** direction out through the front of the printer frame.

Note: *Do not* remove the backup idler roll through the hole in the fuser front casting.

7. Carefully move the backup idler roll to the front to disengage it from the rear support pin **(1)** and then remove the backup idler roll in the direction of arrow **(B)**.

(continued on next page)

Table 647. Backup Idler Roll (continued)



Installation

1. Reverse the removal procedure.

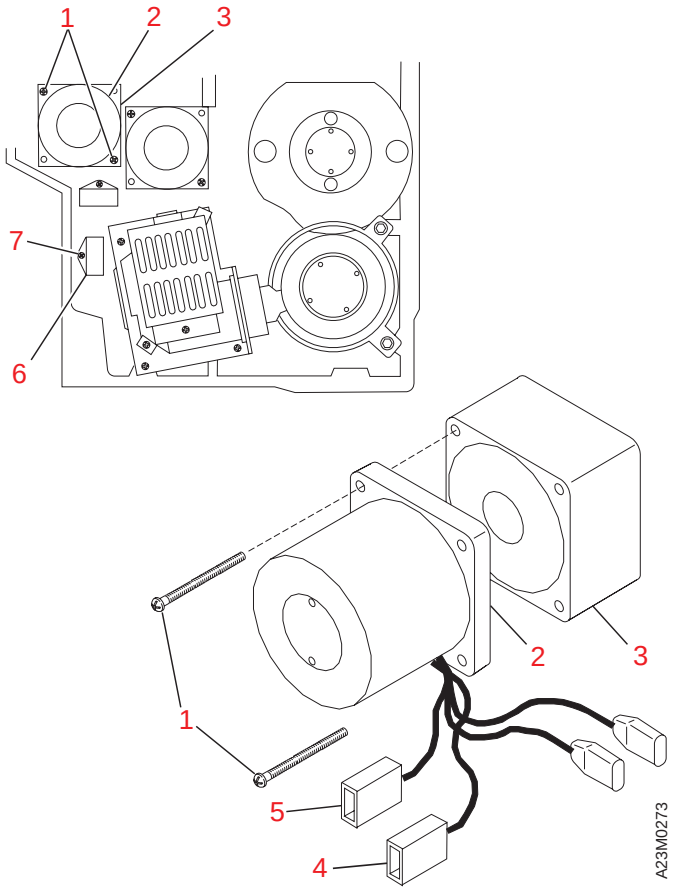
   A new backup idler roll is wrapped in paper. To protect the backup idler roll, do not remove the paper until the roll is installed.
2. If necessary, apply IBM lubricant No. 23 to the backup idler roll open/close mechanism.
3. Ensure that the rear support pin is seated correctly in the backup roll rear bearing.
4. Ensure that the backup idler roll shaft is fully seated in the front backup idler roll bearing. Failure to correctly seat the front and rear bearings will result in the backup idler roll binding and the roll being damaged.
5. Power on the printer.
6. When you have installed a new backup idler roll, select **PM Log** on the Logs menu to reset the backup roll counter to **0**.

Check

Run Print Pack to verify print quality.

Backup Idler Roll Motor (M609)

Table 648. Backup Idler Roll Motor (M609)



Special Tools

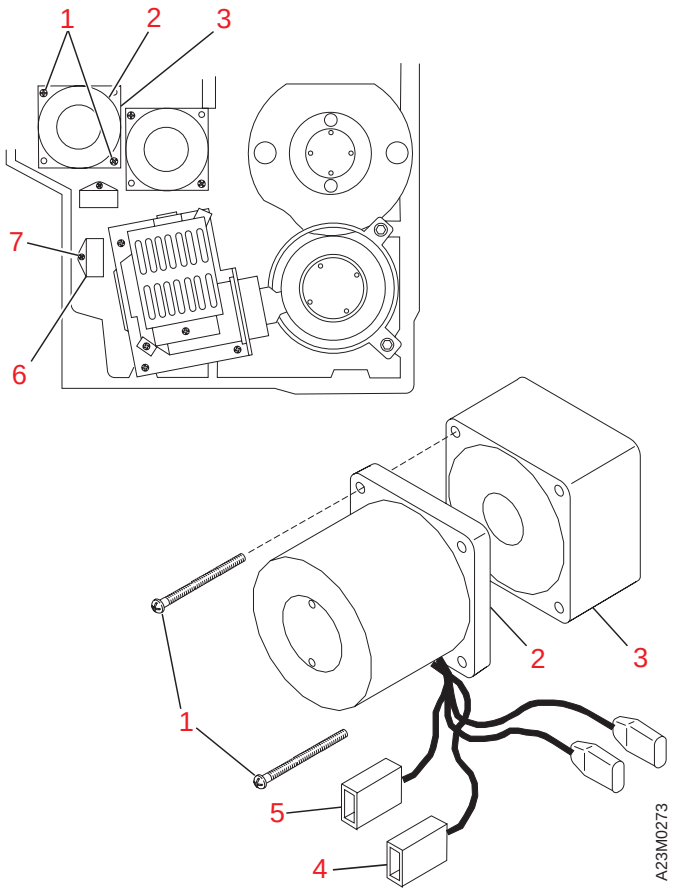
IBM SBB Grease No. 3 (PN 1665927)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right rear cover.
4. Disconnect connectors PJ6001 **(4)** and PJ6002 (**(4)**.
5. Remove the screw **(7)**, remove the motor capacitor **(6)**. Leave the capacitor attached to its leads.
6. Hold the motor **(2)** and the gearbox **(3)** while removing the two screws **(1)**, remove the motor and gearbox.

(continued on next page)

Table 648. Backup Idler Roll Motor (M609) (continued)



Installation

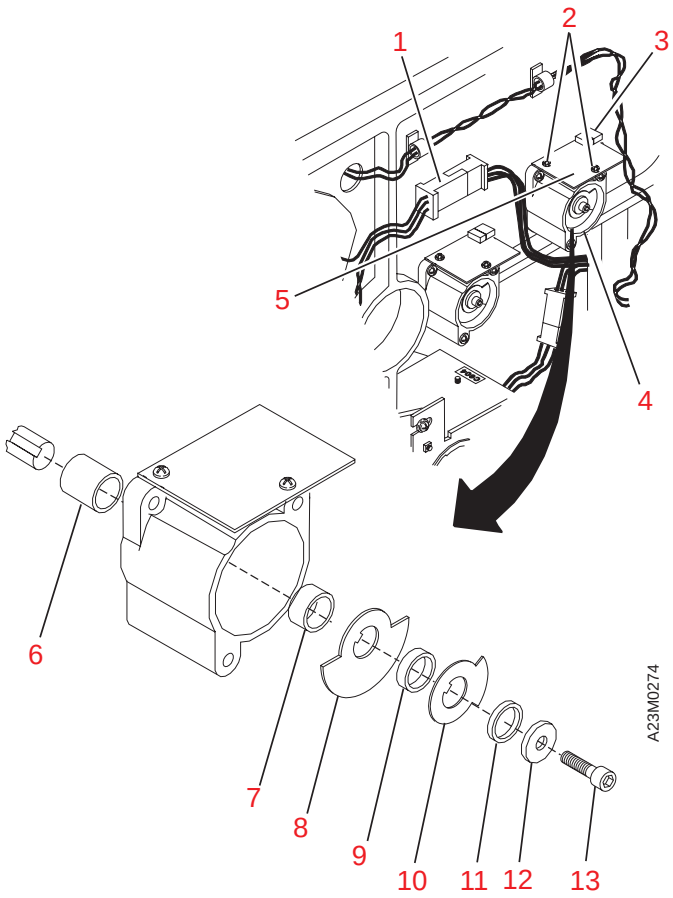
1. If necessary, apply IBM SBB Grease No. 3 (PN 1665927) to the backup idler roll motor gear.
2. Reverse the removal procedure.

Check

Run Print Pack to verify print quality.

Backup Idler Roll Position Encoder Board (EN131)

Table 649. Backup Idler Roll Position Encoder Board (EN131)



Removal

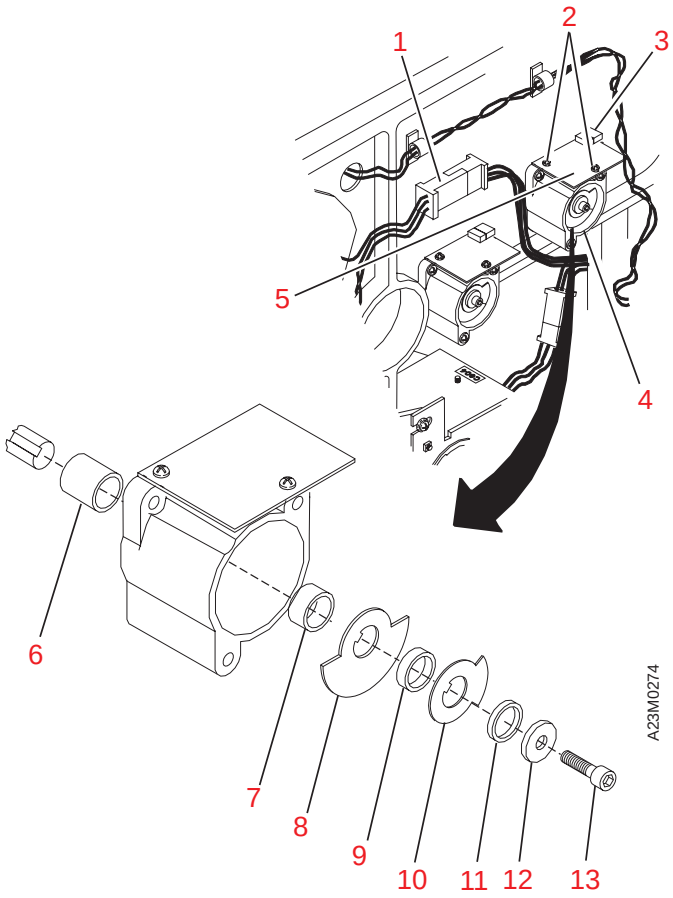
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Remove the fuser front cover.
5. Disconnect connector PJ6003 **(3)**.
6. Remove the two screws **(2)** to remove the backup idler roll encoder board **(5)**.

Attention: The timing wheel and disk bend easily.

7. Remove the screw **(13)** and **carefully** disassemble the encoder.

(continued on next page)

Table 649. Backup Idler Roll Position Encoder Board (EN131) (continued)



Installation

Reverse the removal procedure.

Notes:

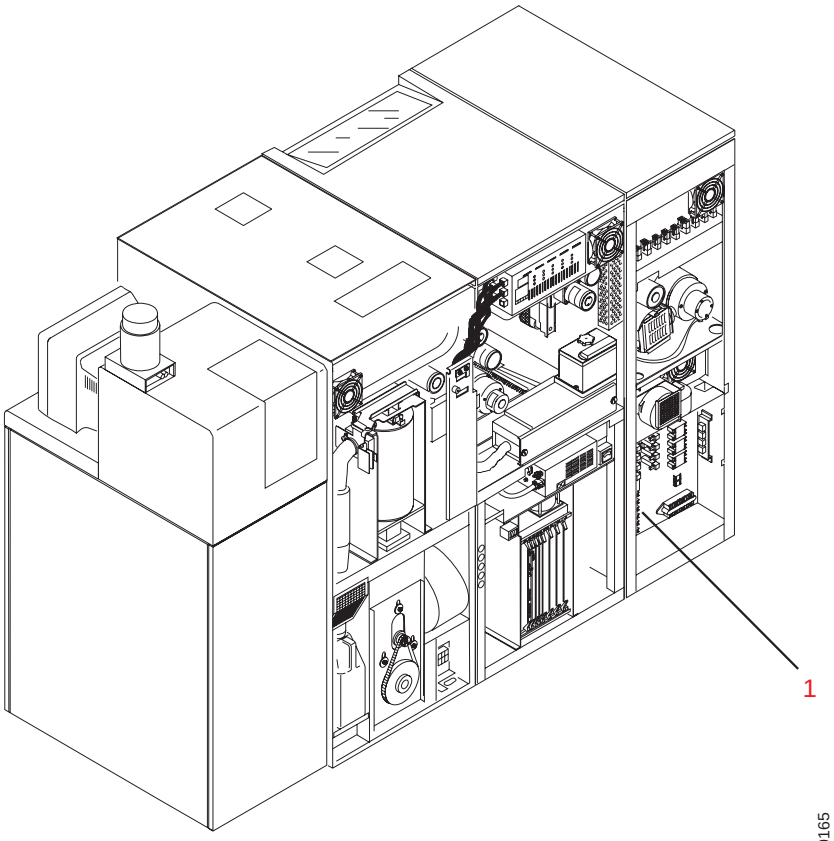
1. The five spacers **(6)**, **(7)**, **(9)**, **(11)**, and **(12)** are different sizes. Ensure that these spacers are installed correctly, or the timing disk and timing wheel can be damaged.
2. The timing disks **(8)** and **(10)**. The notches must be oriented as shown during assembly.

Check

1. Run Driver Routine 25 to run the backup idler roll motor and to ensure that the encoder shaft is turning properly.
2. Run Sensor Routine 71 to ensure that the backup idler roll encoder works correctly.
3. Run Print Pack to verify print quality.

Fuser Control Card (FSxxx)

Table 650. Functional Control Cards Accessed from the Rear



Attention:

- Functional control cards are not interchangeable.
- Use ESD procedures when working with the control cards.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the necessary covers and locate the Fuser Control Card FSxxx **(1)**.
3. Disconnect all connectors attached to the card.
4. Release the plastic clips that hold the card in place.

Installation

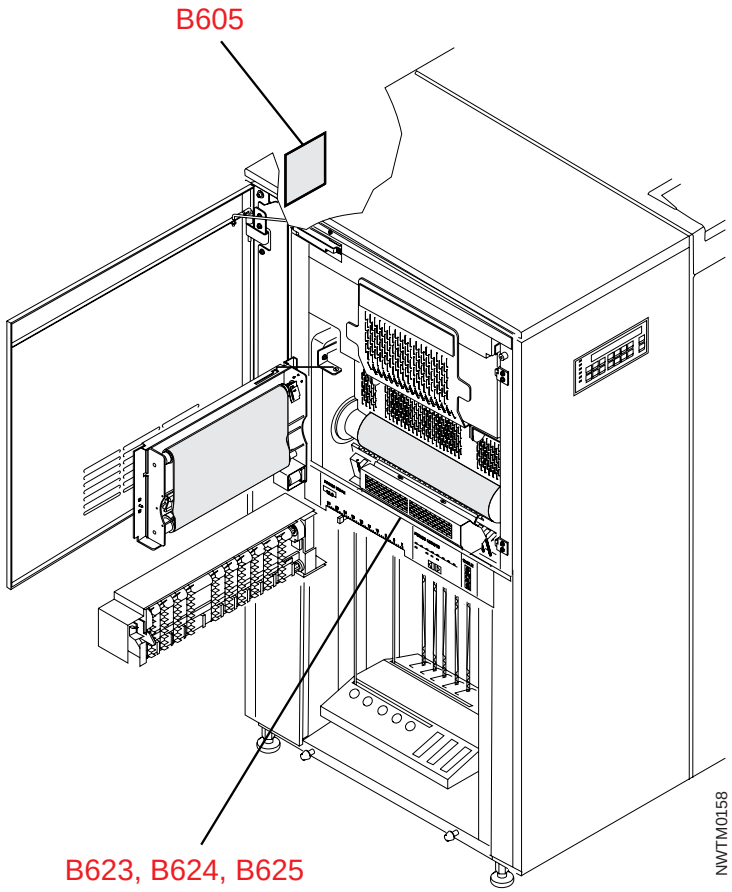
Reverse the removal procedure.

Check

Run Print Pack to check print quality.

Fuser Cooling Fan (B605)

Table 651. Upper Rear Fuser Fan (B605)



Removal

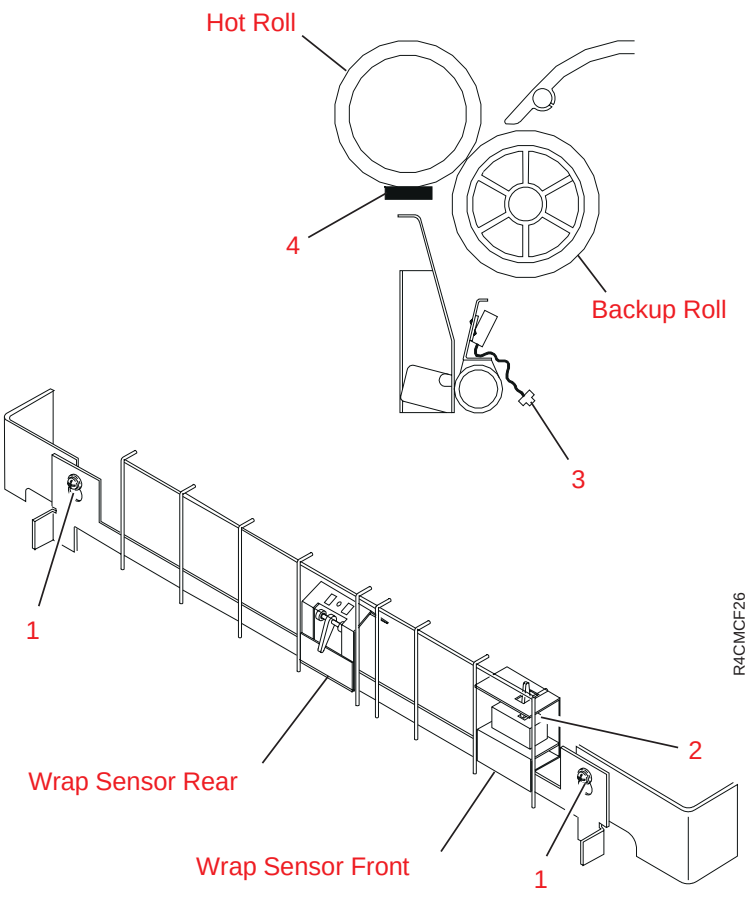
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right rear cover.
4. Disconnect the fan connector and remove the two screws holding the fan and remove the fan.

Installation

Reverse the removal procedure.

Fuser Wrap Sensor (S617 and S618)

Table 652. Fuser Wrap Sensors (S617 and S618)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

Note: Older printer models have wrap sensors S617 and S618. For newer models, see Fuser Wrap Sensor (S620).

See Before You Begin.

Removal

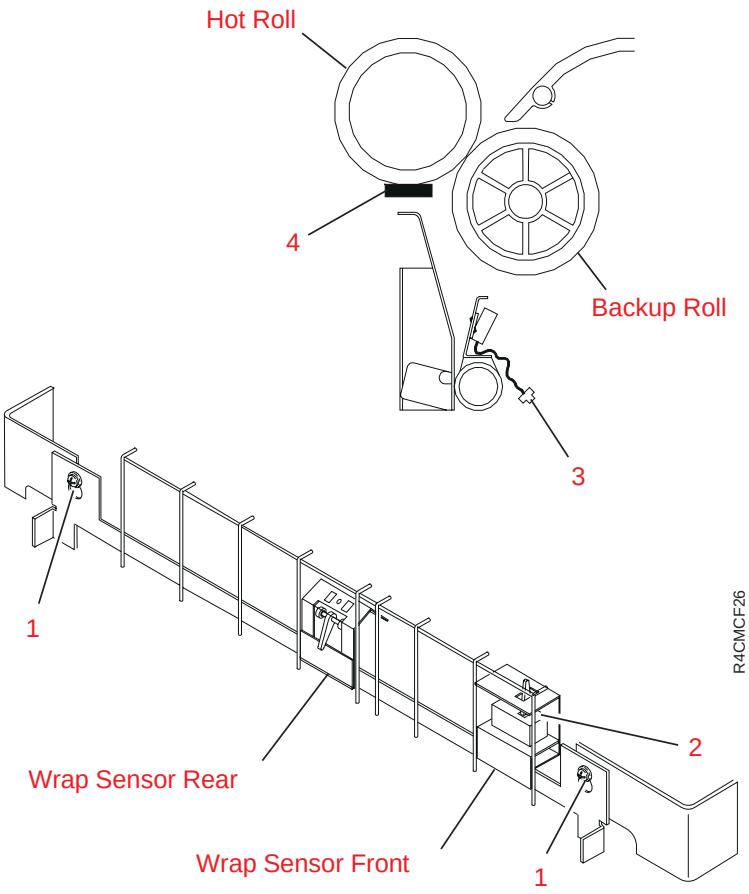
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

4. Open and lock the oiler gate.
5. Lift the blue release lever and pivot the fuser scuff roller assembly down.
6. Open the printer left front cover.
7. Remove the fuser front cover.
8. Remove the hot roll guide **(4)**.
9. Disconnect connector PJ640 **(3)**.

(continued on next page)

Table 652. Fuser Wrap Sensors (S617 and S618) (continued)



10. Loosen the two screws **(1)** holding the paper guide **(2)** and lift the paper guide away from the fuser scuff roller assembly and out of the printer.
11. Remove the nuts, the necessary cable clamps, and remove the sensors.

Installation

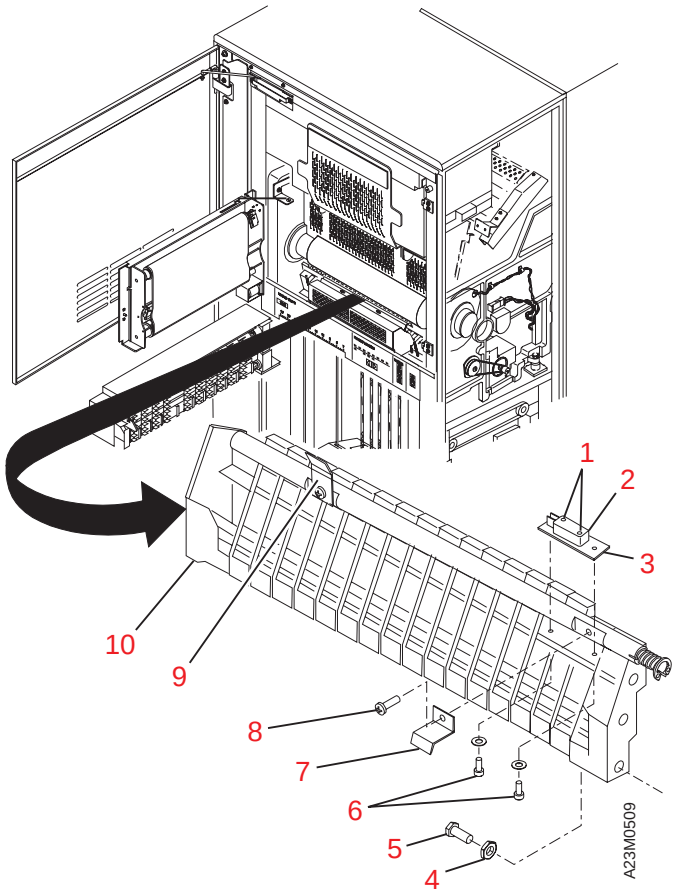
Reverse the removal procedure.

Check

1. Run Sensor Routine 70 to ensure that both switches work correctly.
2. Run Print Pack to verify that the forms are feeding correctly.

Fuser Wrap Sensor (S620)

Table 653. Fuser Wrap Sensor (S620) for Printers with a Backup Idler Roll



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

Note: Newer printer models have wrap sensors S620. For older models, see Fuser Wrap Sensor (S617 and S618).

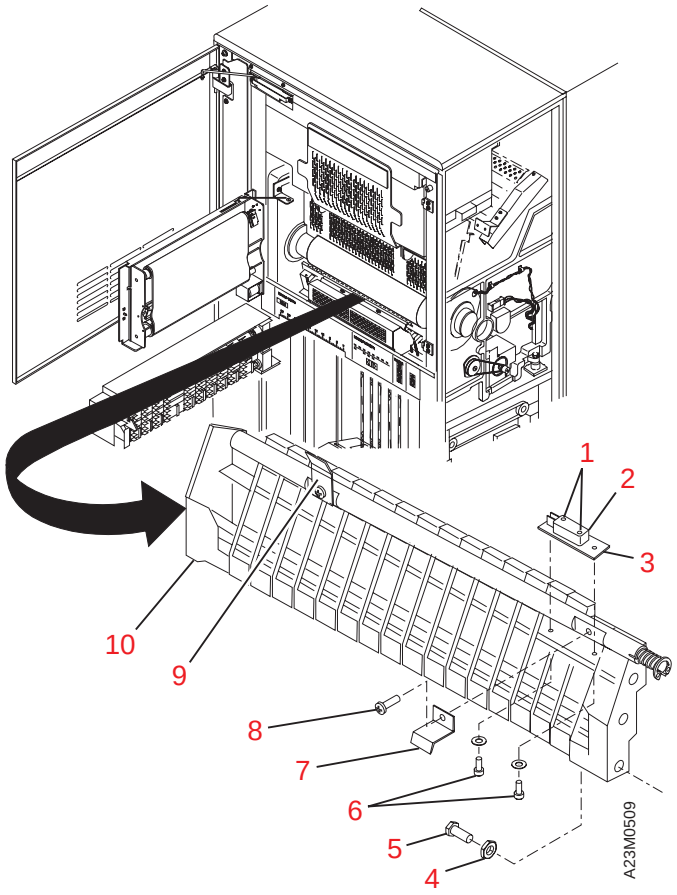
See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Paper Cooling Fans (B623, B624, and B625).
4. Open the printer left front cover.
5. Remove the fuser front cover.
6. Disconnect connector PJ640 and the cable clamp holding the S620 cable.
7. Remove the socket head bolt **(5)**.
8. Lift the blue release lever and pivot the fuser scuff roller assembly down.

(continued on next page)

Table 653. Fuser Wrap Sensor (S620) for Printers with a Backup Idler Roll (continued)



9. Move the fuser scuff roller assembly **(10)** to the front of the printer to remove it.
10. **(9)** is the sensor lever. **(7)** is the switch actuator. The switch is mounted behind the actuator.
11. Observe the location of the actuator spring so it can be reinstalled correctly. Remove the screw **(8)** and remove the switch actuator **(7)**.
12. Disconnect the switch connectors.
13. Remove the two screws **(6)**, and remove the switch assembly **(3)**.
14. Remove the two screws **(1)** and remove the switch **(2)**.

Installation

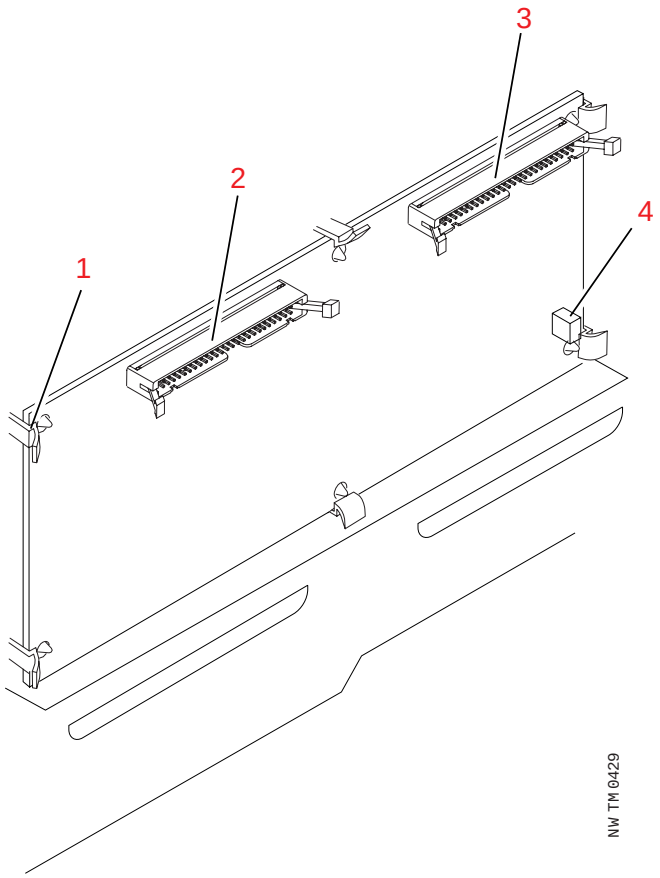
Reverse the removal procedure.

Check

1. Run Sensor Routine 70 to ensure that the switch works correctly.
2. Run Print Pack to verify that the forms are feeding correctly.

Hot Roll Control Card - HR091

Table 654. Temperature Control Card (HR091)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine **21** to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
3. Shutdown and power off the printer.
4. Open the printer center front cover.
5. Remove the fuser right side cover.
6. Disconnect the connectors PJ6009 **(2)**, PJ6010 **(3)**, and PJ6011 **(4)**.
7. Lift each of the six card clips **(1)**. Remove the temperature control card.

Installation

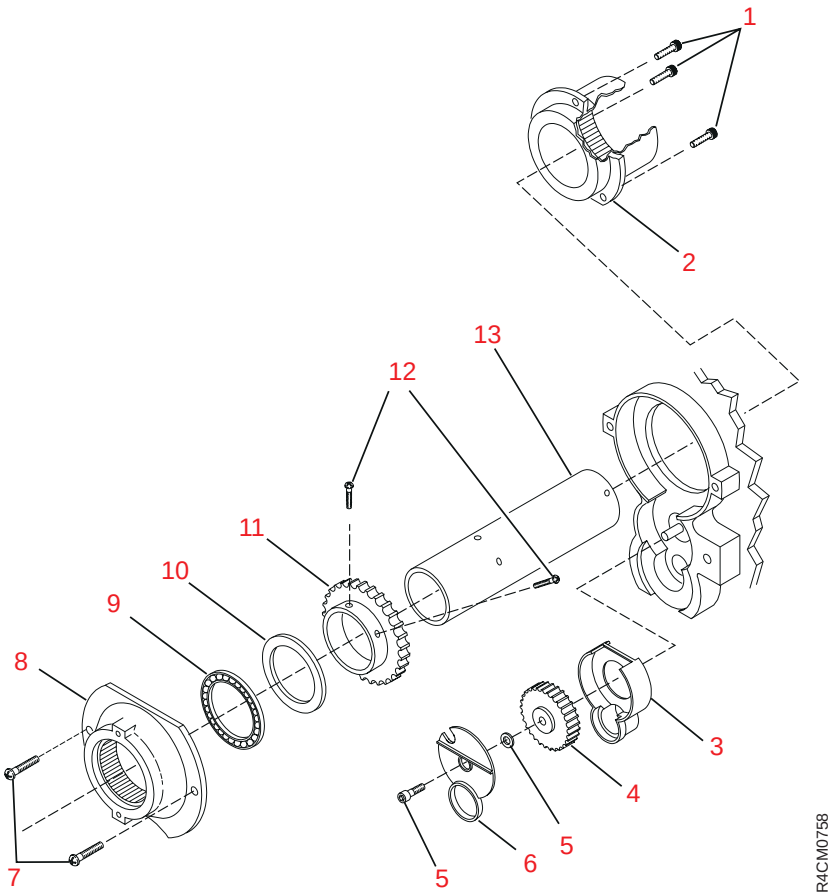
Reverse the removal procedure.

Check

Run Print Pack to verify print quality.

Hot Roll Drive Assembly and Lubrication

Table 655. Hot Roll Drive Assembly



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Special Tools Required:

- IBM SBB Grease No. 3 (PN 1665927)
- Krytox 283AC (PN 65F6223)

Removal

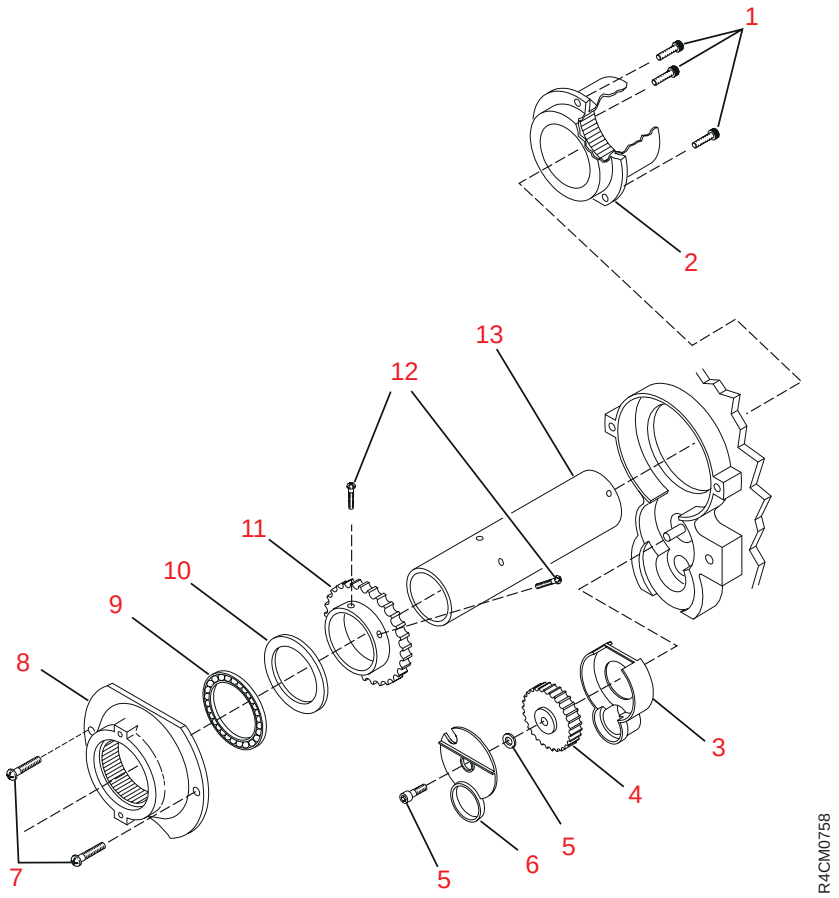
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.

Note: Protect the hot roll surface; cover it with clean paper.

3. Remove the Hot Roll Lamp End Cap.
4. Remove the Hot Roll Lamps.
5. Perform steps 3 through 5, and 8 under Hot Roll Front Hub.
6. Perform steps 6 through 8 under Hot Roll and Collars.
7. Perform steps 7 and 8 under Hot Roll Drive Collar.
8. Perform steps 5 through 7 under Hot Roll Lamp Receptacle Contacts.
9. Remove the Hot Roll Drive Motor (M607).
10. Remove the two screws **(7)**, grasp the rear flange **(8)** and pull it to the rear of the printer.

(continued on next page)

Table 655. Hot Roll Drive Assembly (continued)



11. If the thrust bearing **(9)** and bearing race **(10)** did not come off with the rear flange, remove them from the drive shaft **(13)**.
12. Slide the hot roll gear **(11)** and drive shaft **(13)** to the rear of the printer and remove them from the rear hub and bearing assembly **(2)**.
13. Remove the two screws **(12)**. Remove the hot roll gear **(11)** from the drive shaft **(13)**.
14. Remove the three screws **(1)**; remove the rear hub and bearing assembly **(2)**.

Lubrication

Note: Do not mix the IBM SBB Grease No. 3 and the Krytox 283AC. The IBM SBB Grease No. 3 goes on the gears only, and the Krytox 283AC goes on the bearings only.

1. Clean the excess grease from the idler gear **(4)** and the hot roll gear **(11)**. Lubricate these gears with IBM SBB Grease No. 3 (PN 1665927).
2. Clean the excess grease from the rear flange **(8)**, the thrust bearing **(9)**, the bearing race **(10)**, the drive shaft **(13)**, and the rear hub and bearing assembly **(2)**. Lubricate these bearings with Krytox 283AC (PN 65F6223).

Installation

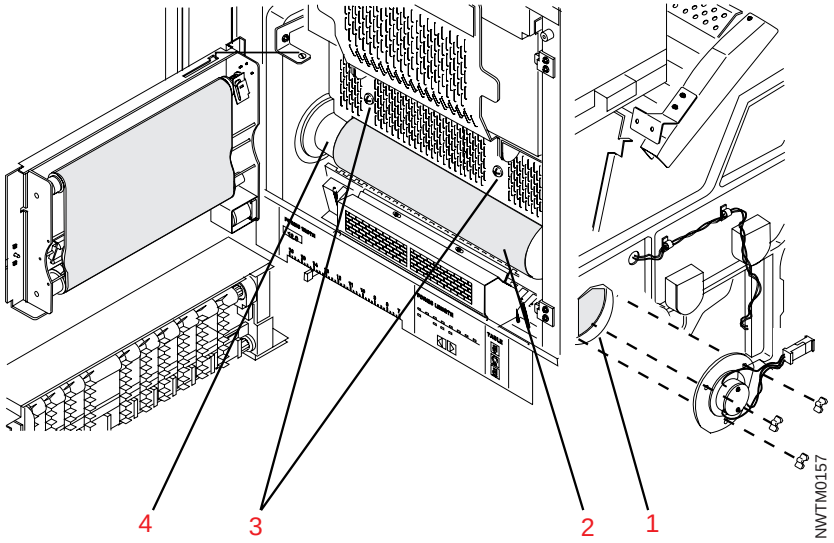
Reverse the removal procedure.

Check

1. Run Driver Routine 31 to check the hot roll lamp operation.
2. Run Print Pack to verify print quality.

Hot Roll and Collars

Table 656. Hot Roll and Collars



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Special Tools Required:

Lint free cloth (PN 2108930)

Removal

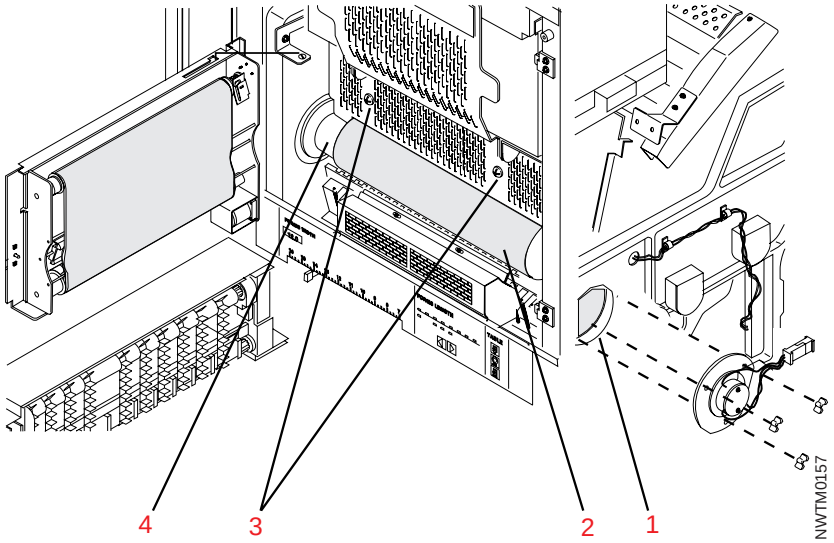
Note: The hot roll collars (PN 88F2947) get brittle from the heat of the hot roll lamps. They break easily if they are removed and then reinstalled. Therefore, **replace the hot roll collars whenever the hot roll is removed from the printer, even if a new hot roll is not installed.**

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Hot Roll Lamp End Cap.
4. Remove the Hot Roll Lamps.
5. Perform steps 3 through 5, and 8 under Hot Roll Front Hub.

Note: Do **not** remove the hot roll through the front frame hole **(1)**. Perform the next step from the oiler belt gate (left side of the printer).

(continued on next page)

Table 656. Hot Roll and Collars (continued)



6. Remove the two screws **(3)**, remove the hot roll shield.
7. Carefully move the hot roll **(2)** forward, into the front frame hole **(1)**, until the rear of the hot roll disengages from the rear hub **(4)**, remove the hot roll from the left end of the printer.
8. You can easily remove the collars, plastic rings at either end of the hot roll (the collars are not fastened to the hot roll).

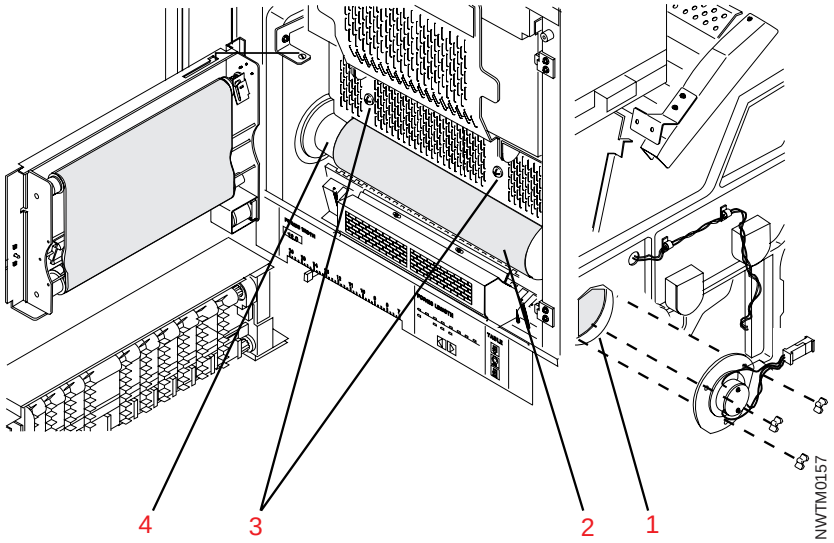
Installation

Hint: The end of the hot roll with the largest band of exposed aluminum must be oriented towards the front of the printer. A thermal ferrite chip at this end activates the temperature sensor (L601).

1. Always install new hot roll collars (PN 88F2947).
2. Reverse the removal procedure.
3. Use a clean cloth to apply fuser oil to the new hot roll to prevent fuser offset.
4. Power on the printer.
5. If you have installed a new hot roll, select **PM Log** on the Logs menu to reset the hot roll counter to **0**.

(continued on next page)

Table 656. Hot Roll and Collars (continued)



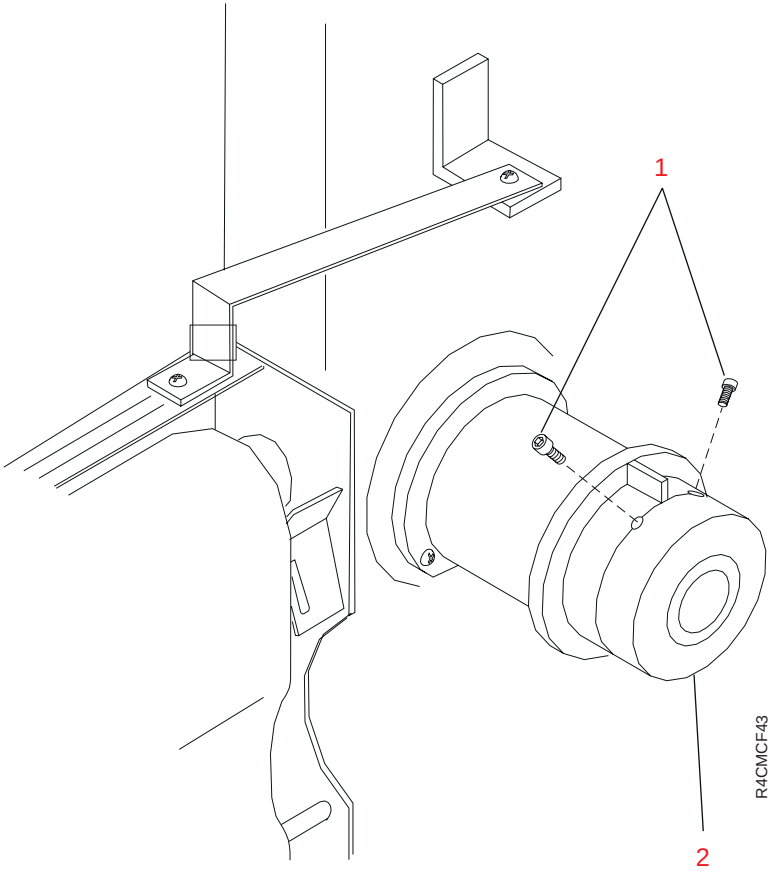
Check

1. Run Driver Routine 31 to check hot roll lamp operation.

   The upper operating temperature is 185°C and the lower operating temperature is 165°C.
2. Run Print Pack to verify print quality.

Hot Roll Drive Collar

Table 657. Hot Roll Drive Collar



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Hot Roll Lamp End Cap.
4. Remove the Hot Roll Lamps.
5. Perform steps 3 through 5, and step 8 under Hot Roll Front Hub.
6. Perform steps 6 through 8 under Hot Roll and Collars.
7. Remove the two screws **(1)**. Remove the drive collar **(2)**.
8. Clean the excess grease from the contact area between the drive collar and shaft.

Installation

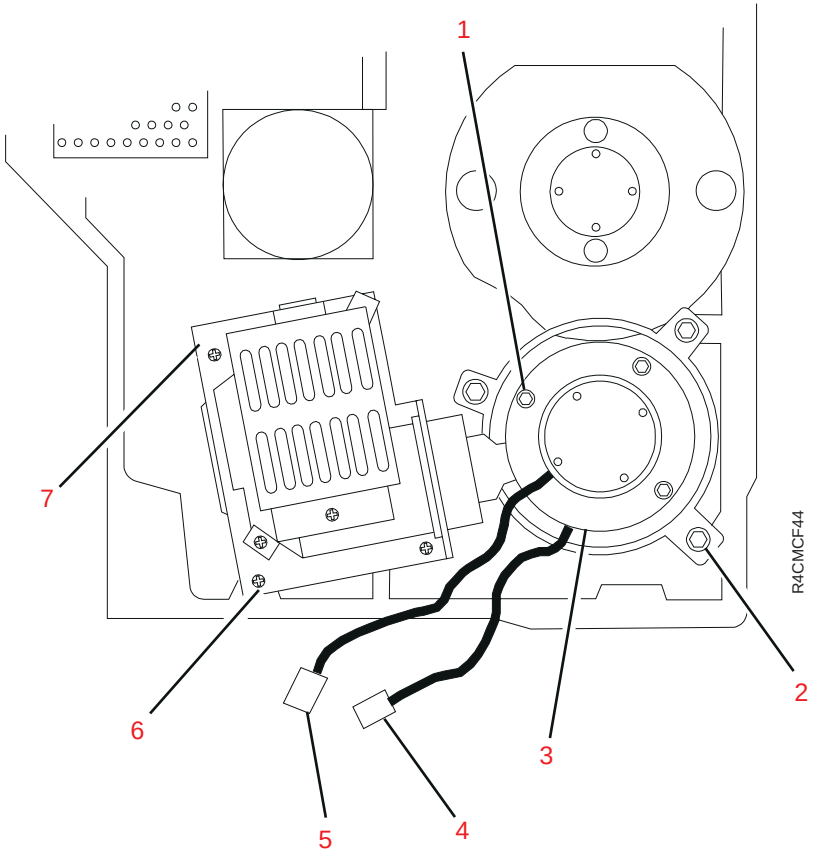
Reverse the removal procedure.

Check

1. Run Driver Routine 31 to check the hot roll lamp operation.
2. Run Print Pack to verify print quality.

Hot Roll Drive Motor (M607)

Table 658. Hot Roll Drive Motor (M607)



Special Tools Required:

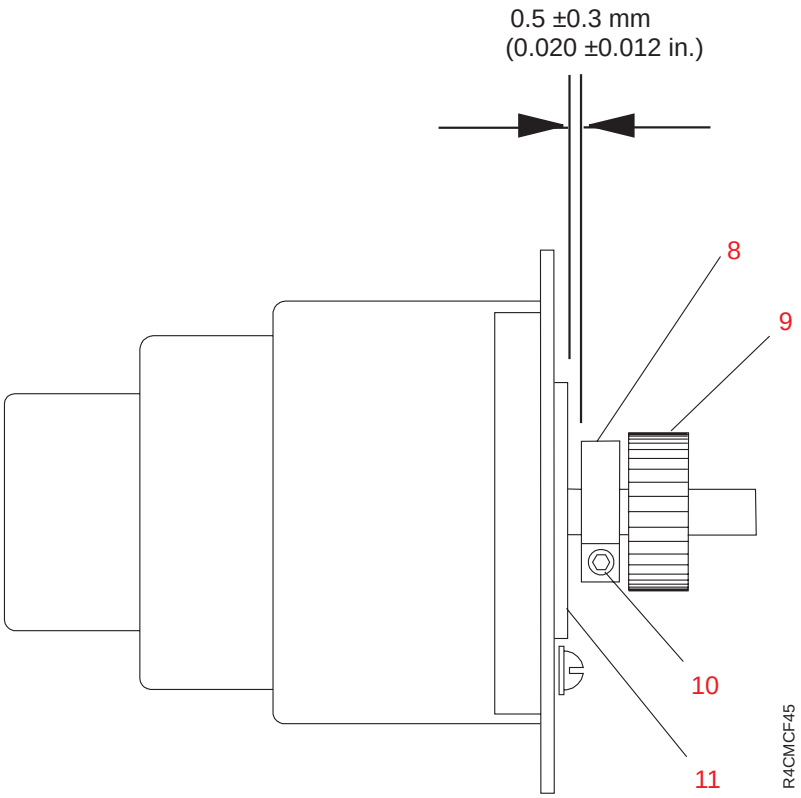
IBM SBB Grease No. 3 (PN 1665927)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right rear cover.
4. Disconnect connectors PJ677 **(4)** and PJ632 **(5)**.
5. Loosen the three screws **(6)** that hold the blower **(7)** and slide the blower away from the hot roll drive motor **(3)**.
6. Hold the drive motor **(3)** while you remove the three screws **(2)**. Remove the motor.

(continued on next page)

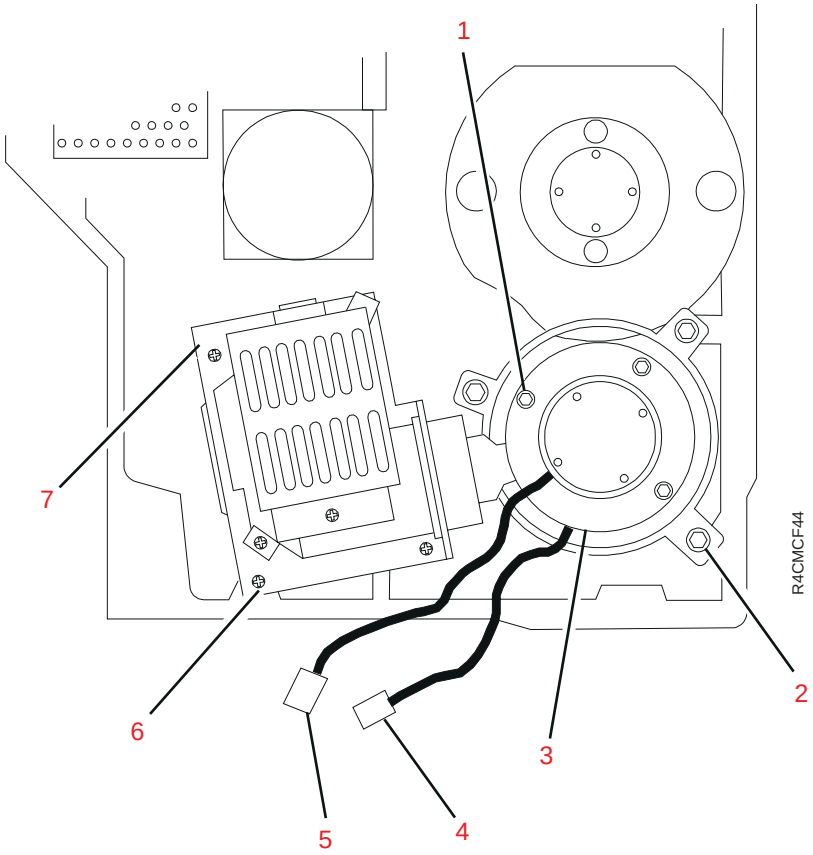
Table 658. Hot Roll Drive Motor (M607) (continued)



7. Loosen the screw **(10)** on the collar **(8)** and remove the collar and drive gear **(9)**.

(continued on next page)

Table 658. Hot Roll Drive Motor (M607) (continued)

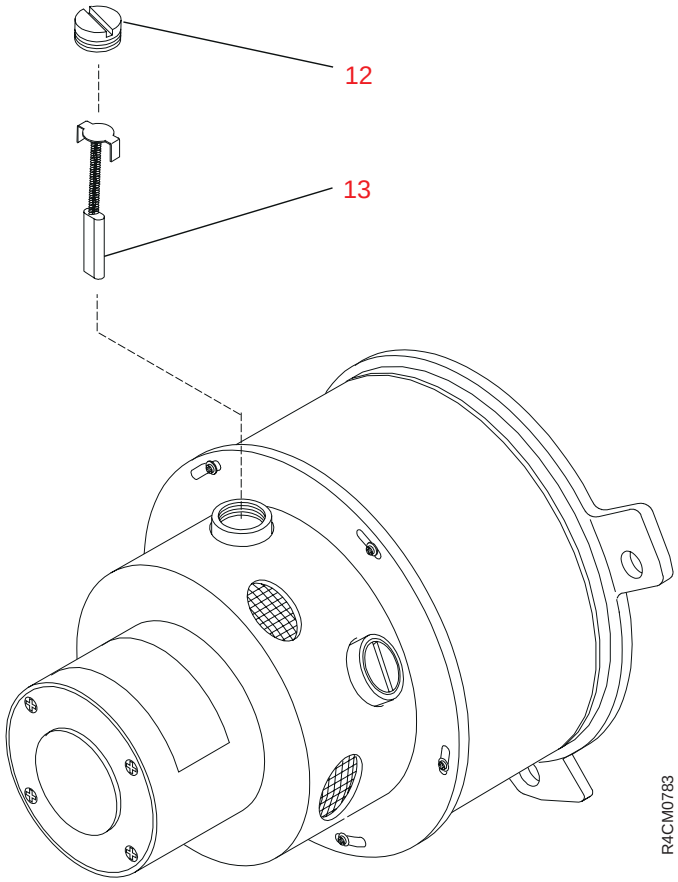


Motor Brush Replacement

1. Loosen the three screws **(1)** and remove the motor brush cover from the motor.

(continued on next page)

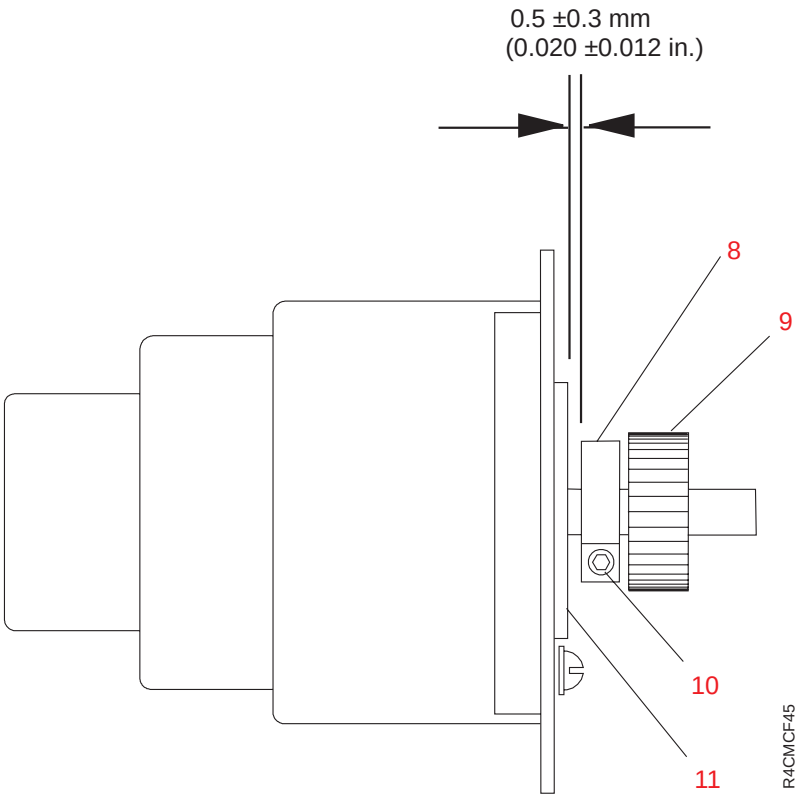
Table 658. Hot Roll Drive Motor (M607) (continued)



2. Remove the six plastic brush cap screws **(12)**. Remove the six motor brushes **(13)**.

(continued on next page)

Table 658. Hot Roll Drive Motor (M607) (continued)



Lubrication

Clean the excess grease from the drive gear and lubricate the drive gear with IBM SBB Grease No. 3.

Adjustment

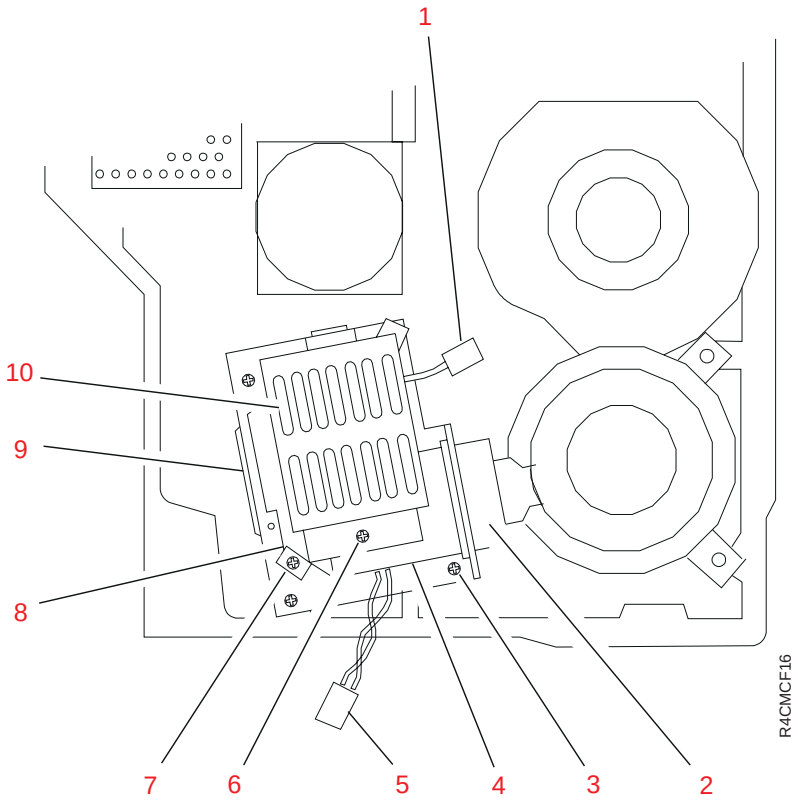
1. Install the drive gear **(9)** and the collar **(8)** onto the motor shaft.
2. Adjust the collar so that it is flush with the drive gear and there is a clearance of 0.5 ±0.3 mm (0.020 in.±0.012 in.) between the collar and the motor **(11)**.
3. Reverse the removal procedure.

Check

1. Run Driver Routine 31 to check the hot roll lamp operation.
2. Run Print Pack to verify print quality.

Hot Roll Drive Motor Blower (B602)

Table 659. Hot Roll Drive Motor Blower (B602)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin

Removal

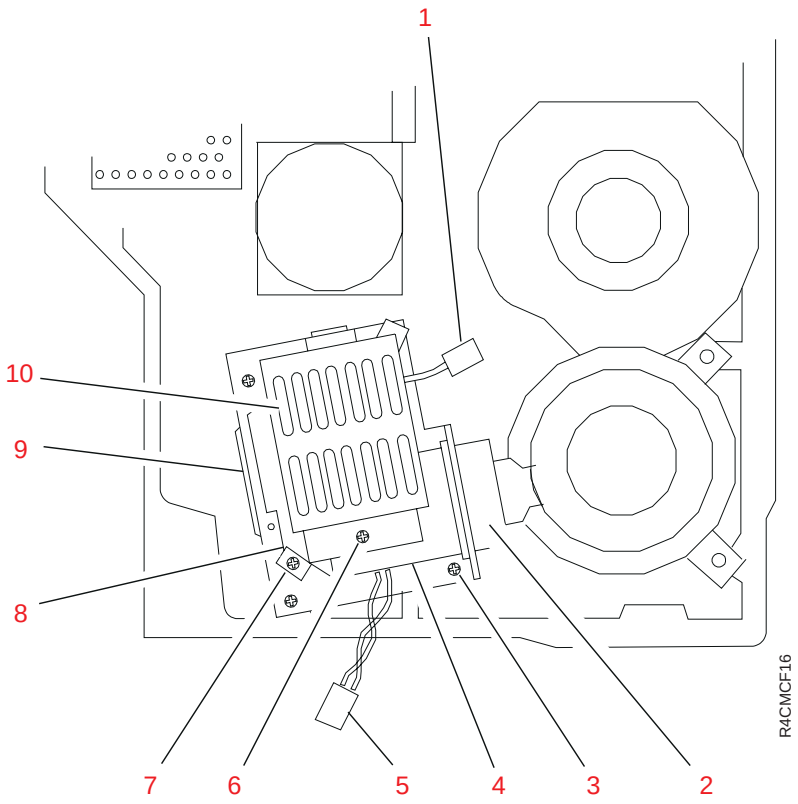
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right rear cover.
4. Disconnect connectors PJ657 **(1)** and PJ649 **(5)**.
5. Remove the three screws **(3)**.
6. Remove the ground wire from the back of the blower motor.
7. Release the holding tabs on the capacitor **(9)**.

Note: The capacitor and blower are replaced as an assembly.

8. Remove the two screws **(7)**, remove the blower holder **(4)** and blower **(8)**.
9. Older machines only. Remove the screw **(6)**, remove the filter assembly **(10)**.

(continued on next page)

Table 659. Hot Roll Drive Motor Blower (B602) (continued)



Installation

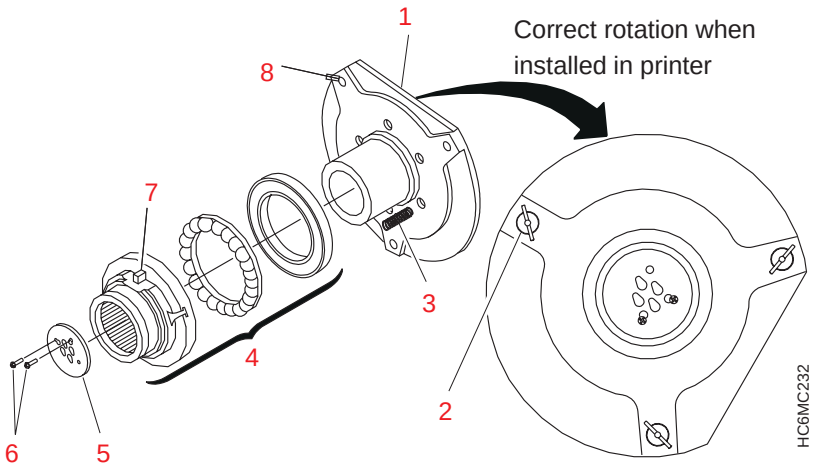
1. Before tightening the three screws **(3)**, slide the blower to the right so it is tight against the hot roll drive motor (M607) air inlet.
2. Ensure that the foam seal **(2)** is tight against the blower outlet.
3. Reverse the removal procedure.

Check

1. Run Sensor Routine 85 to ensure the blower motor works correctly.
2. Run Print Pack to verify print quality.

Hot Roll Front Hub

Table 660. Hot Roll Front Hub



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Special Tools Required:

Krytox 283AC (PN 65F6223)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

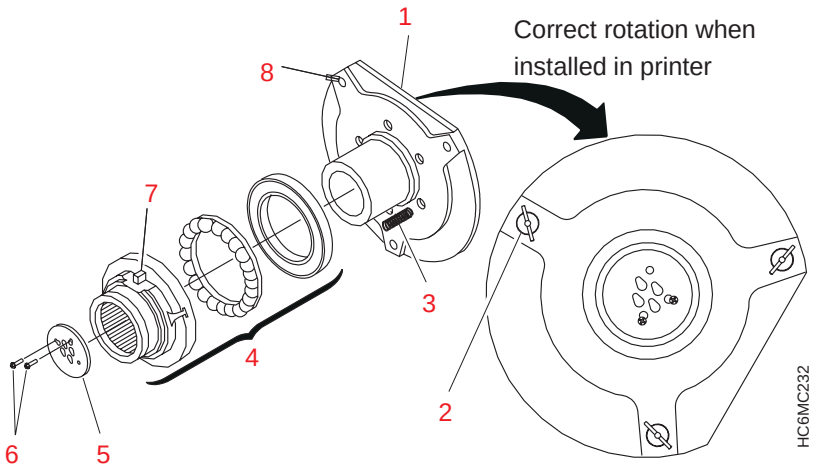
Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

4. Open and lock the oiler belt gate.
5. Lift the blue release lever and pivot the fuser scuff roller assembly down.
6. Remove the Hot Roll Lamp End Cap.
7. Remove the Hot Roll Lamps.

Note: Locate the key on the rear hub and the slot in the rear of the hot roll before you proceed. (Rotate the hot roll, if necessary, to see the slot.)

(continued on next page)

Table 660. Hot Roll Front Hub (continued)



8. With a clean cloth, hold the hot roll to prevent the front end from dropping and remove the three wing nuts **(2)**.

   Remove the hot roll front hub and rest the hot roll on the felt pad.

Attention: Six springs **(3)** load the bearing assembly **(4)** away from the inner wall of the hub **(1)**.
Note: Observe the position of the lamp guide plate **(5)** in relation to the hub **(1)**.

9. Remove the two screws **(6)** from the lamp guide plate **(5)**.
10. Remove the bearing assembly **(4)** and springs **(3)** from the hub.

Lubrication

1. Clean the excess grease from the hub **(8)**, and bearing assembly **(4)**.
2. Clean excess grease from the lamp guide plate **(5)**. Be sure that the holes in the guide plate are free of grease.
3. Lubricate the bearings with Krytox 283AC.

Installation

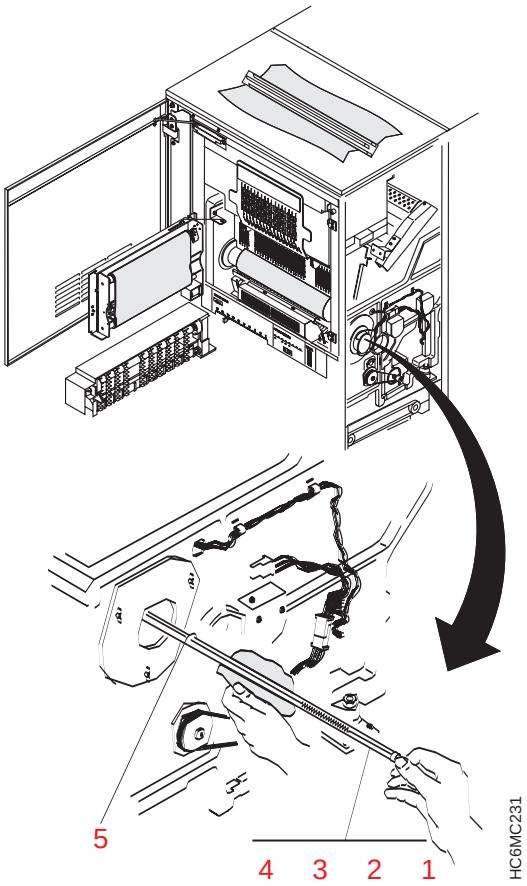
Reverse the removal procedure.
Note: Observe the key **(7)** on the hub and the slot in the front of the hot roll.

Check

1. Run Driver Routine 31 to check the hot roll lamp operation.
2. Run Print Pack to verify print quality.

Hot Roll Lamps

Table 661. Hot Roll Lamps



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Special Tools Required:

Lint free cloth (PN 2108930)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Hot Roll Lamp End Cap.

Note: Ensure that the hot roll lamps **(1)**, **(2)**, **(3)**, and **(4)** are cool enough to touch.

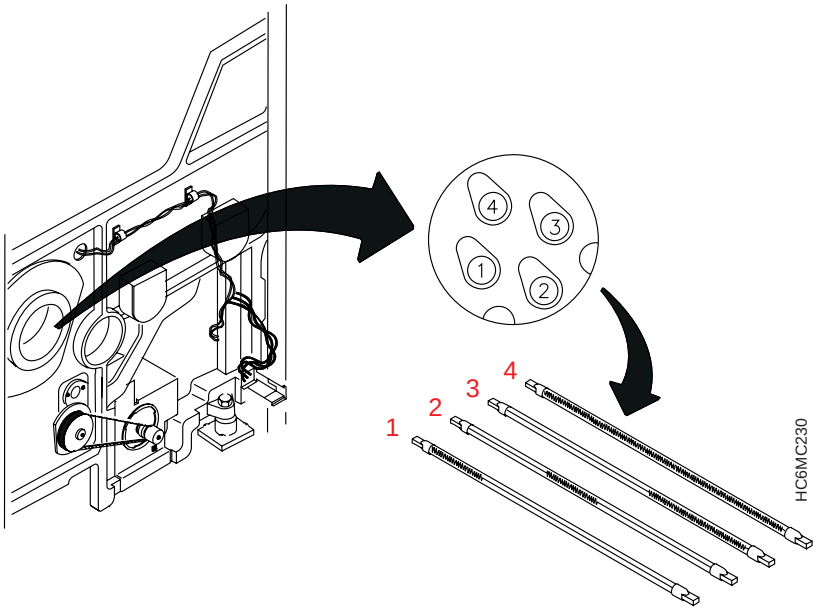
Handle a hot roll lamp only by the ceramic end caps. Do not touch the glass with your skin or contaminated cloth.

While you remove the hot roll lamps, be careful not to damage the molding mark **(5)** midway down the length of the hot roll lamp. Notice the cutout in the lamp guide plate that is for the hot roll lamp molding mark to pass through.

4. Remove the hot roll lamps with a lint-free cloth and put them in a safe place.

(continued on next page)

Table 661. Hot Roll Lamps (continued)



Installation

Understand and verify the conditions listed in the following notes before you install the hot roll lamps.

Notes:

a. Handle a hot roll lamp only by the ceramic end caps. Do not touch the glass with your skin or contaminated cloth.

b. Observe the end caps of lamps **(1)**, **(2)**, **(3)**, and **(4)**. One end is marked with the wattage rating of the lamp **and** the lamp number (1D, 2D, 3D, or 4D). This end must be installed toward the front of the printer.

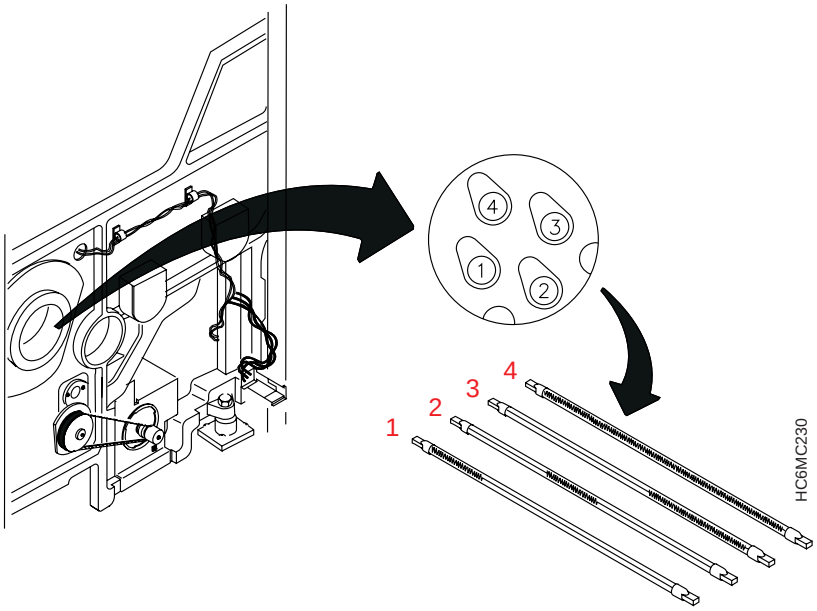
Attention: Each lamp has a specific position. It is possible to install the four lamps such that the front and rear contacts **do not match** (the front end caps can be rotated, offset, by one position from the lamp rear end caps).

1. Install the hot roll lamps so that the end socket marked with the lamp number and wattage rating are toward the front of the printer. Use care not to hit the molding mark of the lamp as it passes through the opening in the lamp guide plate. See Table 662 or Table 663.

Attention: When you check the seating of the lamps, use care to keep slight pressure on the lamp to prevent it from coming out of the rear lamp socket.

(continued on next page)

Table 661. Hot Roll Lamps (continued)



Installation (cont'd)

2. Press in lightly on the front end of each lamp. If it springs back, it is seated correctly.
3. Reverse the removal procedure to install a new hot roll lamp.

Attention: When you check the seating of the lamps, use care to keep slight pressure on the lamp to prevent it from coming out of the rear lamp socket.

4. Press in lightly on the front end of each lamp. If it springs back, it is seated correctly.
5. Reverse the removal procedure to install a new hot roll lamp.

Check

1. Run Driver Routine 31 to check hot roll lamp operation.
2. Run Print Pack to verify print quality.

Table 662. ″L″ Hot Roll Lamps - Wattages

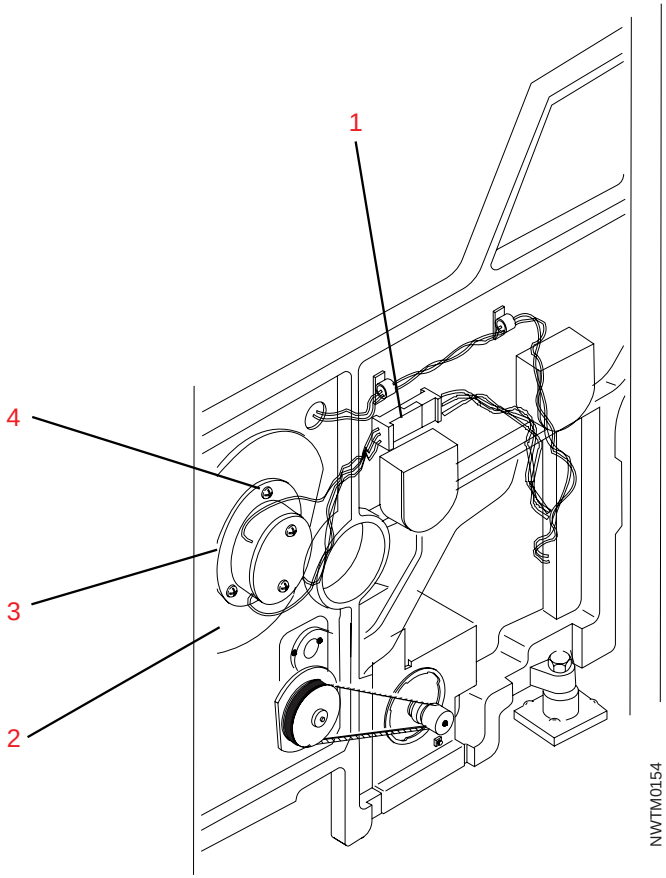
Machine Version	Lamp 1	Lamp 2	Lamp 3	Lamp 4
US	1770W (230V)	1225W (230V)	630W (230V)	2290W (230V)
Europe	1625W (240V)	1195W (240V)	615W (240V)	2230W (240V)
Japan	1760W (220V)	1220W (220V)	625W (220V)	2270W (220V)
Note: The wattage rating is printed on each lamp.				

Table 663. ″B″ Hot Roll Lamps - Wattages

Machine Version	Lamp 1	Lamp 2	Lamp 3	Lamp 4
US	2269W (230V)	1164W (230V)	1164W (230V)	2633W (230V)
Europe	2204W (240V)	1131W (240V)	1131W (240V)	2562W (240V)
Japan	2241W (220V)	1142W (220V)	1142W (220V)	2604W (220V)
Note: ″B″ level lamps are for thermistor control only. Wattage rating is printed on each lamp.				

Hot Roll Lamp End Cap

Table 664. Hot Roll Lamp End Cap



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer front left front cover.
4. Remove the fuser front cover.
5. Disconnect connector PJ666 **(1)**.

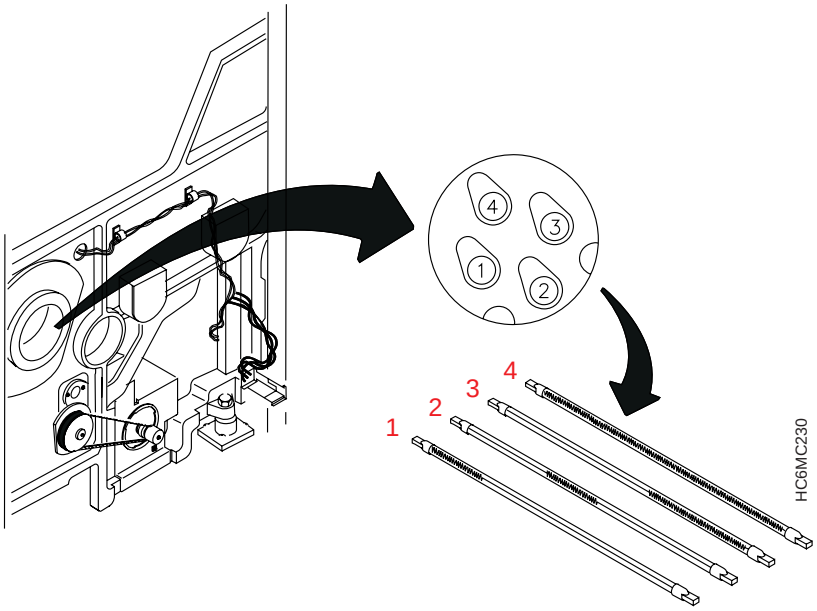
Attention: Do not turn the end cap **(3)**; the hot roll lamps can be damaged easily.

6. Remove the three screws **(4)** that hold the end cap **(3)** to the hot roll front hub **(2)**.

Note: Remember the position of the cable on the end cap for reassembly. Wire 1 is aligned with hot roll lamp 1.

(continued on next page)

Table 664. Hot Roll Lamp End Cap (continued)



Installation

Attention: Each lamp has a specific position. It is possible to install the four lamps such that the front and rear contacts **do not match** (the front end caps can be rotated, offset, by one position from the lamp rear end caps).
Note: When you check the seating of the lamps, keep slight pressure on the lamp or it may fall and break.

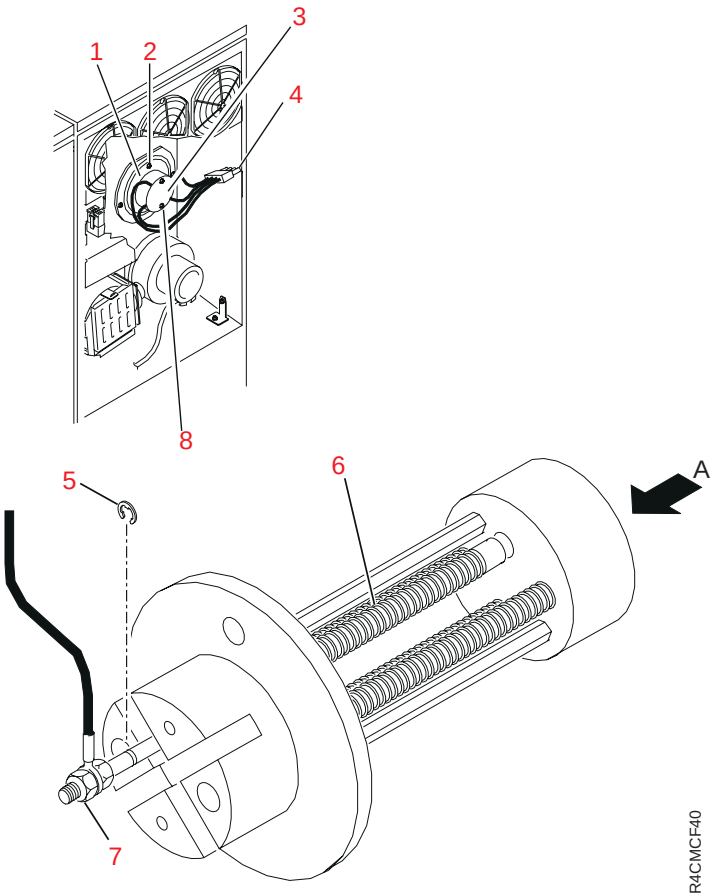
1. Press in lightly on the front end of each lamp. If it springs back, it is seated correctly.
2. Reverse the removal procedure.

Check

1. Run Driver Routine 31 to check hot roll lamp operation.
2. Run Print Pack to verify print quality.

Hot Roll Lamp Receptacle Contacts

Table 665. Hot Roll Lamp Receptacle Contacts



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

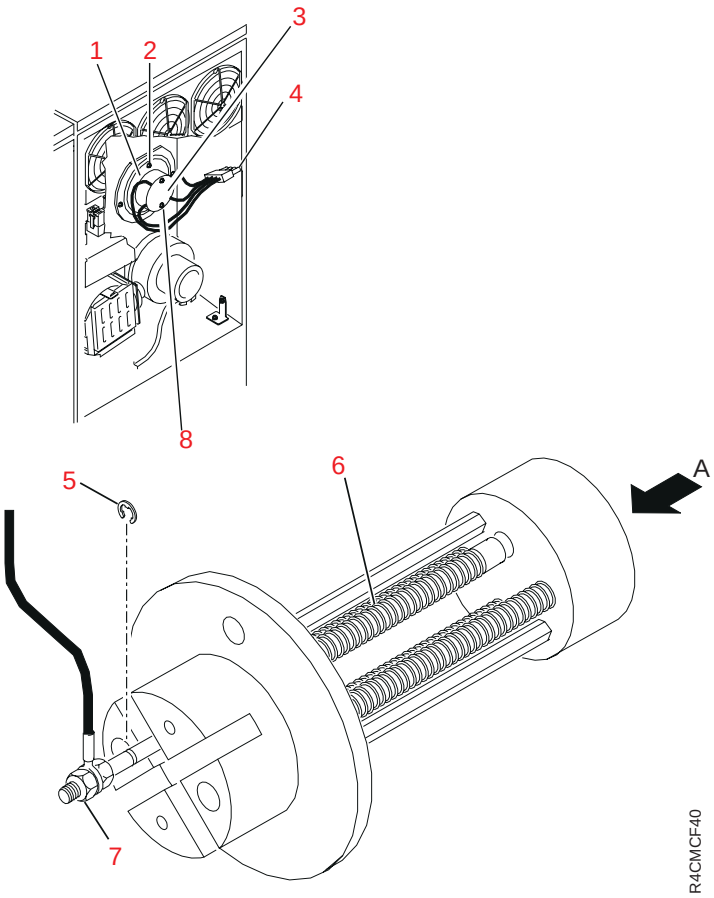
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the Hot Roll Lamp End Cap.
4. Remove the Hot Roll Lamps.
5. Open the printer right rear cover.
6. Disconnect connector PJ665 **(4)**.

Note: Place a mark at the top of the hot roll lamp receptacle for reference during reassembly.

7. Remove the two screws **(2)** and carefully pull the hot roll lamp receptacle from the hot roll rear hub **(1)**.
8. Remove the two screws **(8)**. Remove the end cap **(3)** from the receptacle.
9. Push the contact shaft **(6)** in direction **(A)** to expose the wire-holding nuts **(7)** and the clip **(5)**. Then perform the following:
   a. Remove the nuts and wire from the contact.
   b. Remove the clip and slide the contact out of the other end of the receptacle.

(continued on next page)

Table 665. Hot Roll Lamp Receptacle Contacts (continued)



Installation

Reverse the removal procedure.

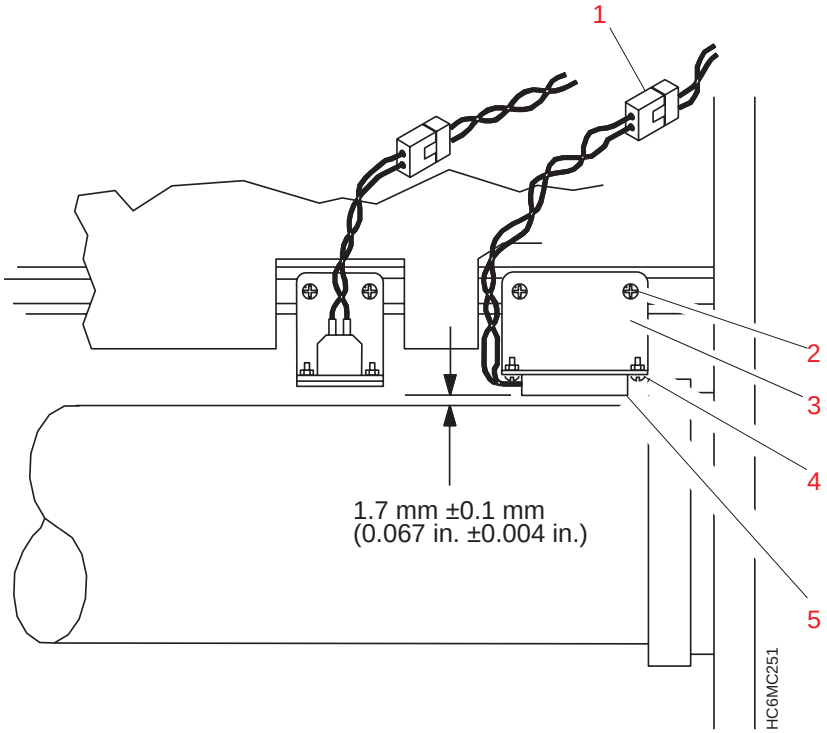
Note: Wires 3 and 4 should be on the top of the receptacle when installed correctly.

Check

1. Run Driver Routine 31 to check the hot roll lamp operation.
2. Run Print Pack to verify print quality.

Hot Roll Temperature Control Sensor (L601)

Table 666. Temperature Sensor (L601)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

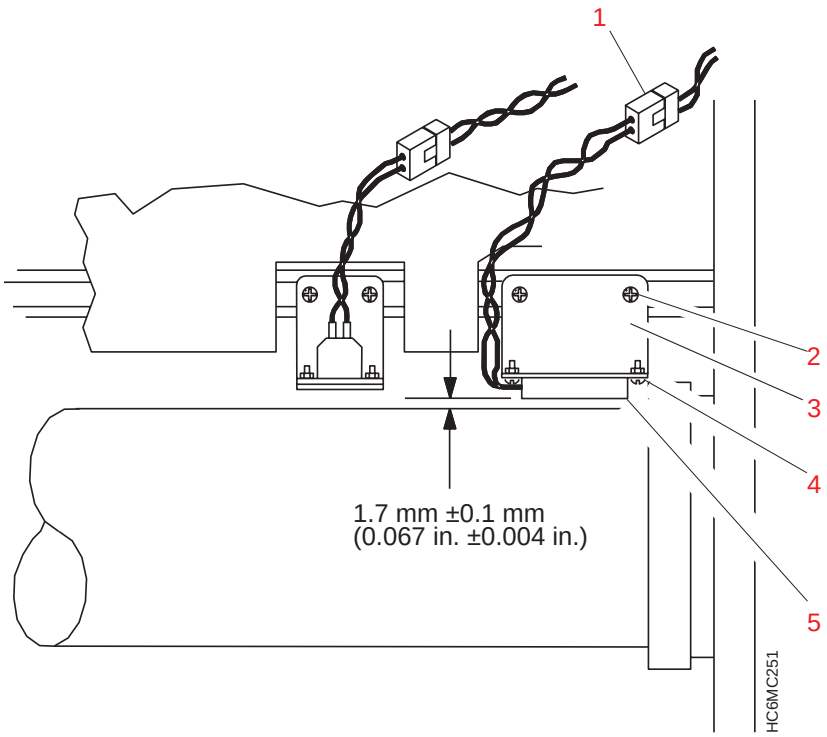
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

4. Open and lock the fuser oiler gate.
5. Remove the hot roll shield.
6. Open the printer left front cover.
7. Remove the fuser front cover.

(continued on next page)

Table 666. Temperature Sensor (L601) (continued)



8. Disconnect connector PJ682 **(1)** and all necessary cable clamps.
9. Remove the two screws **(2)** from the sensor bracket **(3)**.
10. Remove the two screws **(4)** and remove the sensor **(5)** from the bracket.

Installation

Reverse the removal procedure.

Adjustment

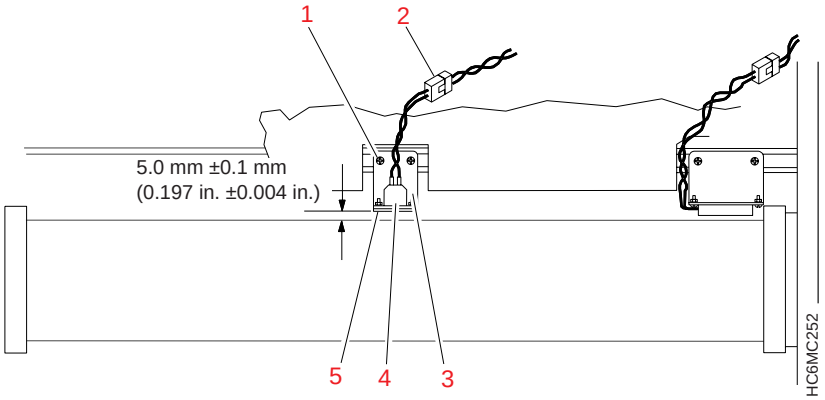
Adjust the temperature sensor bracket **(3)** so the gap between the sensor and the hot roll is 1.7 mm ±0.1 mm (0.067 in. ±0.004 in.).

Check

1. Run Driver Routine 31 to check hot roll lamp operation.
2. Run Print Pack to verify print quality.

Hot Roll Over-temperature Sensor (S613)

Table 667. Hot Roll Over-temperature Sensor (S613)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

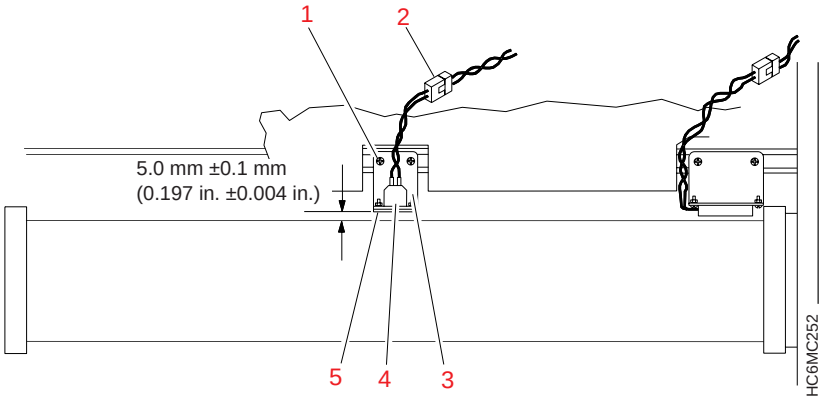
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

4. Open and lock the fuser oiler gate.
5. Remove the hot roll shield.
6. Open the printer left front cover.
7. Remove the fuser front cover.

(continued on next page)

Table 667. Hot Roll Over-temperature Sensor (S613) (continued)



Removal

8. Disconnect connector PJ645 **(2)** and all necessary cable clamps.
9. Remove the two screws **(1)** from the sensor bracket **(3)**.
10. Remove the two screws **(5)**, remove the sensor **(4)** from the bracket.

Installation

Reverse the removal procedure.

Adjustment

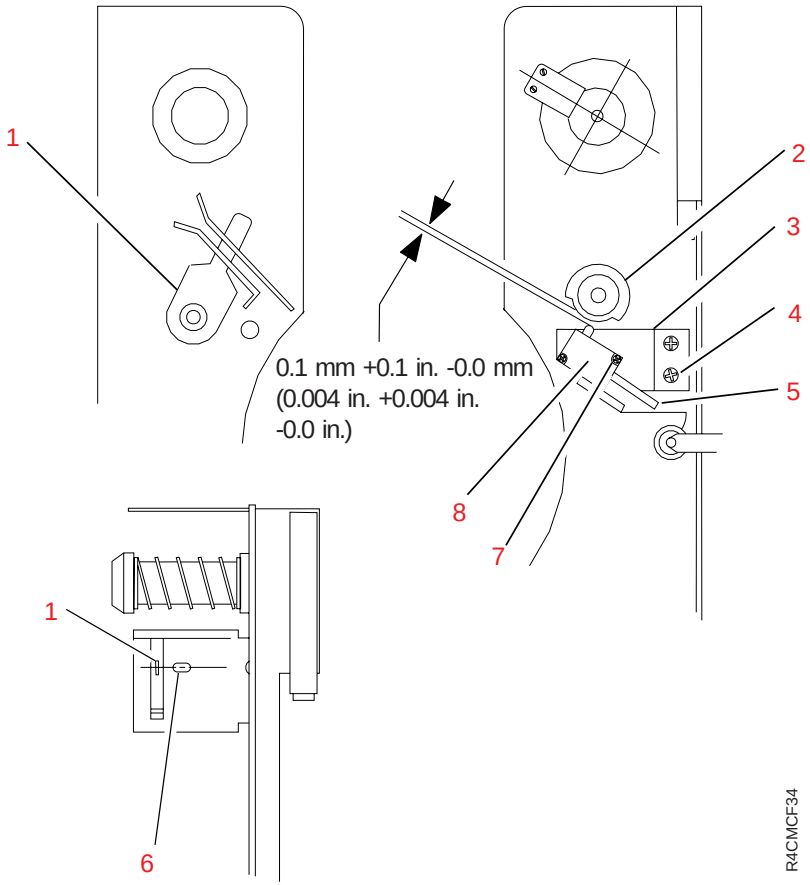
Adjust the over-temperature sensor bracket **(3)** so the gap between the sensor and the hot roll is 5.0 mm ±0.1 mm (0.197 in. ±0.004 in.).

Check

1. Run Driver Routine 31 to check hot roll lamp operation.
2. Run Print Pack to verify print quality.

Oiler Belt End Switch (S610)

Table 668. Oiler Belt End Switch (S610)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

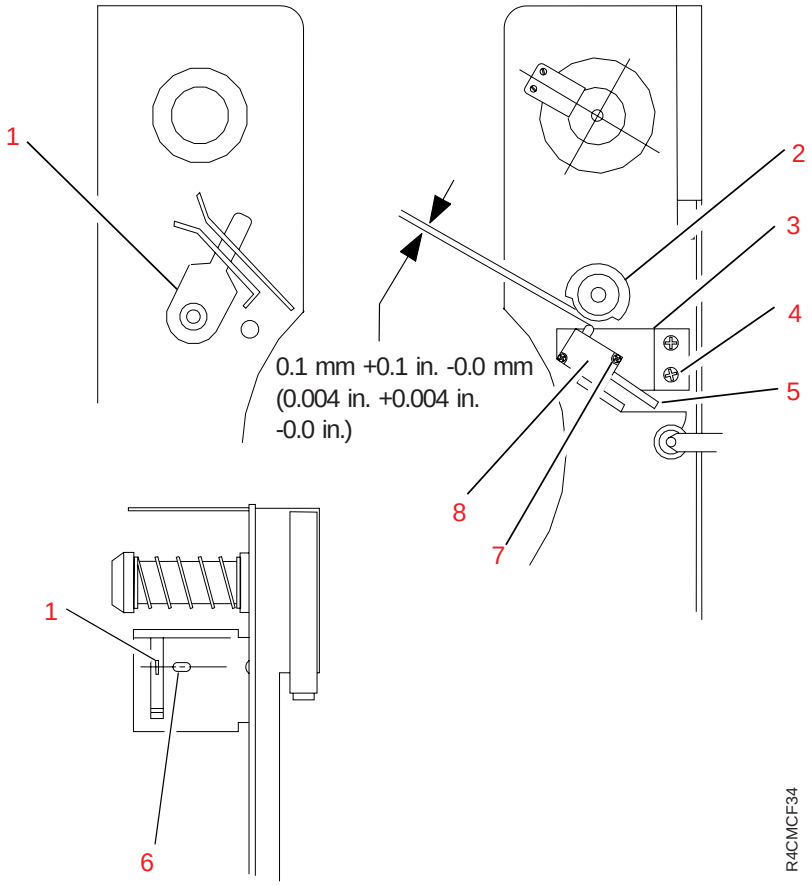
4. Open and lock the fuser oiler gate.
5. Disconnect the connectors **(5)** from the switch **(8)**.
6. Remove the two screws **(7)** and remove the switch **(8)**.

Installation

1. Reverse the removal procedure.
2. Perform the Oiler Belt End Switch adjustment.

(continued on next page)

Table 668. Oiler Belt End Switch (S610) (continued)



Adjustment

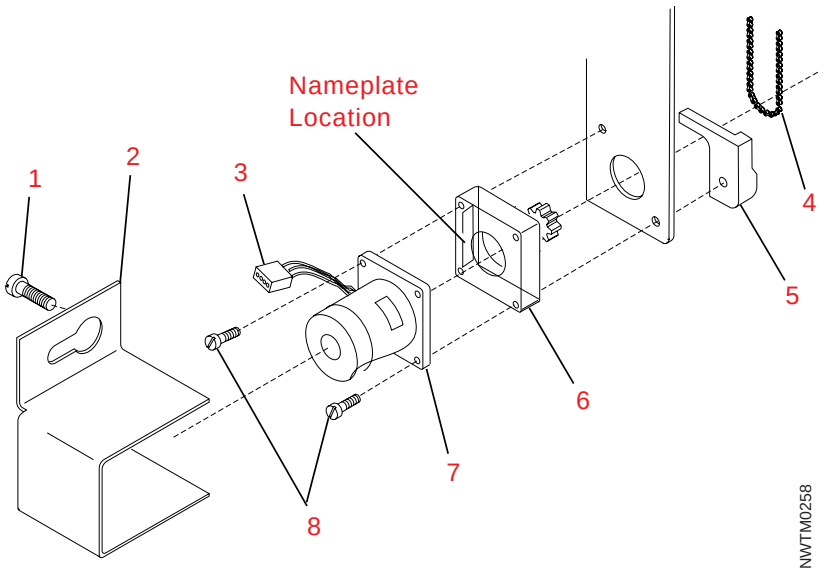
1. Move the actuator **(1)** while you run sensor routine 81 to check the switch position.
2. Loosen the two screws **(4)** and adjust the switch bracket **(3)** so that the switch is reliably transferred by the cam **(2)** when the actuator **(1)** is centered within the hole **(6)**. A clearance of 0.1 mm +0.1 mm −0.0 mm (0.004 in. +0.004 in. −0.0 in.) should exist where indicated below:
   a. Between the switch actuator and cam when the actuator is opposite the low dwell of the cam
   b. As remaining switch actuator motion when the switch actuator is on the high dwell of the cam.

Check

Run Print Pack to verify print quality.

Oiler Belt Motor (M706)

Table 669. Oiler Belt Motor (M706)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Special Tools Required:

IBM lubricant No. 23

Removal

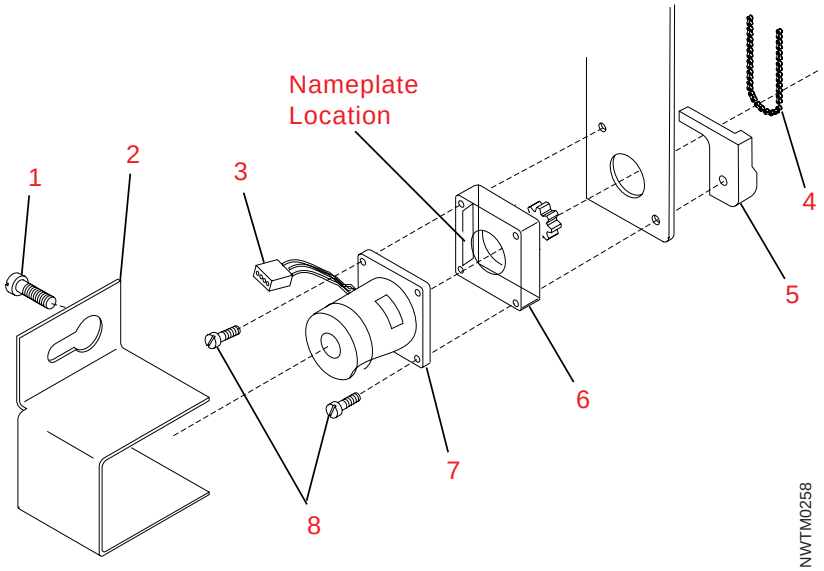
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.
4. Loosen the screw **(1)** and remove the oiler motor cover **(2)**.
5. Disconnect connector PJ723 **(3)**.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

6. Open and lock the fuser oiler gate.
7. Remove the two screws **(8)** and the oiler belt motor **(7)**.
   This releases the gearbox **(6)** and the plate **(5)**.

(continued on next page)

Table 669. Oiler Belt Motor (M706) (continued)



Installation

1. Apply IBM lubricant No. 23 to the gear on the motor before you install it into the gearbox.
2. Reverse the removal procedure.

Note: Ensure that the nameplate on the gearbox **(6)** is positioned as shown.

Adjustment

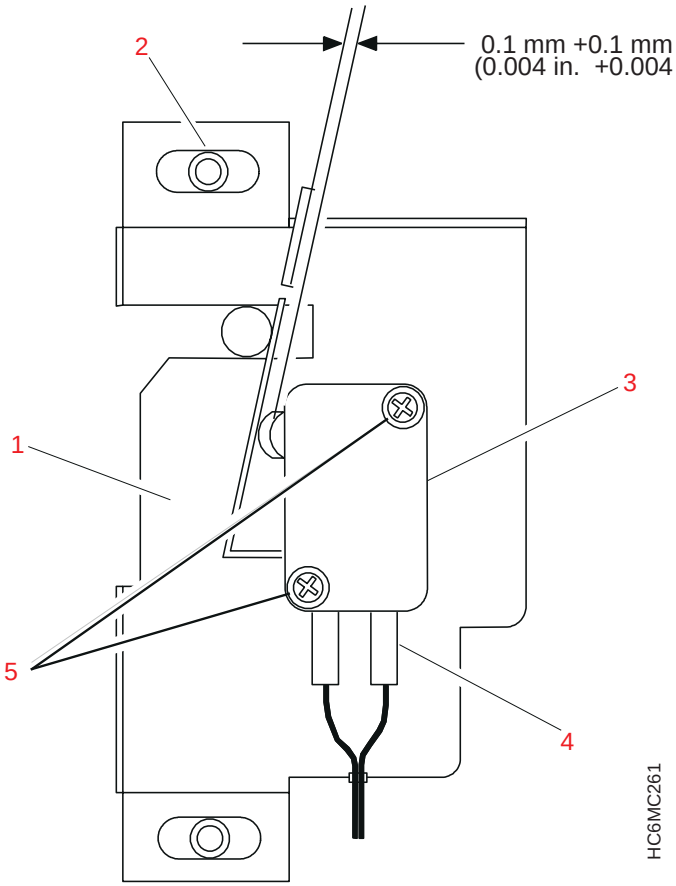
1. Loosen the two screws **(8)**.
2. Adjust the motor **(7)** and gearbox **(6)** so that the chain **(4)** will deflect 3.0 mm ±1.0 mm (0.120 in. ±0.040 in.) when 200 g (7 oz) of force is applied to the center of the chain.

Check

1. Ensure that the drive chain **(4)** is tight.
2. Run Print Pack to verify print quality.

Oiler Gate Interlock Switch (S605)

Table 670. Oiler Gate Interlock (S605)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

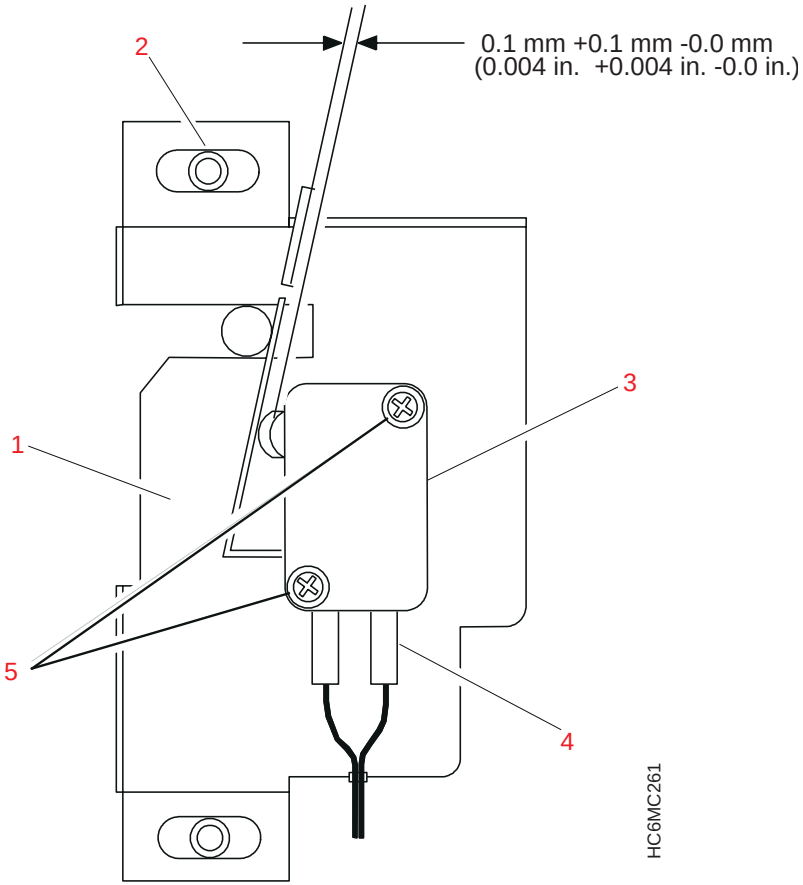
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Remove the fuser front cover.
5. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

6. Open and lock the fuser oiler gate.
7. Remove the two screws **(2)** and remove the interlock cover **(1)**.
8. Disconnect the connectors **(4)** from the interlock switch **(3)**.
9. Remove the two screws **(5)** and remove the switch **(3)**.

(continued on next page)

Table 670. Oiler Gate Interlock (S605) (continued)



Installation

1. Reverse the removal procedure.
2. Perform the Oiler Gate Interlock Switch adjustment.

Adjustment

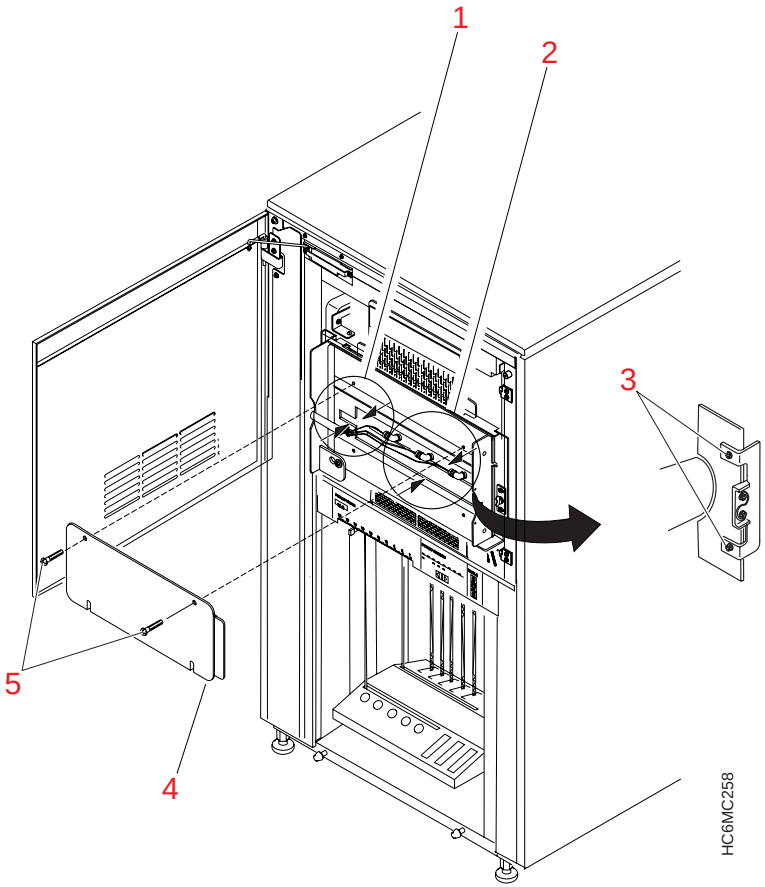
1. Adjust the interlock cover **(1)** so that the switch is transferred with .1 mm +0.1 mm −0.0 mm (0.004 in. +0.004 in. −0.0 in.) travel remaining when the oiler belt gate is latched closed.
2. Alternately open and close the oiler belt gate while you run sensor routine 80 to check this.

Check

Run Print Pack to verify print quality.

Oil Port Assembly

Table 671. Oil Port Assembly



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

Check and adjust the position of the oil port assembly.

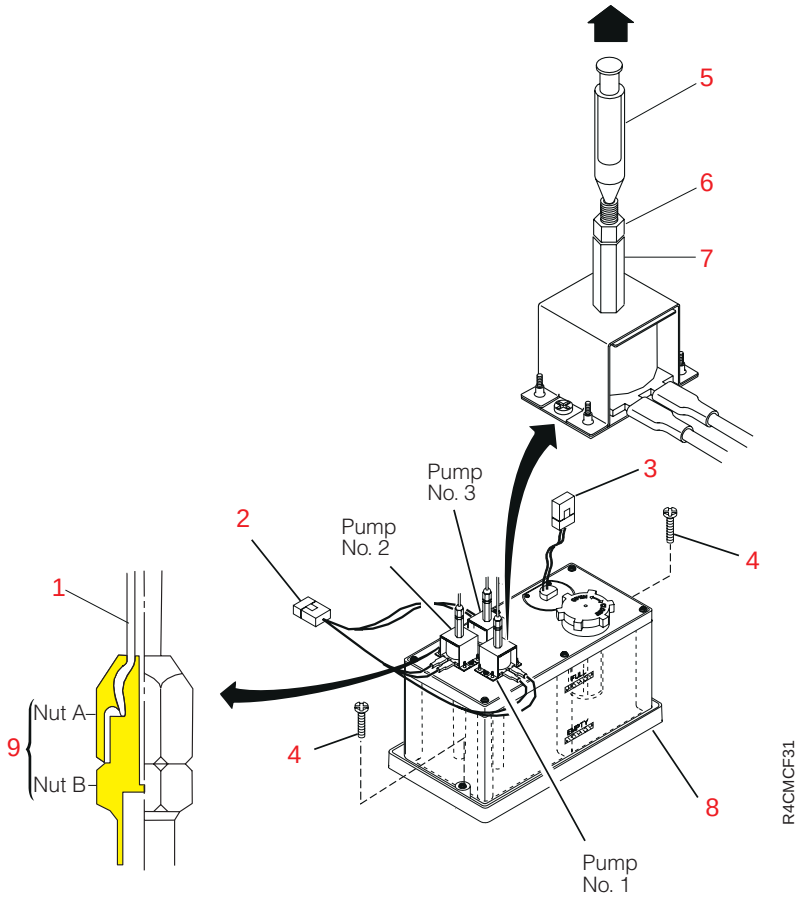
Check and Adjustment

1. Remove the oil port cover **(4)** by loosening the two bottom screws and removing the top two screws **(5)**.
2. Ensure the oiler gate is latched.
3. Measure the distance between the flat surface of the oil port assembly and the cutout at the rear of the oiler gate **(1)**.
4. Measure the distance between the flat surface of the oil port assembly and the cutout at the front of the oiler gate **(2)**.
5. The distance at the front must be within ±1.0 mm of the distance measured at the rear.

   If it is not, perform the adjustment in step 6.
6. Loosen the two screws **(3)** on the oiler gate latch and adjust the position of the latch to obtain the correct oil port assembly front position.
7. Ensure the Oiler Gate Interlock Switch (S605) adjustment is still correct.

Oil Pumps (L70x)

Table 672. Oil Pumps (L701, L702, L703)



Special Tools Required:

- Three rubber bands
- Thread sealant tape (PN 0596763)
- Fuser oil

Removal

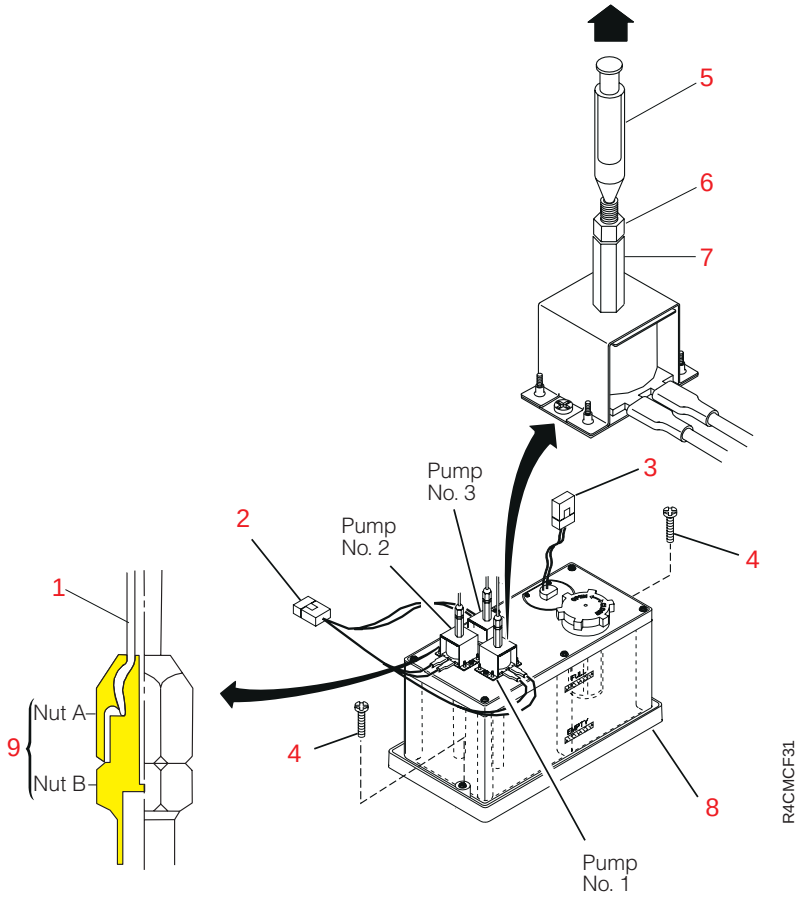
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer center rear cover.
4. Remove the transfer station center rear cover.
5. Remove the oil pump assembly cover.
6. Open the stacker end cover.
7. Tighten the filler cap on the oil pump to avoid spillage.
8. Disconnect connectors PJ725 **(3)** and PJ745 **(2)**.

Note: For the next step, you need a cloth and some rubber bands to avoid spilling the oil.

9. Ensure that each oil line is clearly labeled before you loosen the fitting.

(continued on next page)

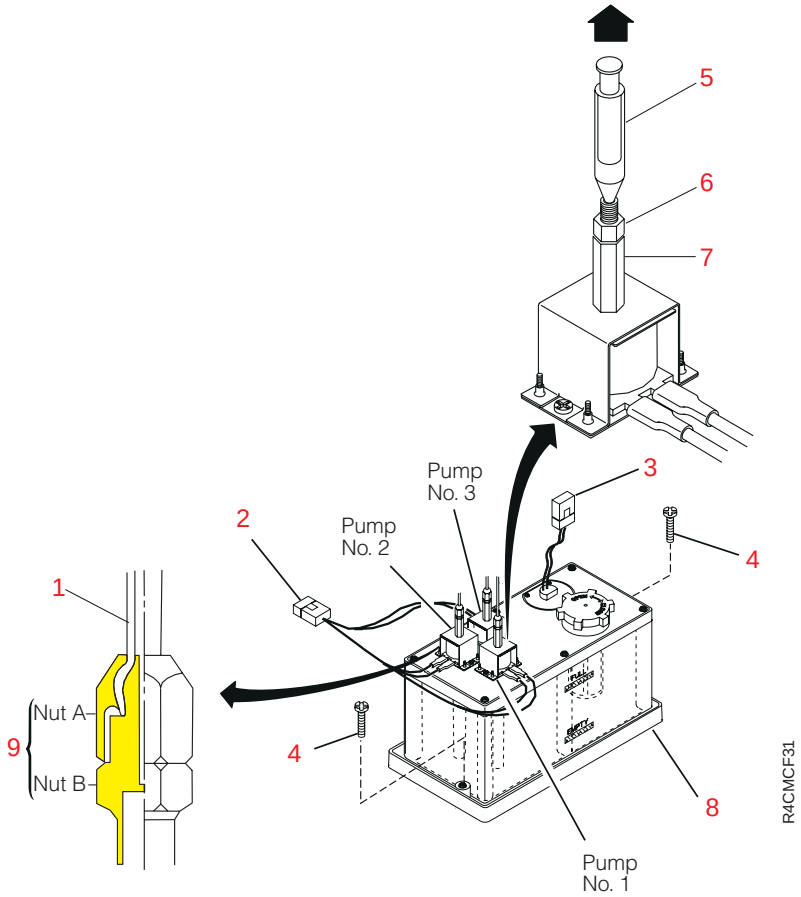
Table 672. Oil Pumps (L701, L702, L703) (continued)



10. Loosen the oil lines **(1)** by separating the fittings **(9)** as follows:
    a. Hold nut **(B)** with a 12 mm (0.50 in.) open-end wrench.
    b. Loosen and remove nut **(A)** with the second 12 mm (0.50 in.) open-end wrench. Nut **(A)** remains with the oil line.
    c. Fold back each oil line and wrap it with a rubber band then wrap it in cloth.
11. Remove the oil pump assembly **(8)** by removing the two screws **(4)**.
12. Remove the oil-line fittings **(9)** from the pump.
13. Clean the oil-line fittings **(9)**.
14. Wrap one or two layers of clean thread sealant tape to each of the fittings.

(continued on next page)

Table 672. Oil Pumps (L701, L702, L703) (continued)

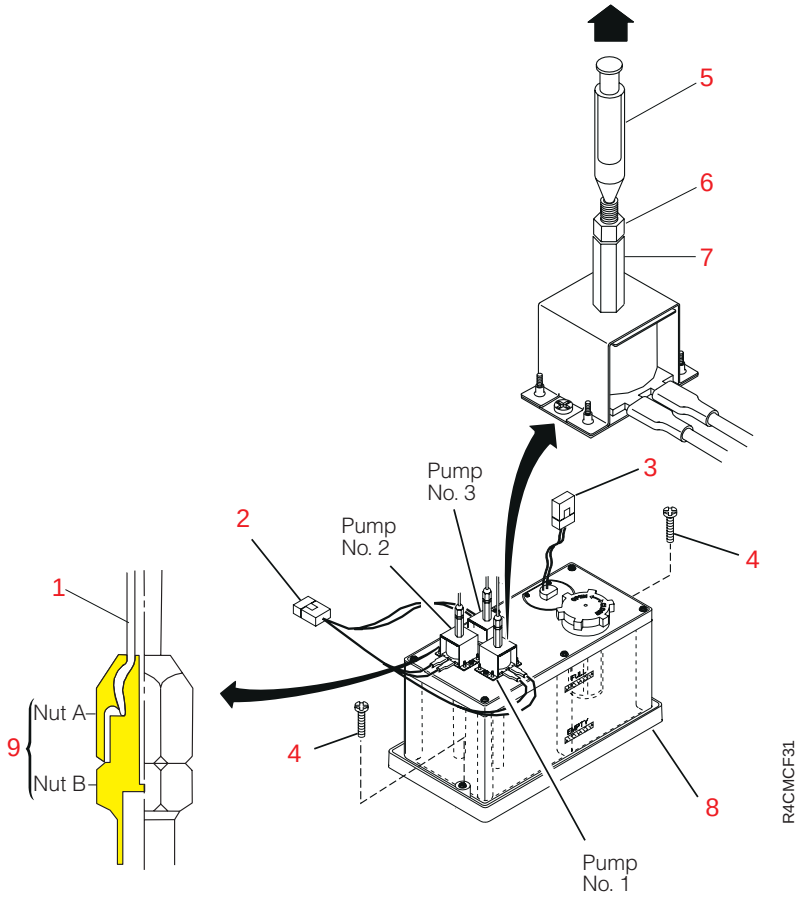


Installation

1. Install the oil pump assembly with the two screws **(4)**.
2. Screw the fittings **(9)** into the pumps.
3. Reconnect connectors PJ725 **(3)** and PJ745 **(2)** on the three pump systems .
4. Fill the reservoir of the new pump with fuser oil.
5. Run Driver Routines 2A, 2B, and 2C in continuous looping mode to remove air from the pumps and to ensure that oil is being fed through the oil port assembly.
6. Attach each oil line by screwing nut **(A)** on to the correct nut **(B)**. Ensure that each oil fitting is tight.

(continued on next page)

Table 672. Oil Pumps (L701, L702, L703) (continued)



Check

An adequate supply of fuser oil must be provided by the three oil lines to the three sections of the oiler belt. Air or contaminants may prevent the oil from reaching the oiler belt. Air is introduced into the lines when the oil supply in the reservoir is depleted; contaminants are introduced into the lines through the oil reservoir. Oil is provided to each section of the oiler belt in response to the width of the forms being run.

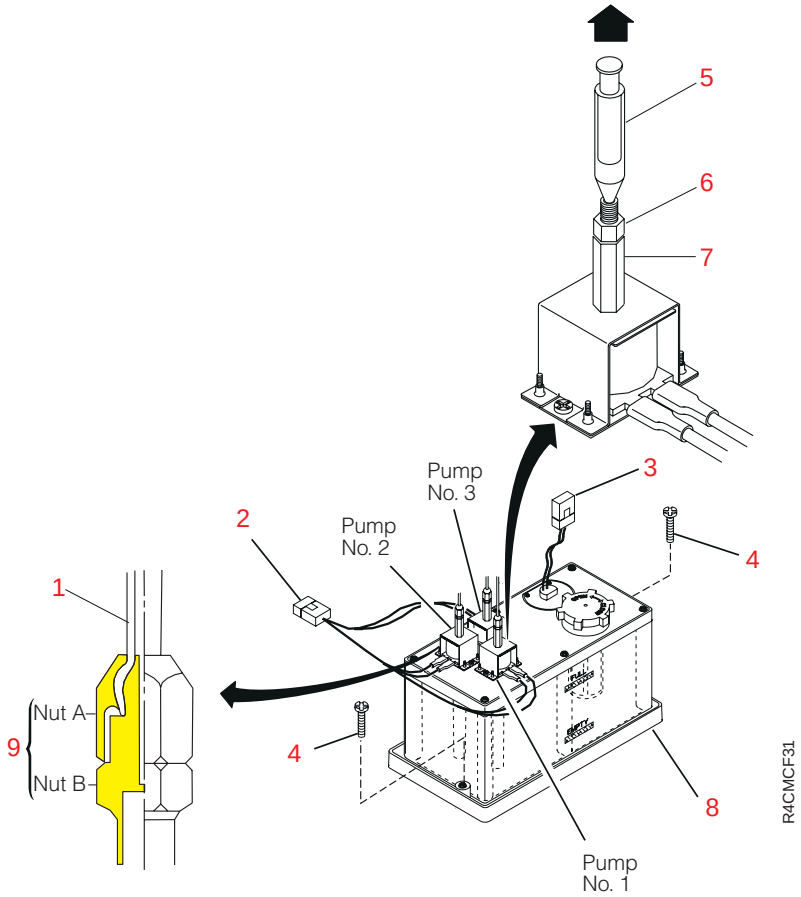
Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

Have some disposable cloths available to collect the oil during the next procedures.

1. Power on the printer.
2. Ensure that there are no oil leaks. Spilled silicon oil is very slippery and extremely difficult to remove from floors.
3. Load the widest forms available.
4. While you run test prints, watch for movement of the bubbles in the lines. If the bubbles do not move in oil line three, the forms may not be wide enough.

(continued on next page)

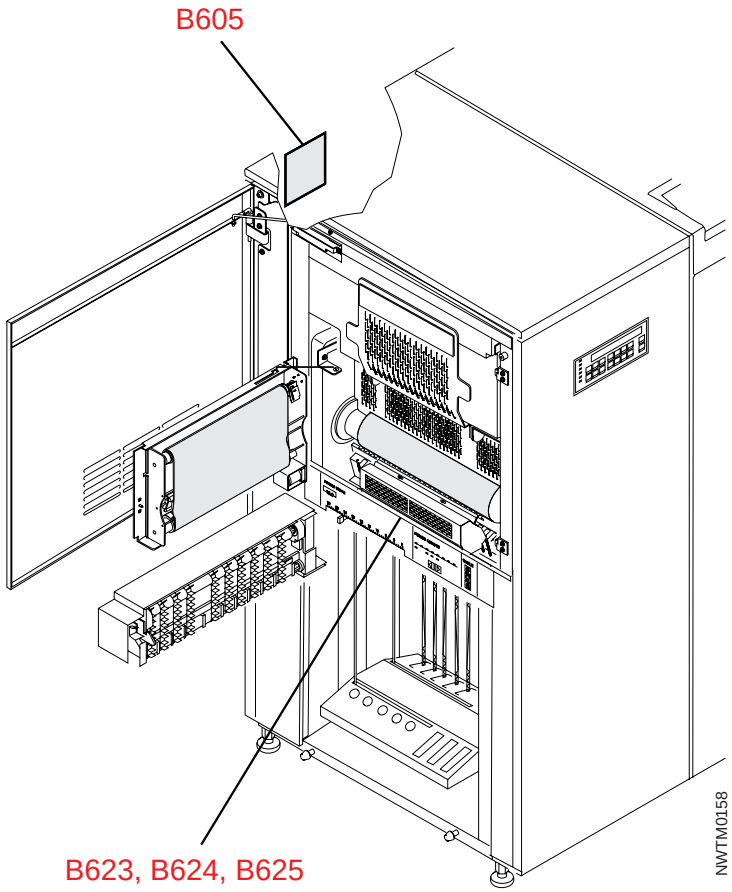
Table 672. Oil Pumps (L701, L702, L703) (continued)



5. You can also check the pumps by doing the following:
   a. Open and lock the fuser oiler gate.
   b. Remove the bottom roll of the oiler belt by grasping the roll and pushing against the spring on the hinge side of the gate. Place the roll on the top of the fuser oiler gate. See Replace Oiler Belt in the Operator's Guide for your printer.
   c. Run Driver Routines 2A, 2B, and 2C, to ensure that the pumps work correctly.
   d. Watch for oil flowing from the holes in the distribution manifold behind the oiler belt.
   e. If all the holes are feeding oil, go directly to step 6.
   f. If some of the holes are not feeding oil to the belt area, remove the oiler gate cover from the opposite side (outside) of the fuser oiler gate.
   g. Remove a hose at its fitting from the opposite side of the fuser oiler gate. Oil should flow from this hose within a few seconds. Run the driver routines until the air or contaminant is removed.
   h. Replace this hose before you remove the next hose.
   i. Ensure that:
      - Each of the oil supply sections is operating.
      - The oil reservoir is not contaminated.
      - All the oil lines are reinstalled.
      - The oil reservoir is filled.
6. Reinstall the oiler belt.
7. Run Print Pack to verify print quality.

Paper Cooling Fans (B623, B624, and B625)

Table 673. Paper Cooling Fans (B623, B624, and B625)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

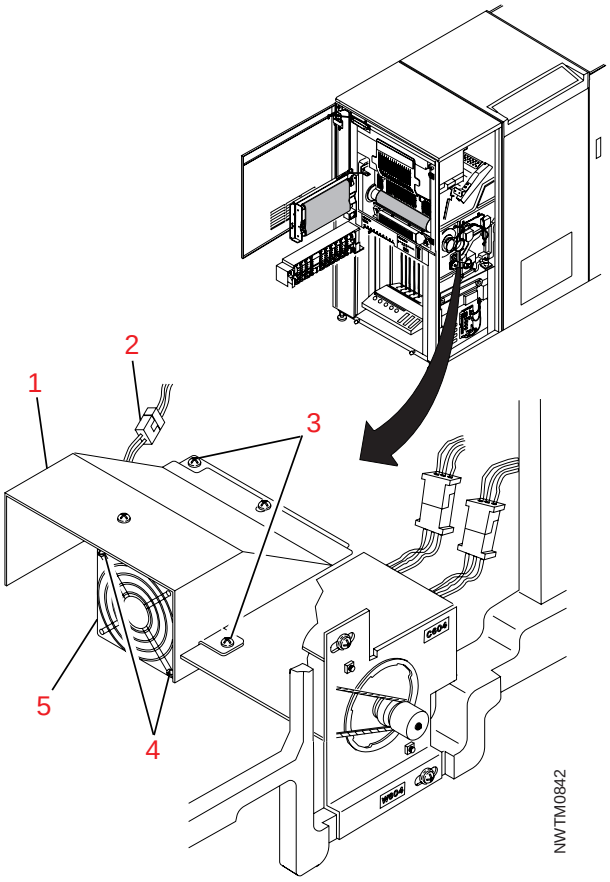
4. Open and lock the fuser oiler gate.
5. Remove the four screws and pivot the assembly out so that the rear of the assembly is visible.
6. Disconnect the fan connector, and remove the two screws holding the fans. Remove the fans.

Installation

Reverse the removal procedure.

Paper Cooling Fan (B626)

Table 674. Paper Cooling Fan (B626)



Removal

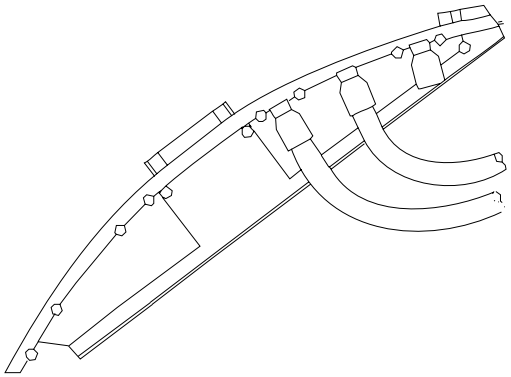
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Remove the fuser front cover.
5. Open the stacker gate and reach up under the scuff roll assembly to disconnect connector PJ690 **(2)**.
6. Remove two screws **(3)** and slide the cooling assembly **(1)** out of the printer.
7. Remove two screws **(4)** holding the fan. Remove the fan.

Installation

Reverse the removal procedure.

Preheat Platens, Upper (PH601) and Lower (PH602)

Table 675. Preheat Platen, Upper (PH601) and Lower (PH602)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

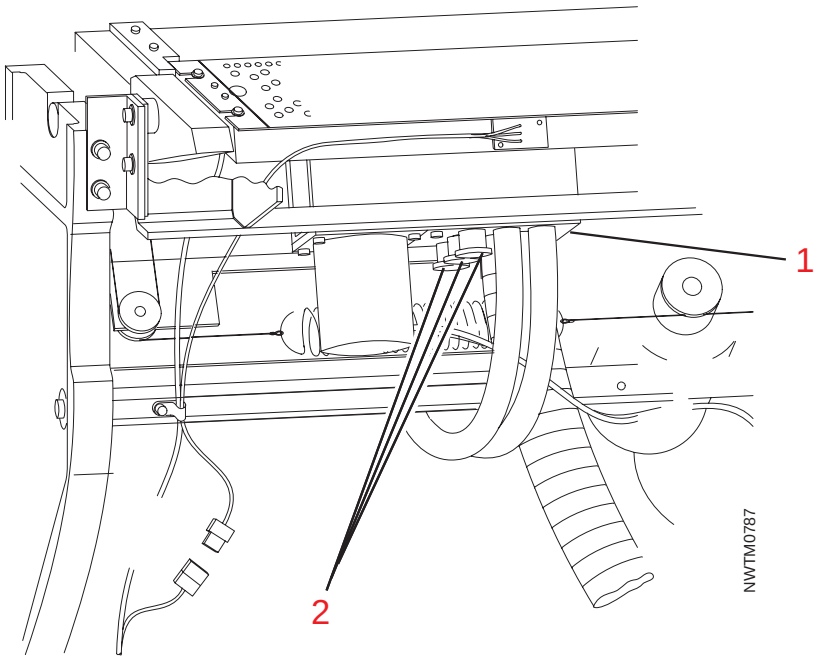
See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine **21** to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
3. Shutdown and power off the printer.
4. Open the printer left front cover, the printer left top cover, the printer center top cover, the printer center front cover, and the stacker end cover.
5. Open the printer right rear cover.
6. Remove the preheat platen front and rear end covers, the fuser front cover, the hot roll shield, and the fuser heat shield.
7. Remove the fuser right side cover and the auto load bridge front cover.
8. Disconnect connectors PJ661, PJ662, PJ667, and PJ668.

(continued on next page)

Table 675. Preheat Platen, Upper (PH601) and Lower (PH602) (continued)



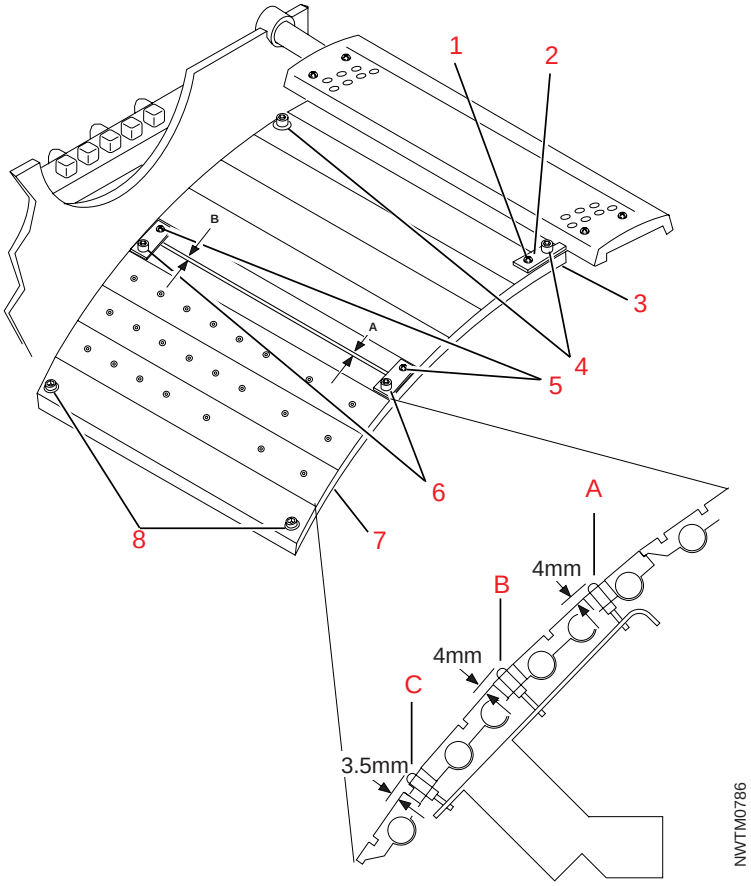
Note: Depending on the vintage and model of your printer, the number of attached vacuum hoses will vary. The unused ports are fitted with plugs.

9. Disconnect the preheat platen vacuum hoses attached to the upper and lower preheat platens, at the vacuum manifold ports.

Note: The ends of the hoses can be attached to any of the usable ports on the vacuum manifold **(1)**, the other ports **(2)** are fitted with plugs.

(continued on next page)

Table 675. Preheat Platen, Upper (PH601) and Lower (PH602) (continued)



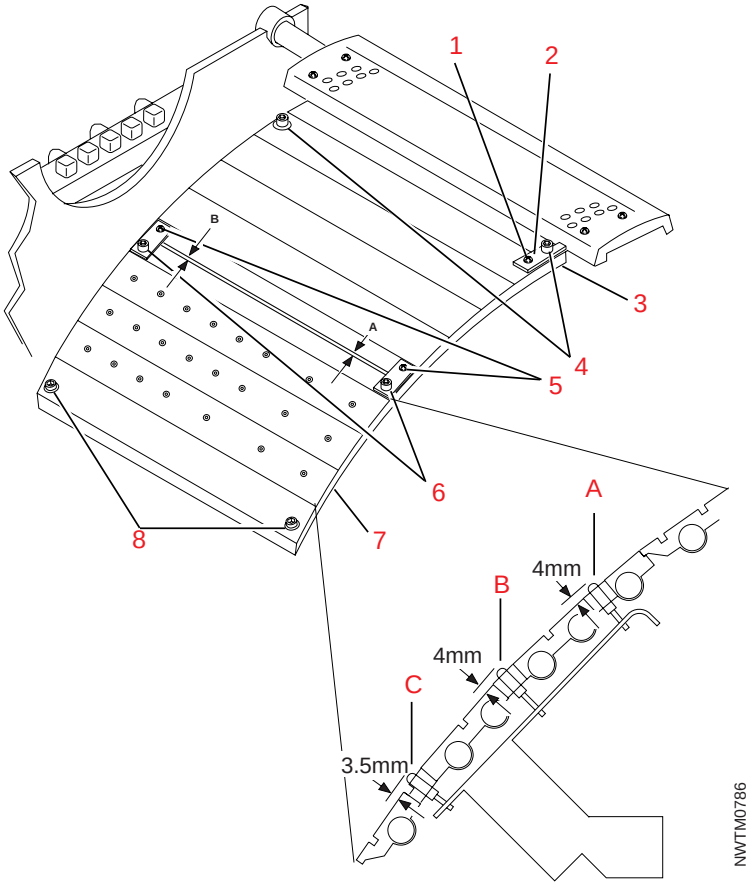
10. To remove the upper preheat platen **(3)**, remove the four socket head bolts and washers **(4)**.
11. Remove the preheat platen straps to the upper preheat platen by removing the two screws and washers **(5)**.
12. Remove the shutter vacuum plate stop **(2)** from the upper preheat platen **(3)** by removing screw and washer **(1)**.
13. Remove the lower preheat platen **(7)** by removing the two socket head bolts and washers **(8)**.

Installation

1. Reverse the removal procedure.
2. Ensure that the preheat platen does not contact the pins of the lift plate assembly.
3. Install the upper platen flush with the shutter vacuum plate, and the lower platen **(3)** flush with the lower edge of the upper platen.

(continued on next page)

Table 675. Preheat Platen, Upper (PH601) and Lower (PH602) (continued)



Adjustment

Adjust the lower preheat platen so that the gap at points **(A)** and **(B)** is 0.4 mm (0.016 in.), and **(C)** is 3.5 mm (0.014 in.).

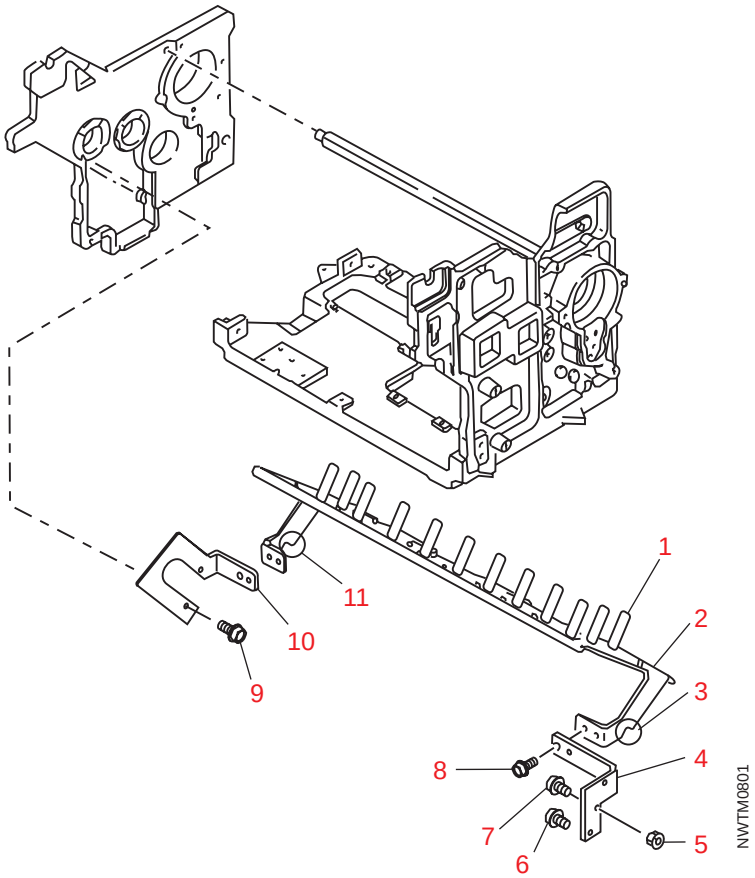
1. Loosen the pin lock nut and rotate the threshold pin until the height is correct.
2. Tighten against the lift plate assembly by tightening the pin lock nut.
3. Repeat for the 24 pins at the indicated gaps.

Check

Run Print Pack to verify print quality.

Preheat Platen Lift Plate Assembly

Table 676. Preheat Platen Lift Plate Assembly



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Special Tools Required

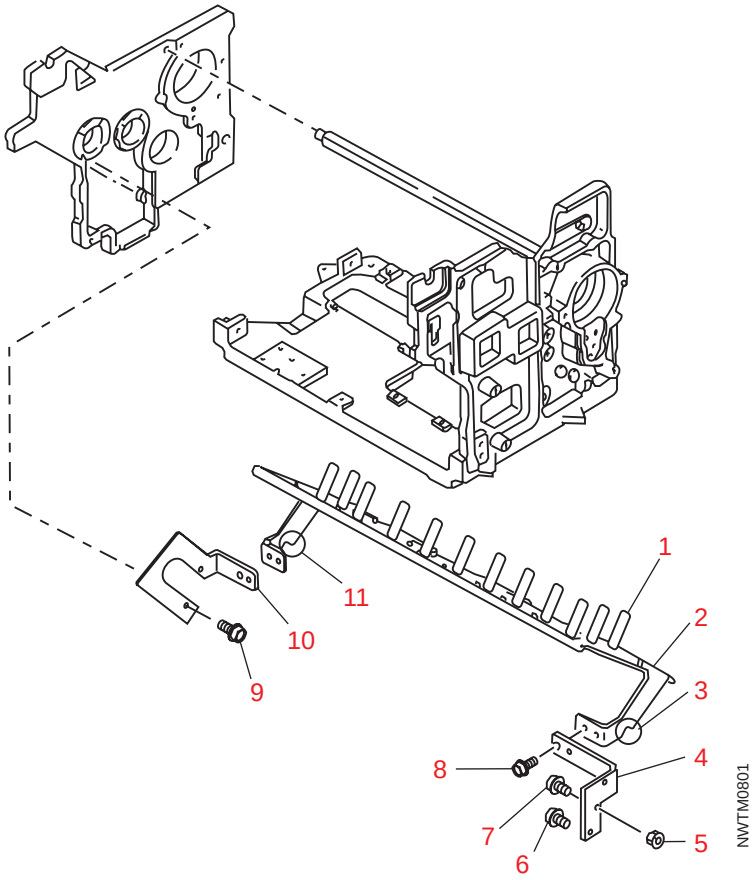
IBM SBB Grease No. 3 (PN 1665927)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine 21 to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
3. Shutdown and power off the printer.
4. Open the printer left front cover, the printer left top cover, the printer center top cover, the printer center front cover, and the stacker end cover.
5. Open the printer right rear cover.
6. Remove the preheat platen front and rear end covers, the fuser front cover, the hot roll shield, and the fuser heat shield.
7. Remove the fuser right side cover and the auto load bridge front cover.

(continued on next page)

Table 676. Preheat Platen Lift Plate Assembly (continued)



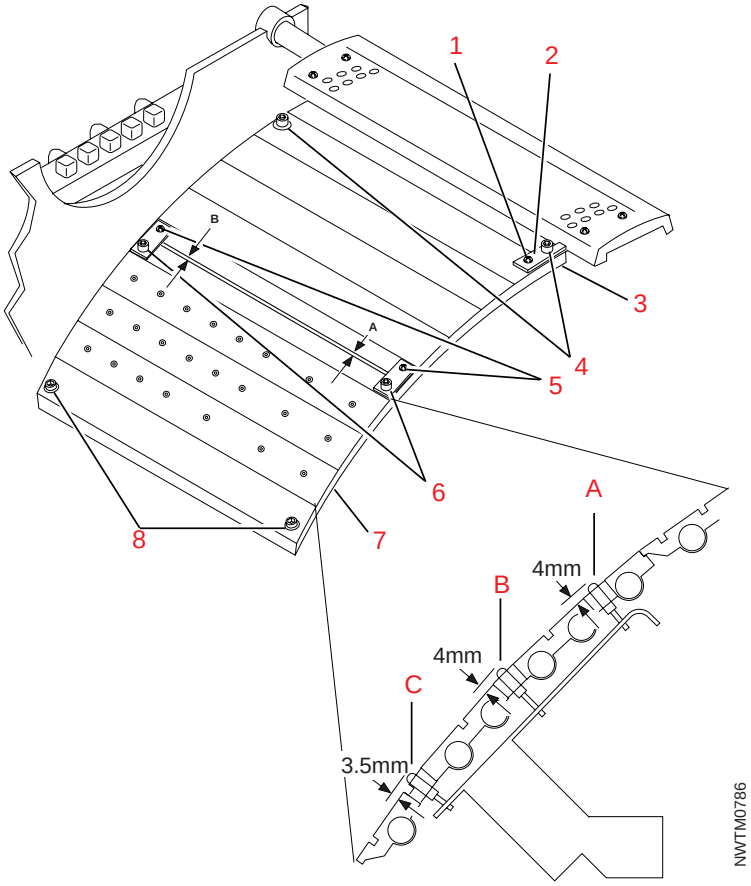
8. Remove the lift plate assembly **(2)** by removing the four pan head screws **(8)** (with star washer and washer) from the front and rear lift plate brackets.
9. Remove the rear lift plate bracket **(4)**, by removing the screw **(7)**, nut **(5)**, and screw **(6)**.
10. Remove the front lift plate bracket **(10)**, by removing the two screws **(9)**.

Installation

1. Reverse the removal procedure.
2. Apply IBM SBB Grease No. 3 (PN 1665927) to the notches **(3)** and **(11)** of the preheat platen lift plate assembly.

(continued on next page)

Table 676. Preheat Platen Lift Plate Assembly (continued)

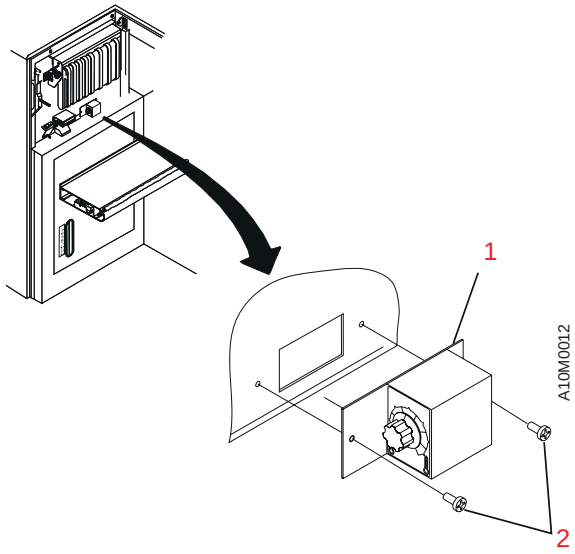


Adjustment

1. Loosen the front and rear lift plate mounting screws to adjust the lift plate assembly so that the distance between the lower preheat platen surface and the top of the pins is **(A)**, **(B)**, and **(C)**.
2. Tighten the screws.
3. Reinstall the preheat platen end covers and the fuser heat shield.

Preheat Control

Table 677. Preheat Control



Removal

1. Remove the preheat control box **(1)** on the left panel in the auto load area by removing the two screws **(2)**.
2. Disconnect connectors TC IN and TC OUT.

Installation

Reverse the removal procedure.

Adjustment

1. Print a 2-inch stack of forms. The following conditions can only properly be evaluated by performing tests that duplicate the actual application being run. Consider the length of the job, how long the forms remain in the stack, pressure applied to stack, the print coverage and position, type of application (barcode readability), and so on.
2. Check the forms taken from the stacker and ensure that the sheets are not sticking together or toner is not being pulled from adjacent sheets. Examine the forms for discoloration, wrinkling, or print that easily rubs off. If a problem exists, go to step 3.
3. Use the following table to determine the correct preheat control temperature adjustment.

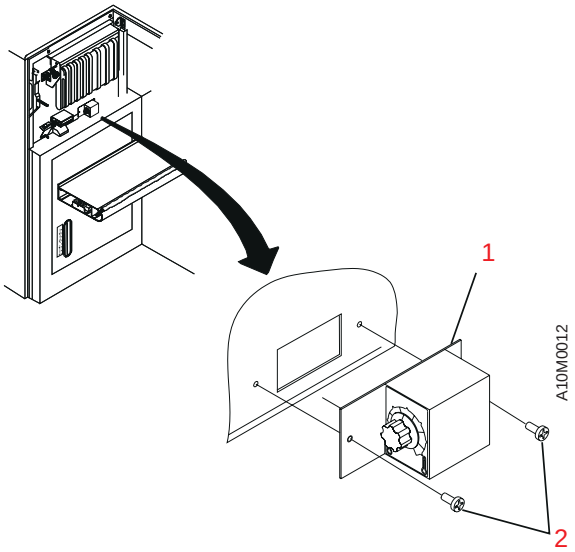
(continued on next page)

Table 678. Preheat Control

Condition	Adjustment
Preheat too cool (poor fuse grade)	1. Increase the preheat control one position. 2. Print a 2-inch stack of forms. 3. Check the forms for acceptable fusing. 4. If not acceptable, repeat steps 1 through 3. **Note:** If adequate fusing cannot be obtained, the form may not be acceptable for use on the printer.
Preheat too hot (forms damaged when running or sticking together)	1. Decrease the preheat control one position. 2. Print a 2-inch stack of forms. 3. Check the forms for damage or sticking together. 4. If not acceptable, repeat steps 1 through 3. **Note:** If adequate fusing cannot be obtained, the form may not be acceptable for use on the printer.
Heat damage when printer is idle (melting or curling)	1. Decrease the preheat control to the lowest position when not printing. 2. Before printing, increase the preheat control to the operating position and allow three minutes.

(continued on next page)

Table 679. Preheat Control



Check

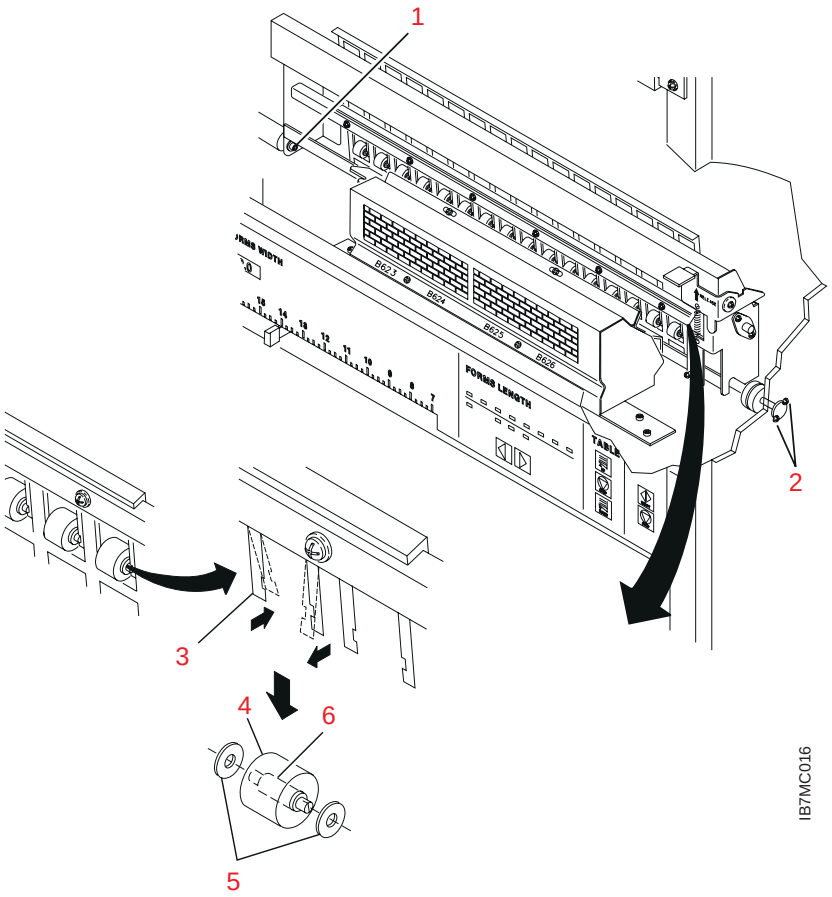
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer rear cover.
4. Open the rear door that contains the Fuser Control Card (FSxxx).
5. Disconnect connector J612TC from P612.
6. Disconnect connector P612TC from J612.
7. Use Table 680 to check the resistance across the points noted.

Table 680. Preheat Platen Temperature Control Resistance Values

From	To	Control Setting	Resistance Reading (ohms)
J612TC-33	P612TC-33	Rotate LOW to HIGH	Increases from 0 to 3.32 kΩ ±10%
J612TC-35	P612TC-35	Rotate LOW to HIGH	Increases from 0 to 3.32 kΩ ±10%
J612TC-37	P612TC-37	Rotate LOW to HIGH	Increases from 0 to 1.80 kΩ ±10%
J612TC-39	P612TC-39	Rotate LOW to HIGH	Increases from 0 to 1.80 kΩ ±10%
Note: All other pins in the cable are straight wire connections. They should measure 0 ohms and should not change when the preheat control knob is rotated.			

Scuff Pressure Rollers

Table 681. Scuff Pressure Rollers



Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.
4. Open and lock the fuser oiler gate.
5. Remove the Paper Cooling Fans (B623, B624, and B625).

Note: Place a piece of paper under the rear cover of the pressure roll assembly to prevent the screw from falling into the stacker.

6. Remove the screw **(1)**.

Table 681. Scuff Pressure Rollers (continued)

Removal (cont'd)

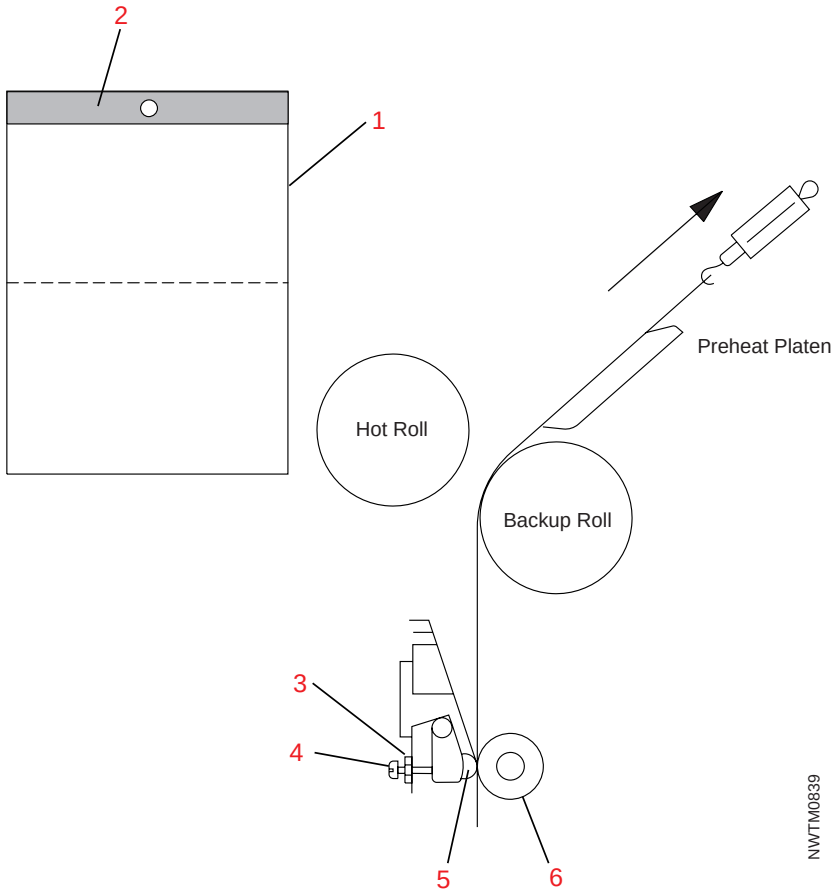
7. Lift the blue release lever and pivot the fuser scuff roller assembly down.
8. Move the assembly to the front of the printer to remove it.
9. If you are replacing the rollers, force open the pressure-roller holder **(3)** and pull out the washers **(5)**, the shaft **(6)**, and roller **(4)**.

Installation

Reverse the removal procedure.

Scuff Roller Pressure Check

Table 682. Scuff Roller Pressure Check



Special Tools Required:

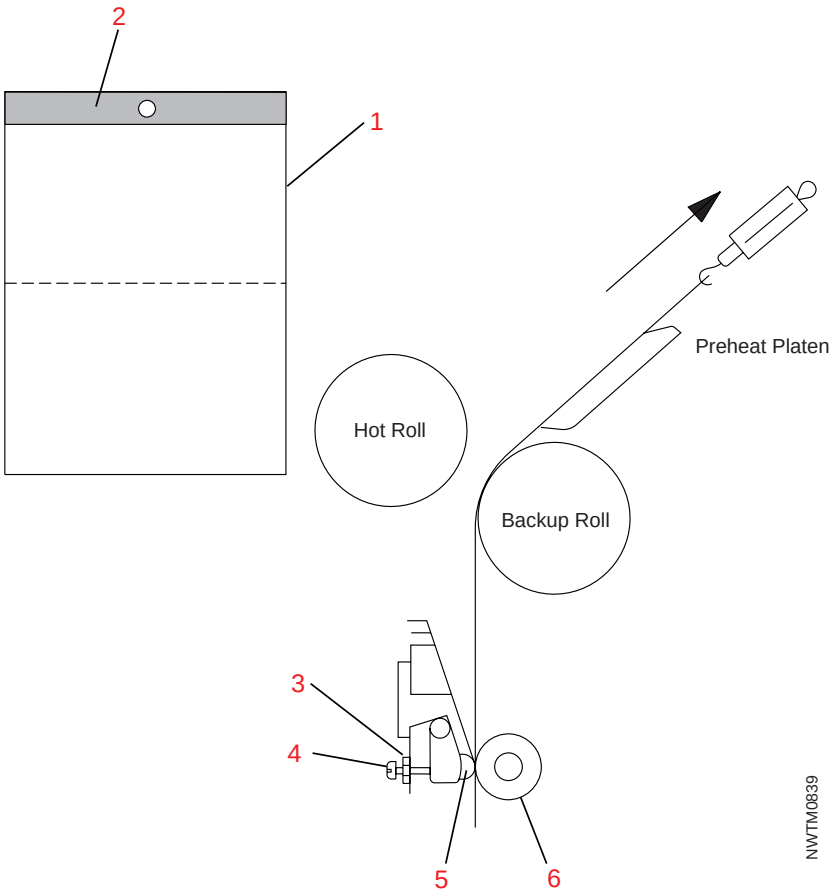
- Gram gauge
- Masking or adhesive tape

Pressure Check Procedure

1. Place forms of 64 g/m²-weight that are 15 inches wide and 11 inches long on the preheat platen.
2. Apply adhesive or masking tape on the top edge **(2)** of the form **(1)** to reinforce the paper so that it does not tear when you pull it during the measurement procedure.
3. Place the forms between the scuff roll **(6)** and the scuff pressure rollers **(5)**. Ensure that the form is straight so that the forms contact all of the pressure rollers.
4. Attach the gram gauge to the reinforced edge of the form and hold the form in place.
5. Press the “Table Up” switch to activate the scuff roll and hold the form in place by pulling slightly as shown. The gram gauge should read between 450 and 750 g.

(continued on next page)

Table 682. Scuff Roller Pressure Check (continued)



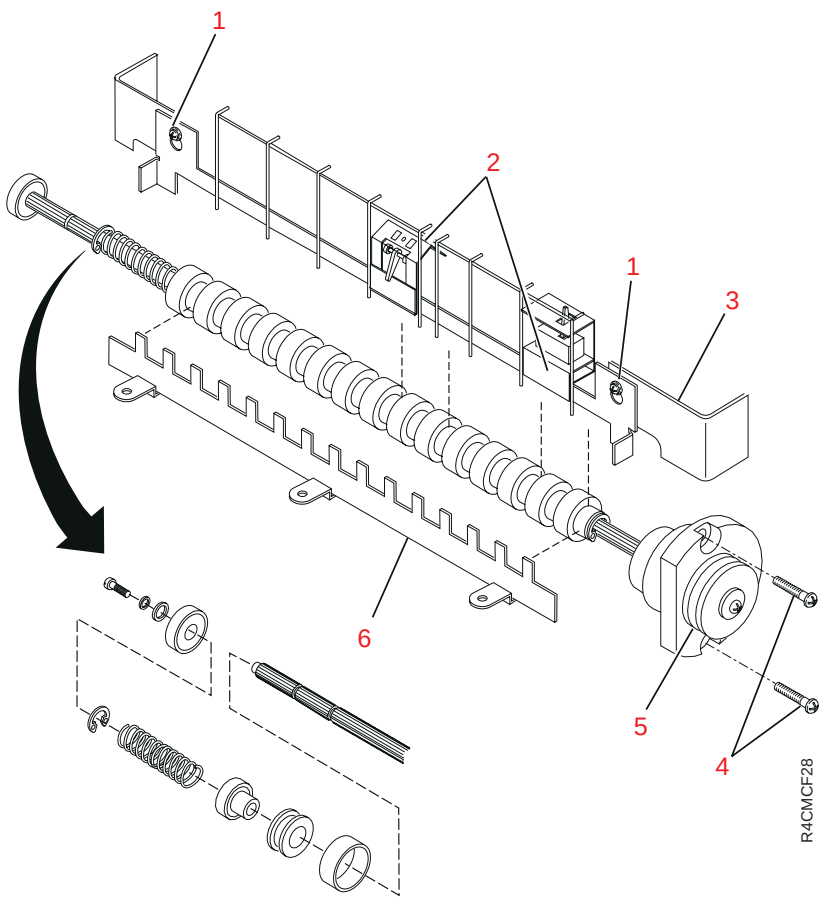
Adjustment

If the tension is not within the specified range, adjust the tension as follows:

1. Loosen the locknut **(3)**.
2. Adjust the tension by tightening or loosening screw **(4)**.
3. When the tension is correct, tighten the locknut **(3)**.
4. Check the gap between the pressure rollers and the scuff roll and adjust if necessary (see Scuff Roll Release Cable).
5. Run Driver Routine 29 to ensure that the scuff roll motor works correctly.
6. Run Print Pack to verify that the forms are feeding correctly.

Scuff Roll

Table 683. Scuff Roll



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

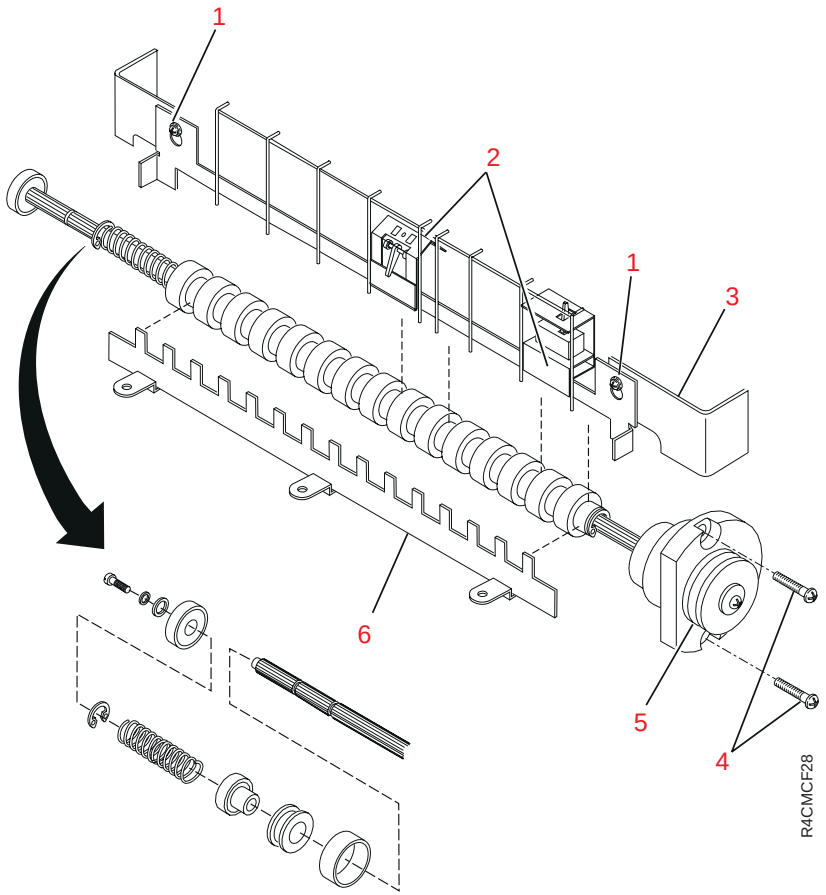
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform removal steps 3 through 10 under Fuser Wrap Sensor (S617 and S618).
4. Perform the removal procedure for the scuff roll belt. See Scuff Roll Drive Motor (M704) and Belt.
5. Remove the two screws **(4)** holding the front bearing **(5)**.

Attention: The sharp edges of the finger tabs on the forms guide **(6)** can damage the scuff rolls.

6. To avoid damage to the scuff rolls, carefully pull the bearing and shaft out through the front casting as follows:
   a. Allow the rear of the shaft to move to the right as the rear bearing clears the rear casting.
   b. Allow the front of the shaft to move down and to the right as the front bearing clears the front casting.
   c. Remove the scuff roll assembly.
7. Replace the rollers as necessary.

(continued on next page)

Table 683. Scuff Roll (continued)



Installation

Attention: The sharp edges of the finger tabs on the forms guide **(6)** can damage the scuff rolls.

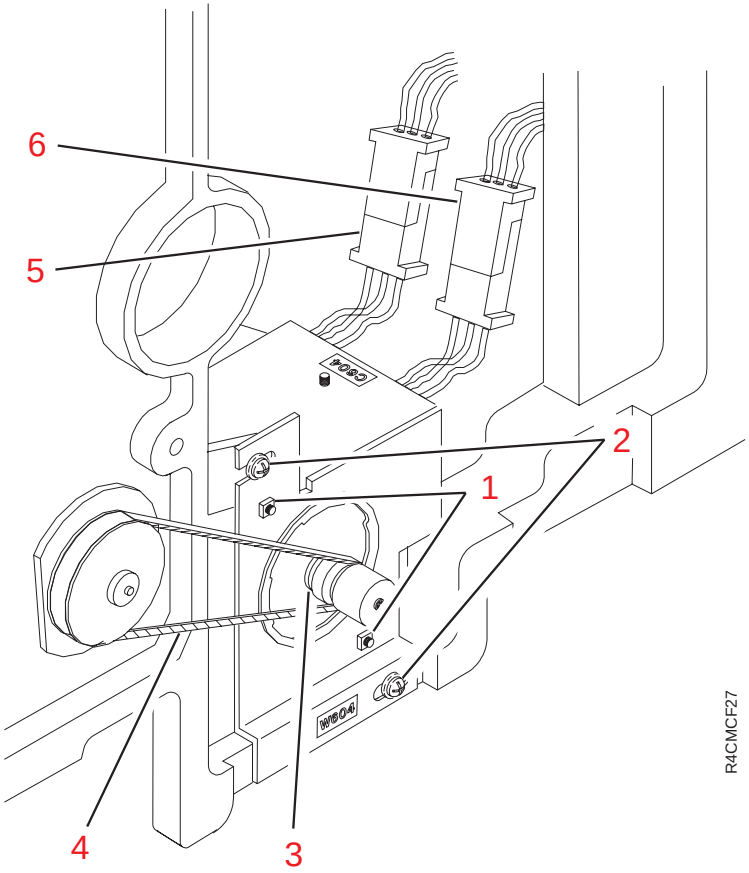
1. To avoid damage to the scuff rolls, replace the bearing and shaft through the front casting as follows:
   a. Allow the rear of the shaft to move to the right as the rear bearing clears the front casting.
   b. Keep the front of the shaft down and to the right as the front bearing is moved toward the front casting.
2. Carefully slide the shaft to the rear.
3. Slide all of the rollers to the rear approximately 13.0 mm (0.500 in.) to position them between the finger tabs on the forms guide **(6)**.
4. Position the front and rear bearings in the castings.
5. Power on the printer.
6. Check the scuff roll pressure to ensure that the proper tension is on the paper (Scuff Roller Pressure Check).

Check

1. Run Driver Routine 29 to ensure that the scuff roll motor works correctly.
2. Run Print Pack to verify print quality.

Scuff Roll Drive Motor (M704) and Belt

Table 684. Scuff Roll Drive Belt and Motor (M704)



Special Tools Required:

Push-pull scale (PN 0460870)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Remove the fuser front cover.
5. Loosen the two screws **(2)** and move the motor **(3)** to the left; then, remove the belt **(4)**.

If you are removing only the belt, go directly to Installation. If you are removing the motor, continue with the next step.

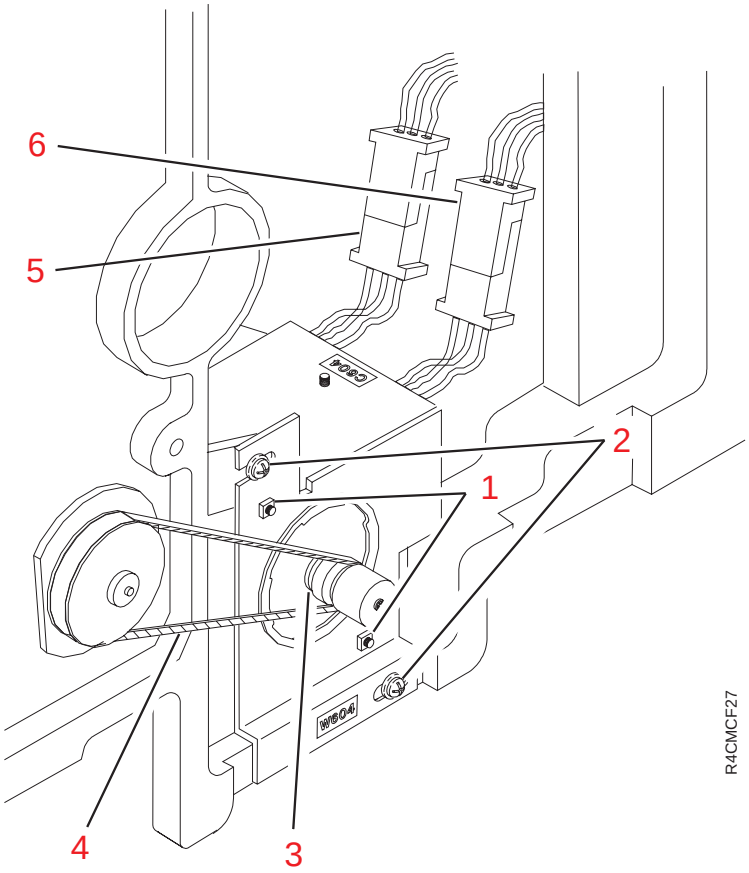
6. Disconnect connector PJ653 **(6)** and PJ647 **(5)**.
7. Remove the two screws **(2)** and remove the motor and bracket.
8. Remove the two screws **(1)** and remove the motor from the bracket.

Installation

1. Reverse the removal procedure.
2. Power on the printer.
3. Perform the adjustment.

(continued on next page)

Table 684. Scuff Roll Drive Belt and Motor (M704) (continued)



Adjustment

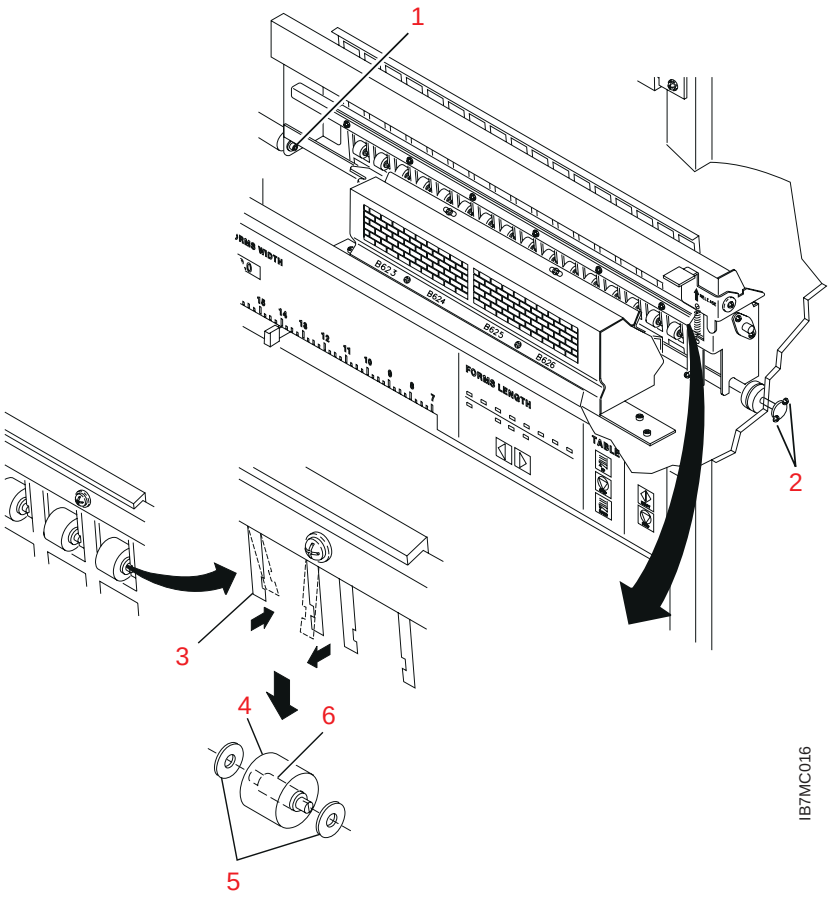
Adjust the motor left to right so that the belt will deflect 1.0 mm (0.040 in.) when 70–100 g (2.5–3.5 oz) of force is applied to the center of the belt.

Check

1. Run Driver Routine 29 to ensure that the scuff roll motor works correctly.
2. Run Print Pack to verify that the forms are feeding correctly.

Scuff Roll Release Cable

Table 685. Scuff Roll Release Cable



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

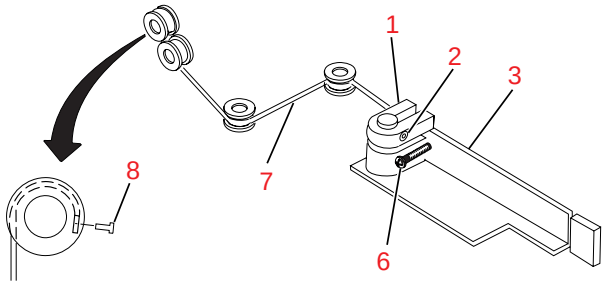
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

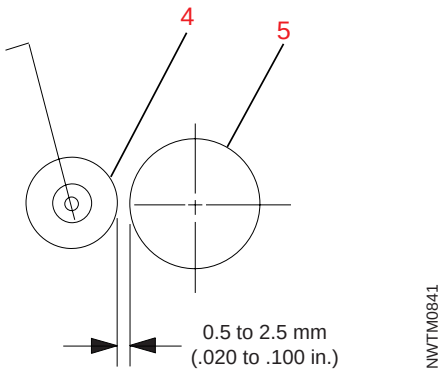
Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

4. Open and lock the fuser oiler gate.
5. Lift the blue release lever and pivot the fuser scuff roller assembly down.
6. Open the printer left front cover.
7. Remove the fuser front cover.

(continued on next page)

Table 685. Scuff Roll Release Cable (continued)





8. Remove the screw **(6)** and remove the release cable **(7)** from the lever **(3)**.
9. Remove the scuff roll motor. See Scuff Roll Drive Motor (M704) and Belt.
10. Remove the Scuff Roll.
11. Remove screw **(8)** and remove the cable **(7)**.

Installation

1. Reverse the removal procedure.
2. Perform the scuff roll release cable adjustment.

Adjustment

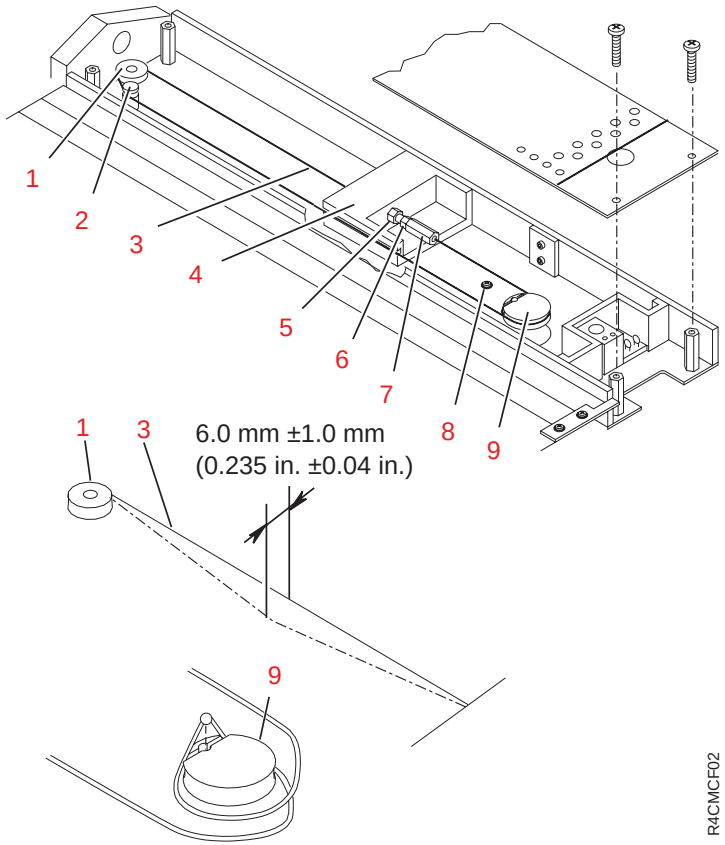
Hold the lever **(3)** in the front (operated) position, loosen screw **(2)** and adjust the length of the cable by rotating the collar **(1)** so that the gap between the scuff roll **(5)** and the scuff pressure rollers **(4)** is 0.5 to 2.5 mm (0.020 to 0.100 in.)

Check

Run Print Pack to verify print quality.

Vacuum Shutter and Cable

Table 686. Vacuum Shutter and Shutter Cable



Special Tools Required:

Push-pull scale (PN 0460870)

Removal

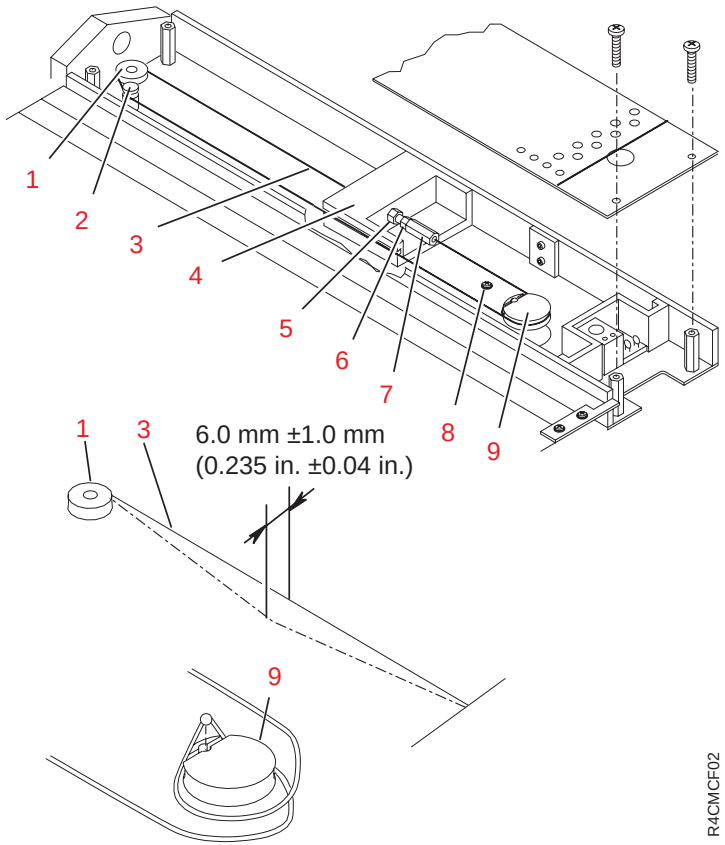
1. Perform steps 1 through 9 under Skew Sensor (D603) (**DO NOT** remove the skew sensor from the shutter vacuum plate).
2. Slide the shutter **(4)** in the shutter assembly so that the cable-ball slot in the pulley **(9)** is positioned as shown.
3. Loosen the nut **(4)**, unscrew the cable-end post **(7)** from the shutter **(4)**.
4. Remove the shutter cable **(3)** from the pulleys **(1)**, **(2)**, and **(9)**.
5. Lift the shutter and cable from the shutter assembly.

Hint: The felt seal on the side of the shutter is precut to allow removal of the shutter cable.

6. Unscrew the nut **(5)**, remove the threaded post from the shutter **(4)**, remove the shutter cable **(3)**.

(continued on next page)

Table 686. Vacuum Shutter and Shutter Cable (continued)



Installation

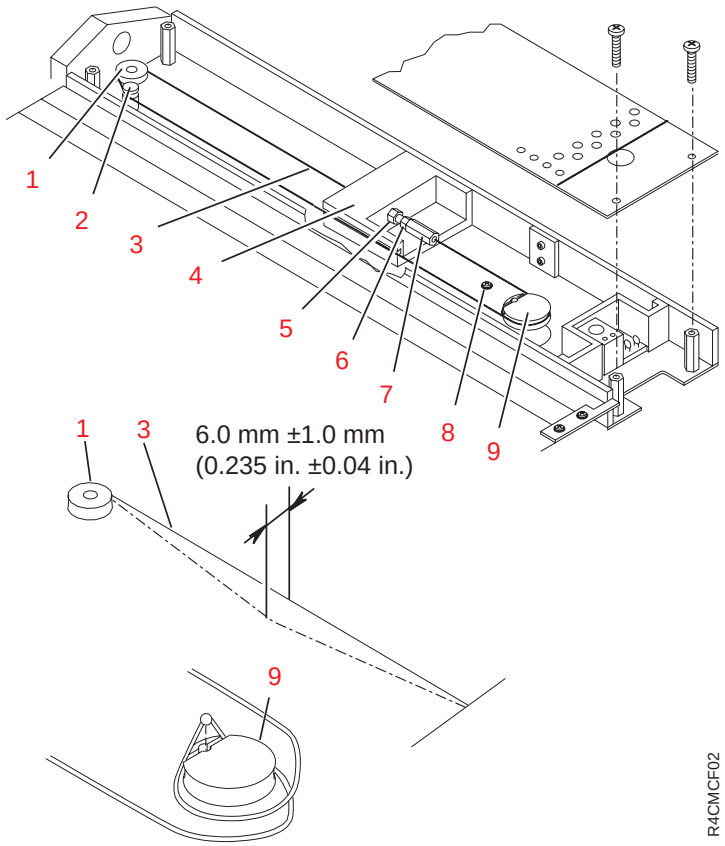
1. Install the threaded post in the rear of the shutter and thread the nuts **(5)** and **(6)** back onto the post.
2. Install the shutter in the shutter assembly and position it approximately 12 mm (0.5 in.) from the front stop **(8)**.
3. Thread the cable **(3)** around the idler pulleys **(1)** and **(2)**.
4. Wrap the cable ¾ of a turn (counterclockwise) around the drive pulley **(9)**, lay the cable in the ball slot as shown.
5. Wind the cable approximately 3-¾ times (counterclockwise) around the drive pulley, screw the cable-end post **(7)** onto the threaded post.

Note: Do not tighten the cable too tight.

6. Manually move the shutter (by turning the drive pulley **(9)**) front to rear and back two to three times to ensure that the cable is seated properly on the drive pulley.
7. Reverse the removal procedure to install the shutter vacuum plate.
8. Perform the vacuum shutter adjustment.

(continued on next page)

Table 686. Vacuum Shutter and Shutter Cable (continued)



Adjustment

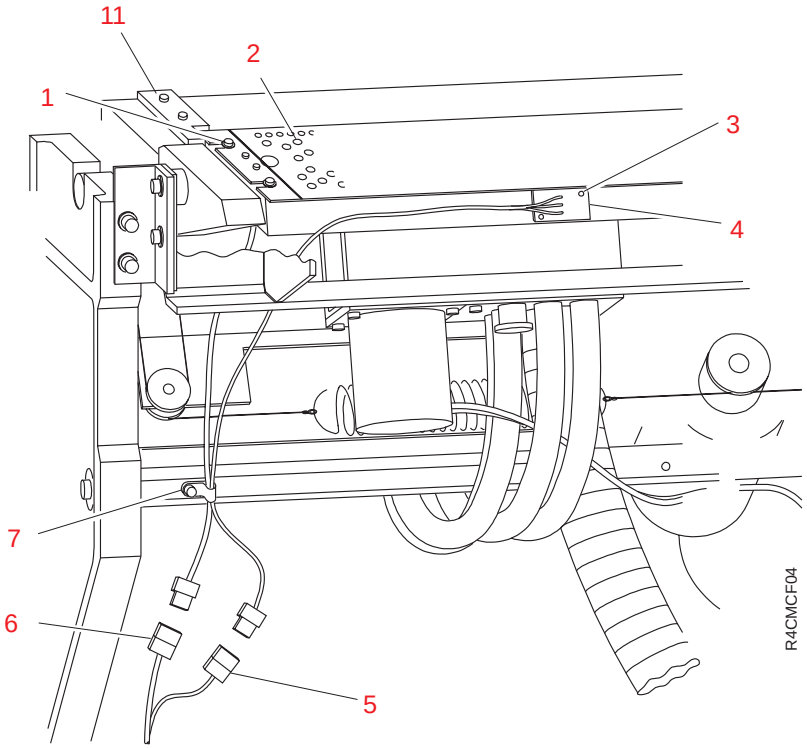
1. Slide the shutter **(4)** to the rear in the shutter assembly.
2. Adjust the cable-end post **(7)** so that the cable deflects 6.0 mm ±1.0 mm (0.235 in. ±0.040 in.) when 200 g (7 oz) is applied to the center of the cable and tighten nut **(6)** against post **(7)**.

Check

1. Run Driver Routine **22** to ensure that the shutter works correctly.
2. Run Print Pack to verify print quality.

Vacuum Shutter Home Sensor (S604)

Table 687. Vacuum Shutter Home Sensor (S604)

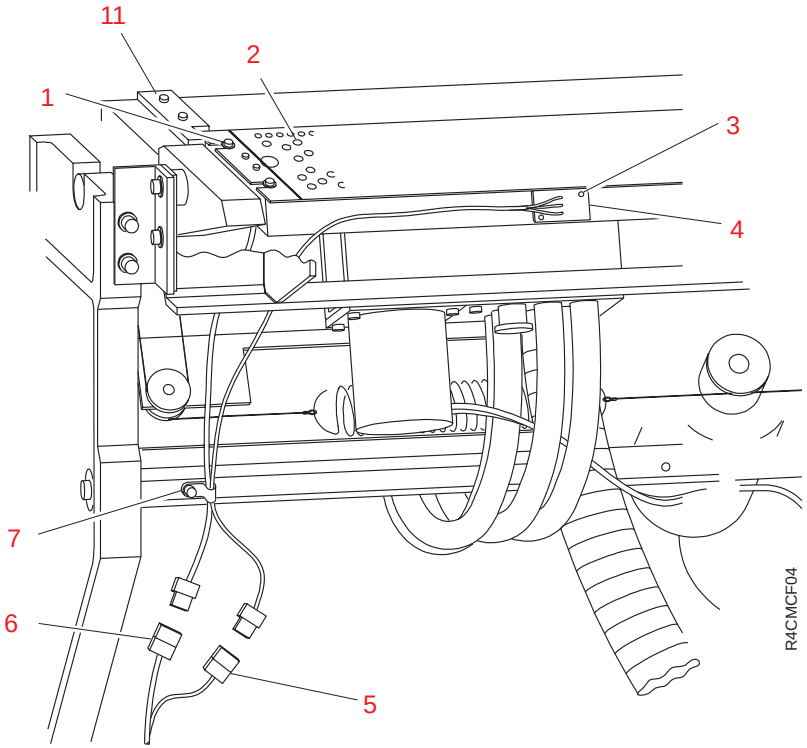


Removal

1. Open the printer left front cover and the printer center front cover.
2. Remove the Auto Load Bridge Assembly.
3. Remove the fuser right side cover.
4. Remove the cable clamp **(7)**.
5. Disconnect connectors PJ636 **(5)** and PJ638 **(6)**.
6. Open the printer left top cover.
7. Ensure that the stop **(11)** on the upper preheat platen is just touching the shutter vacuum plate **(2)**, if not, loosen the two screws and position the stop so it touches the plate.
8. Remove the four screws **(1)**, remove the shutter vacuum plate **(2)**.
9. Remove the two screws **(3)**, remove the shutter home sensor **(4)**.

(continued on next page)

Table 687. Vacuum Shutter Home Sensor (S604) (continued)

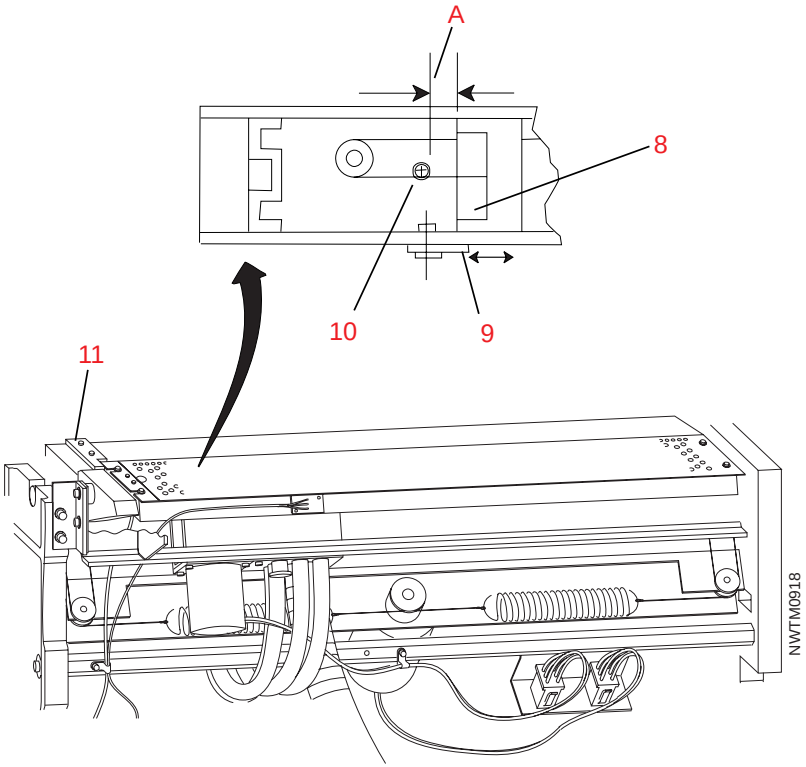


Installation

1. Install the shutter home sensor **(4)** and the two screws **(3)**.
2. Install the cable clamp **(7)**.
3. Reconnect the two connectors **(5)** and **(6)**.
4. Power on the printer.
5. Press the vacuum switch to move the shutter to the home position. The vacuum light should be lit when the shutter is in the home position.

(continued on next page)

Table 687. Vacuum Shutter Home Sensor (S604) (continued)

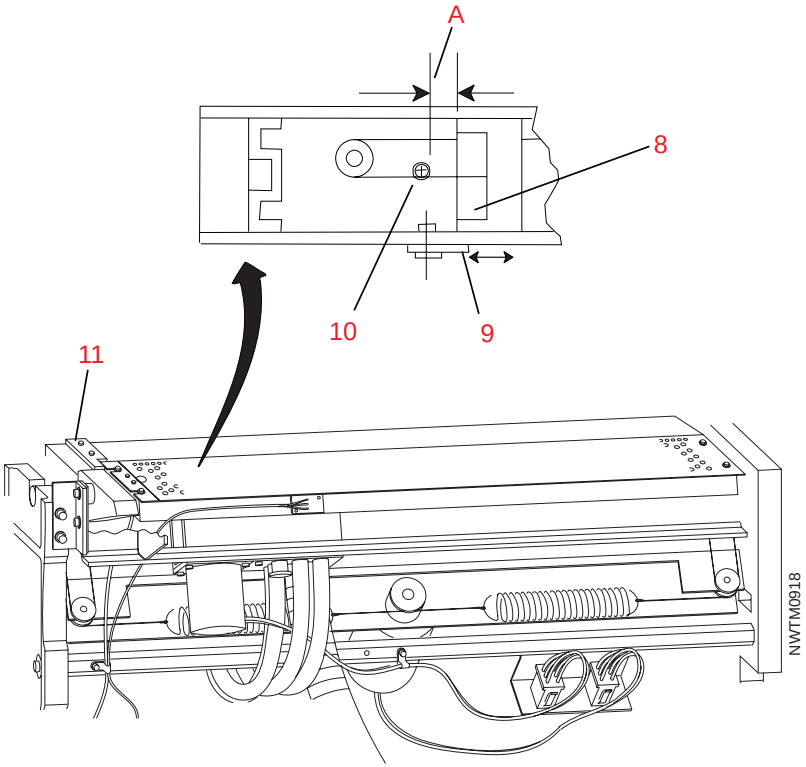


Note: Some early level machines may have a large washer (3 mm thick by 18 mm across) at **(10)**. If this washer is installed, it **MUST** be removed and discarded before checking this adjustment.

6. With the shutter in the home position, measure the gap **(A)** between the shutter **(8)** and the washer **(10)**.
7. The measurement should be:
   - For 9 inch minimum paper width - 4.5 mm ±0.5 mm (0.180 ±0.020 in.)
   - For 8 inch minimum paper width - 3.0 mm ±0.5 mm (0.120 ±0.020 in.)
8. If the measurement is NOT correct, go to .
9. Reverse the removal procedure to install the shutter vacuum plate.

(continued on next page)

Table 687. Vacuum Shutter Home Sensor (S604) (continued)



Note: Some early level machines may have a large washer (3 mm thick by 18 mm across) at **(10)**. If this washer is installed, it **MUST** be removed and discarded before checking this adjustment.

Adjustment

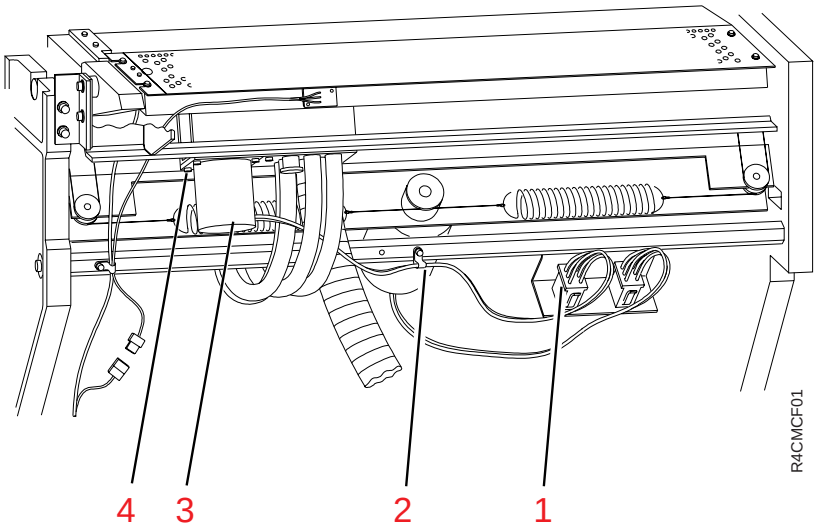
1. With the shutter in the home position, measure the gap **(A)** between the shutter **(8)** and the washer **(10)**.
2. The measurement should be:
   - For 9 inch minimum paper width - 4.5 mm ±0.5 mm (0.180 ±0.020 in.)
   - For 8 inch minimum paper width - 3.0 mm ±0.5 mm (0.120 ±0.020 in.)
3. Adjust the shutter home sensor **(9)** toward the front or rear of the printer as necessary, press the vacuum switch twice to return the shutter to the home position.
4. Measure the gap and repeat step 3 until the correct gap is achieved.

Check

1. Run Driver Routine 22 to ensure that the shutter works correctly.
2. Run Print Pack to verify print quality.

Shutter Motor (M602)

Table 688. Shutter Motor (M602)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Open the printer center front cover.
3. Run Driver Routine **21** to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
4. Shutdown and power off the printer.
5. Remove the fuser right side cover.
6. Remove the cable clamp **(2)**, disconnect connector PJ616 **(1)**.
7. Hold the shutter motor **(3)** while removing the two screws **(4)**, remove the motor.

Installation

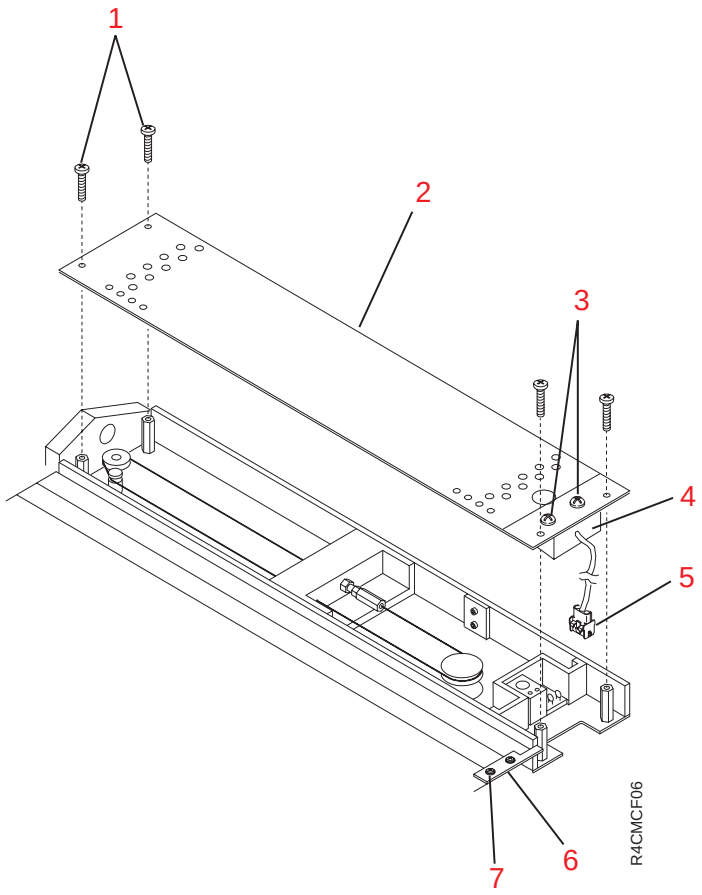
Reverse the removal procedure.

Check

1. Run Driver Routine 22 to ensure that the shutter motor works correctly.
2. Run Print Pack to verify print quality.

Skew Sensor (D603)

Table 689. Skew Sensor (D603)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Special Tools Required:

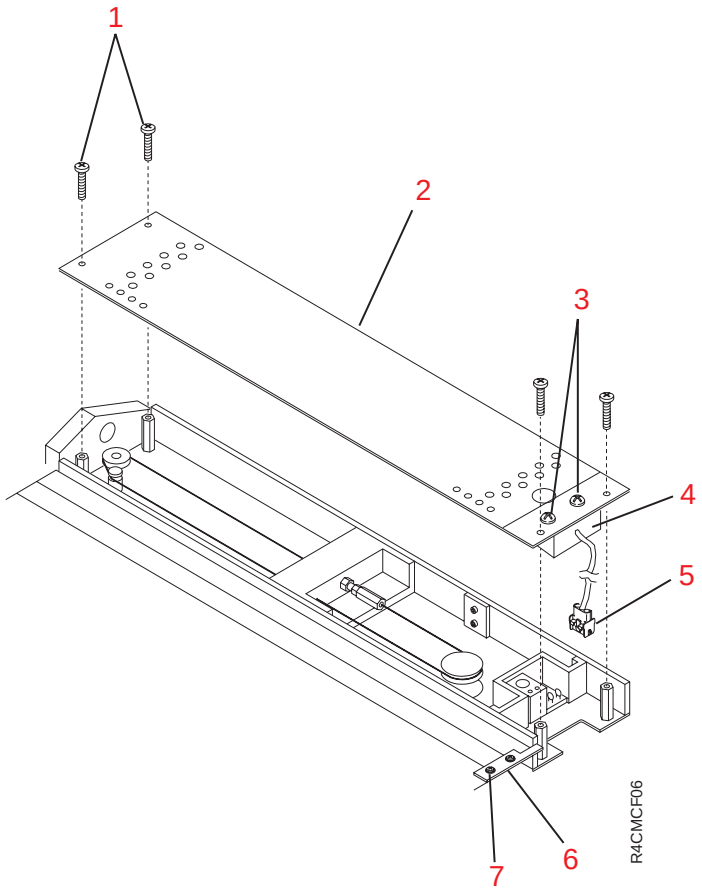
- Lint free cloth (PN 2108930)
- Isopropyl alcohol (PN 2200200)

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Open the printer left front cover and the printer center front cover.
3. Run Driver Routine 21 to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
4. Shutdown and power off the printer.
5. Remove the fuser right side cover.
6. Open the printer left top cover by removing the screw under the center front of the cover.
7. Remove any necessary cable clamps, disconnect connector PJ638 **(5)**.
8. Ensure that the stop **(6)** on the upper preheat platen is just touching the shutter vacuum plate **(2)**, if not, loosen the two screws **(7)** and position the stop so it touches the plate.

(continued on next page)

Table 689. Skew Sensor (D603) (continued)



9. Remove the four screws **(1)** from the shutter vacuum plate **(2)** and lift the vacuum plate from the printer while feeding connector PJ638 and its cable through the bottom of the shutter assembly.
10. Remove the two screws **(3)**, remove the skew sensor **(4)** from the vacuum plate.

Installation

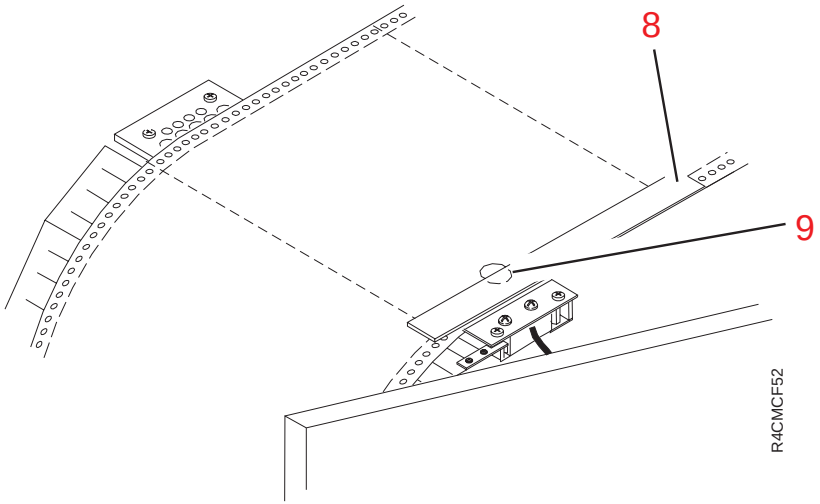
1. Reverse the removal procedure.
   a. Center the sensor in the round hole in the vacuum plate.
   b. Tighten the two sensor mounting screws.

Hint: The two sensor mounting screws are located in long slots in the vacuum plate. These long slots provide for centering of the sensor in the round hole in the vacuum plate, **not for skew sensor adjustment**.

2. Perform the Check procedure. If the stop **(6)** was not removed, **do not** make the adjustment.

(continued on next page)

Table 689. Skew Sensor (D603) (continued)



Check

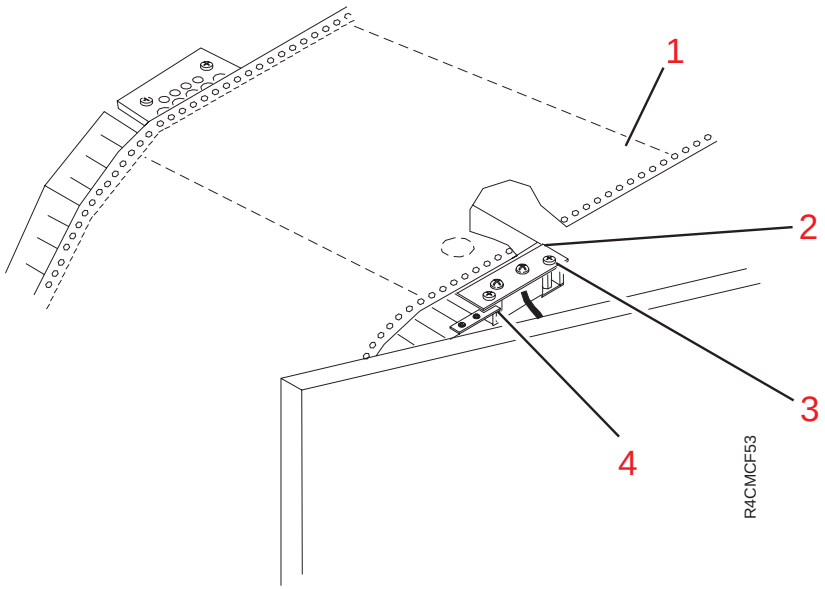
1. Clean the upper surface of the shutter vacuum plate and the skew sensor window of any forms residue with Isopropyl alcohol and a lint-free cloth.
2. Power on the printer.

Hint: Ambient light affects the skew sensor; the printer top cover may need to be closed in the next step.

3. Run Sensor Routine 6E. Use an approximately ½-inch wide strip of paper **(8)** to ensure that the skew sensor **(9)** works correctly.
4. Run Print Pack to verify that the forms are feeding correctly.

(continued on next page)

Table 689. Skew Sensor (D603) (continued)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Adjustment

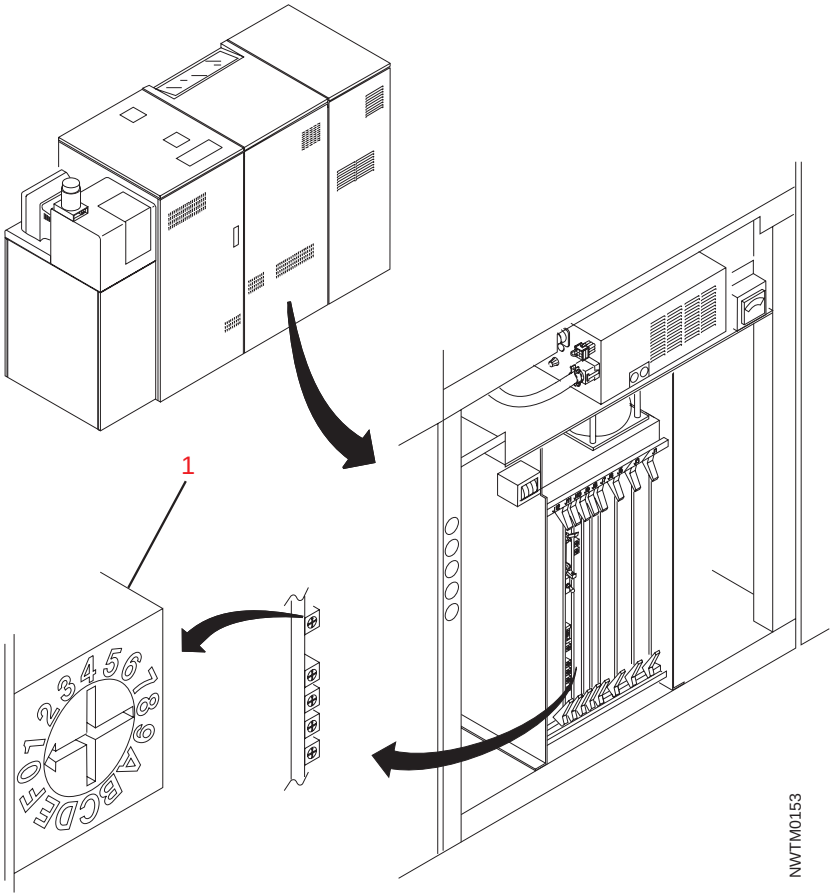
Attention: Perform this adjustment only when the printer is level and a new hot roll and backup roll are installed. Use MAP 0133: Skew Error if the machine has skew errors.

Note: The two sensor mounting screws are located in long slots in the vacuum plate. These **long slots** provide for centering of the sensor in the round hole in the vacuum plate, **not for skew sensor adjustment**.

1. Ensure that the printer is level.
2. Open the printer left front cover and the printer center front cover.
3. Open the printer left top cover.
4. Open the stacker end cover.
5. Carefully inspect the **hot roll, hot roll plastic collars, backup roller, scuff rollers, and the scuff pressure rollers** for binds, wear, or damage; these can cause either skew or steering problems.

(continued on next page)

Table 689. Skew Sensor (D603) (continued)



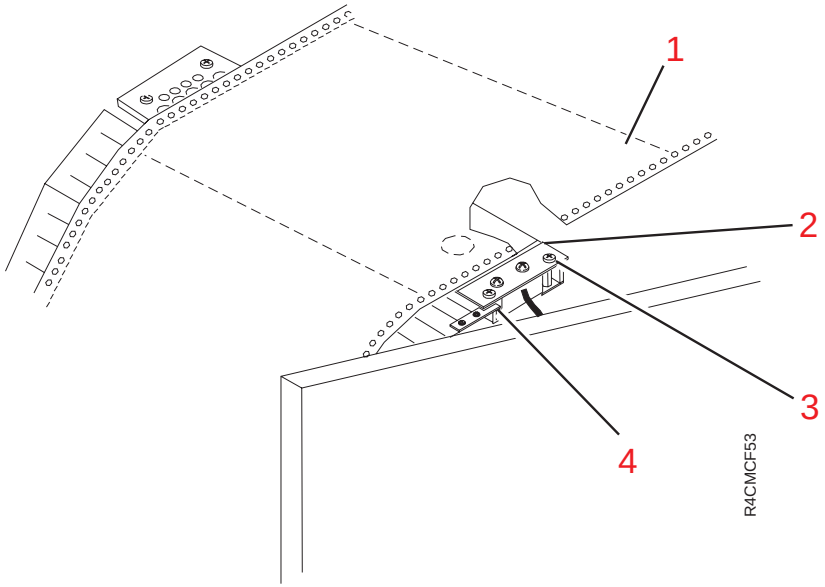
6. Clean the upper surface of the shutter vacuum plate and the skew sensor window of any forms residue with Isopropyl alcohol and a lint-free cloth.
7. Open the printer center rear cover.
8. Remove the CE access cover.
9. Set the Diagnostic Function Switch on the B1J11 card to position **2**.
10. Set the MASW switch **(1)** on the B1J11 card to position **5** to disable steering.

Note: The initial setting of this switch is **0**.

11. **Ensure that all host attachments are disabled.**
12. Power on the printer.

(continued on next page)

Table 689. Skew Sensor (D603) (continued)



13. Load the widest forms available and observe the maintenance panel while you run 50 test prints. The paper skew indication on the maintenance panel is usually greater at the beginning of the run; then it decreases toward the end of the run. Use the indication given near the end of the run.

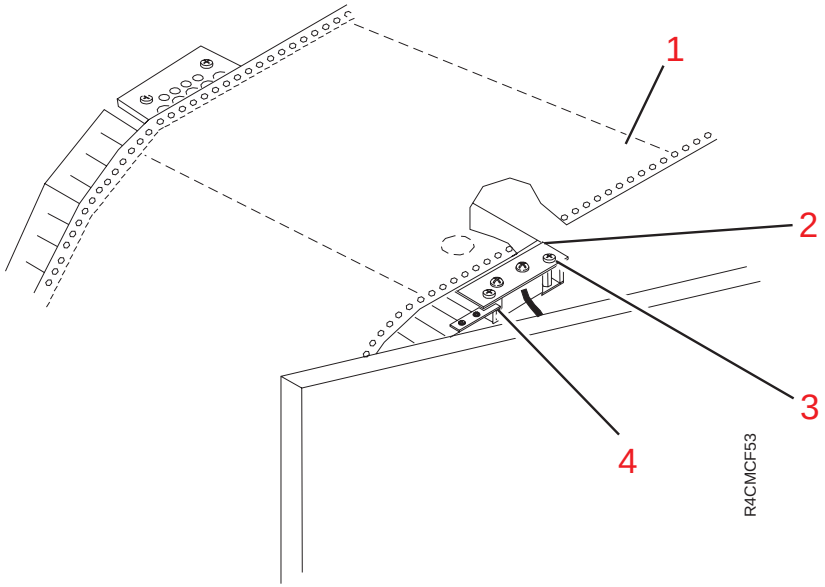
    If the paper skew is less than **l. 05** or **r. 05**, go to step 16. If it is not, perform the following steps.

14. Move the stop **(4)** on the preheat platen so that it does not interfere with the movement of the vacuum plate in the next step. Loosen the four screws **(3)** that hold the shutter vacuum plate and align the red line **(2)** with the front edge of the forms **(1)**. Tighten the four screws, and rerun 50 test prints while you observe the maintenance panel. Do this until the skew checks less than **05**. Ensure that all four shutter vacuum plate screws **(3)** are tight.

Note: If you cannot make this adjustment by repositioning the shutter vacuum plate, repeat step 1 and reinspect the parts noted in step 5.

(continued on next page)

Table 689. Skew Sensor (D603) (continued)



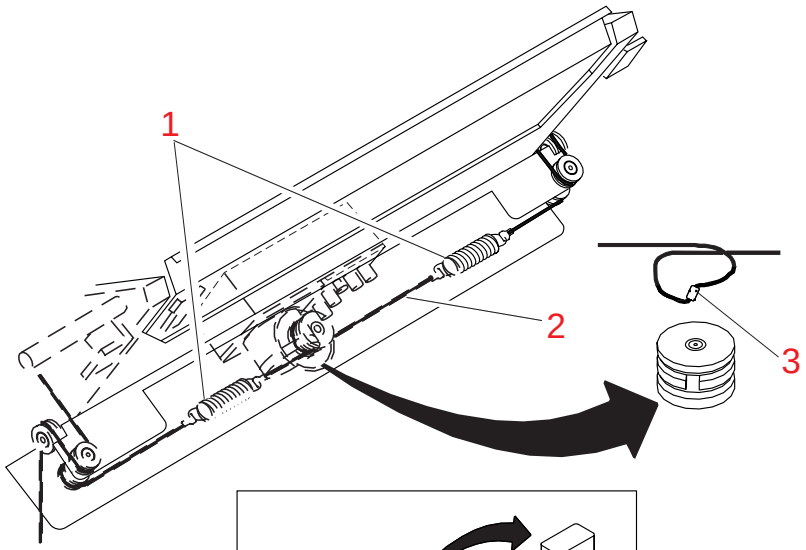
15. Adjust the stop **(4)** on the preheat platen to just touch the edge of the shutter vacuum plate.
16. Return the MASW switch on the B1J11 card to position **0**.
17. Return the diagnostic function switch to position **0**.

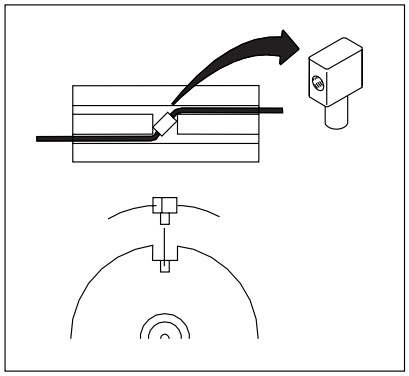
Check

Run Print Pack to verify that the forms are feeding correctly. Ensure that the front edge of forms is aligned on the red line.

Steering Motor (M601), Pulleys, and Cables

Table 690. Steering Motor (M601), Pulleys, and Cables





HC6MC227

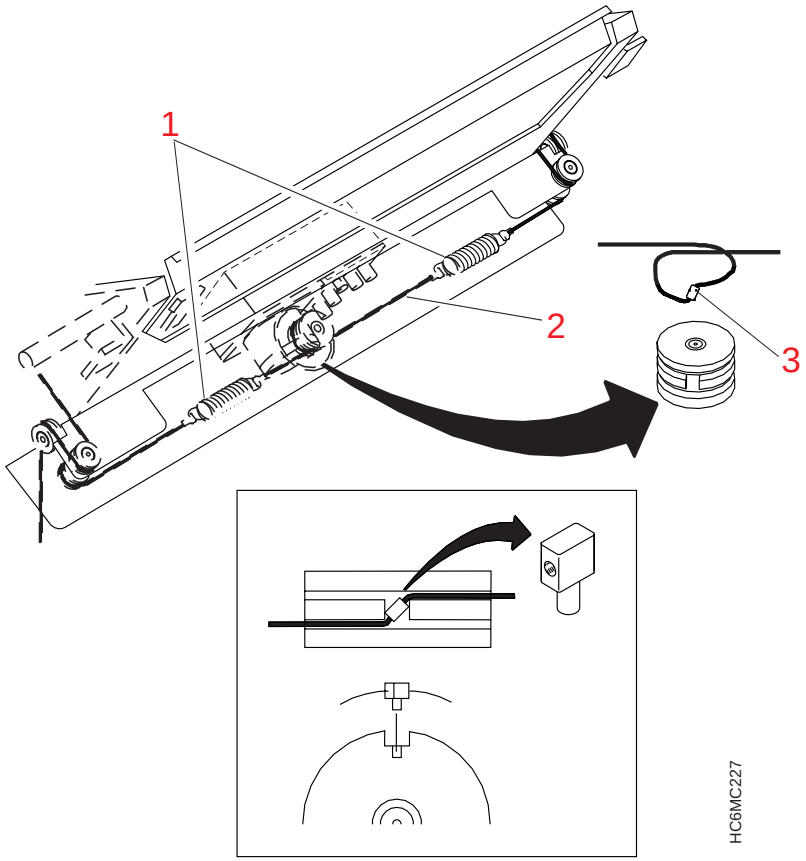
Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Run Driver Routine 21 to raise the auto load bridge. Press **Enter** to stop the bridge at its uppermost position.
3. Shutdown and power off the printer.
4. Open the printer left front cover, the printer center front cover, and the printer center top cover.
5. Remove the fuser right side cover and the auto load bridge front cover.
6. Remove the preheat platen front and rear end covers, the fuser front cover, the hot roll shield, and the fuser heat shield.
7. Release the springs **(1)**.
8. Disconnect the middle steering cable **(2)** from the springs **(1)** and remove the cable.
9. Remove the screw **(3)**, remove the steering cable holder, and remove the cable.

If you are removing only the cable, go to Installation. If you are removing the steering motor, continue with the next steps.

(continued on next page)

Table 690. Steering Motor (M601), Pulleys, and Cables (continued)



Steering Mechanism

10. Disconnect connector PJ615 **(2)** in the figure on page 2513.
11. Remove the Backup Roll Lift Motor (M610).
12. Loosen the screw (located in the center of the pulley's front face) and remove the steering motor pulley.
13. Hold the steering motor while you remove the two screws (removed from below) and remove the motor.

Installation

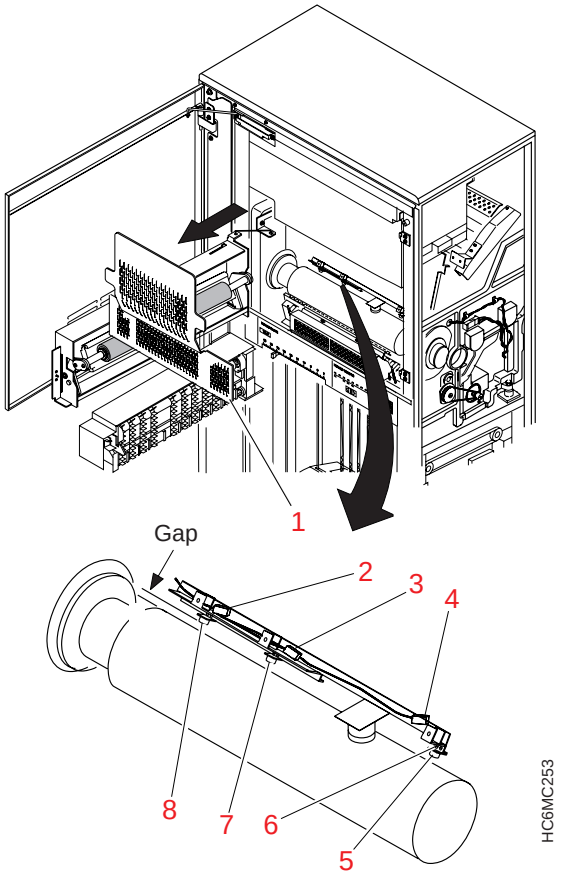
Reverse the removal procedure.

Check

1. Ensure that the steering pulley is flush with the end of the steering motor shaft.
2. Run Driver Routine 23 to ensure that the steering motor works correctly.
3. Run Print Pack to verify print quality.

Thermistors (S621, S622, S623)

Table 691. Thermistors (S621, S622, S623)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

See Before You Begin.

Removal

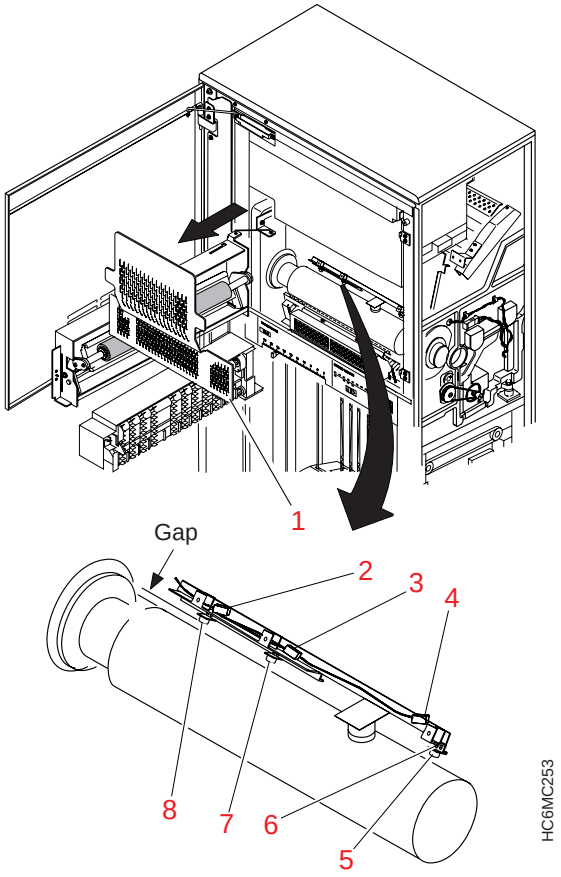
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker end cover.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While you work in this area, cover the oiler belt gate.

4. Open and lock the fuser oiler belt gate.
5. Remove the hot roll shield **(1)**.
6. Open the printer left front cover.
7. Disconnect the connector and all necessary cable clamps for the thermistor that you are removing.
   - S621 **(5)** - PJ6015 **(4)**
   - S622 **(7)** - PJ6016 **(3)**
   - S623 **(8)** - PJ6017 **(2)**
8. Remove the two screws **(6)** and remove the thermistor from the bracket.

(continued on next page)

Table 691. Thermistors (S621, S622, S623) (continued)



Installation

Reverse the removal procedure.

Adjustment

Adjust the thermistors so the gap between the thermistor and the hot roll is 0.9 ±0.2 mm (0.023 ±0.008 in.).

Check

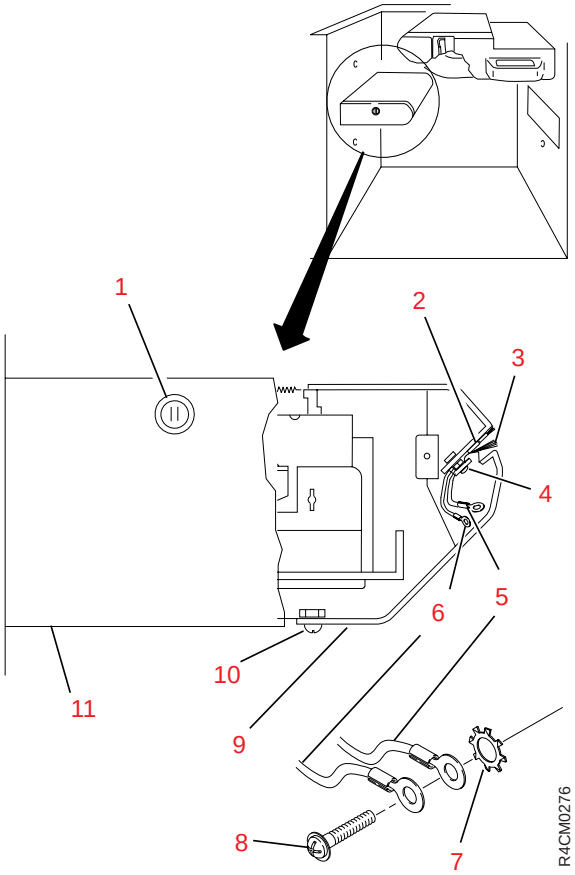
Run Print Pack to verify print quality.

Input Area

Chad Brushes 2616
End-of-Forms Sensor 2619
Printer Control Panel (SW721) 2622
Splice Lever Switch (S101) 2623
Urge Unit 2625
Buffer/Flipper Unit 2626
YS011 Card 2627

Chad Brushes

Table 692. Chad Brushes
Input Guide Chad Brush



Special Tools Required:

IBM vacuum cleaner (PN 9900735)

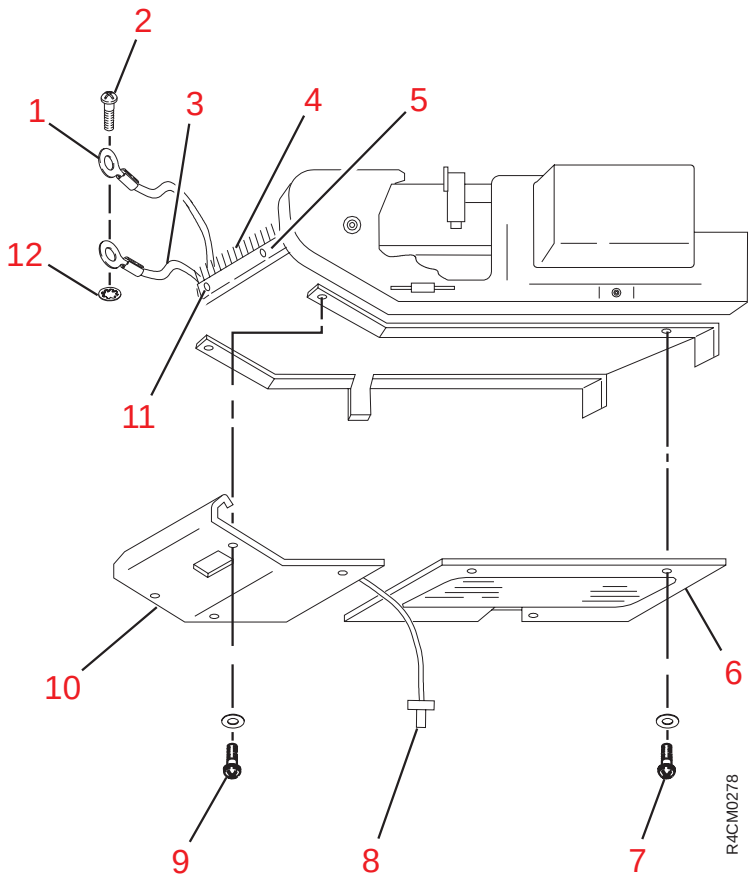
Input Guide Chad Brush and Discharge Strip Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the forms from the input area.
4. Turn the screw **(1)**. Remove the input guide cover **(11)**.
5. Vacuum the paper chad and paper dust from behind the input covers.
6. Remove the four large screws **(10)**. Remove the input guide side plate **(9)**.
7. Loosen the two screws **(4)** and release the brush holder **(2)**.
8. Remove the input guide chad brush **(3)**.
9. Remove the screw **(8)** and toothed washer **(7)**.
10. Remove the chad brush ground strap **(5)** and the discharge assembly ground strap **(6)**.

(continued on next page)

Table 692. Chad Brushes (continued)

Splicing Table Lower Chad Brush



Splicing Table Lower Chad Brush and Discharge Strip Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the forms from the input area.
4. Remove the two screws **(7)** and remove the splicing table bottom cover **(6)**.
5. Remove the four screws **(9)** and remove the splicing table side plate **(10)**. Loosen or remove the printer control panel screws if necessary.
6. Loosen the two screws **(11)** and release the brush holder **(5)**.
7. Remove the screw **(2)** and lock washer **(12)**.
8. Remove the splicing table upper chad brush ground strap **(3)** and the discharge assembly ground strap **(1)**.
9. Remove the splicing table lower chad brush **(4)**.

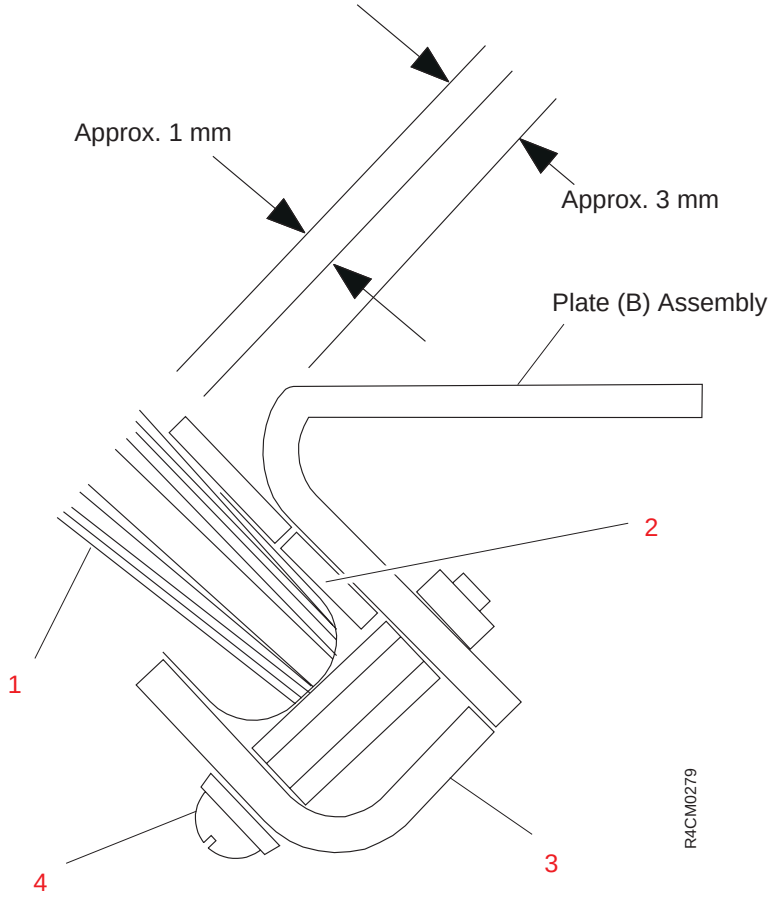
Installation

Reverse the removal procedure.

(continued on next page)

Table 692. Chad Brushes (continued)

Stationary Brush Adjustment



Splicing Table Upper Chad Brush Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the forms from the input area.
4. Loosen the two screws and nuts on the upper chad brush holder.
5. Remove the ground wires. Make note of the wire routing.
6. Slide the upper chad brush out of the chad brush holder.

Installation

Reverse the removal procedure.

Adjustment

The adjustment is usually correct if the brushes are resting on the brush holder screws.

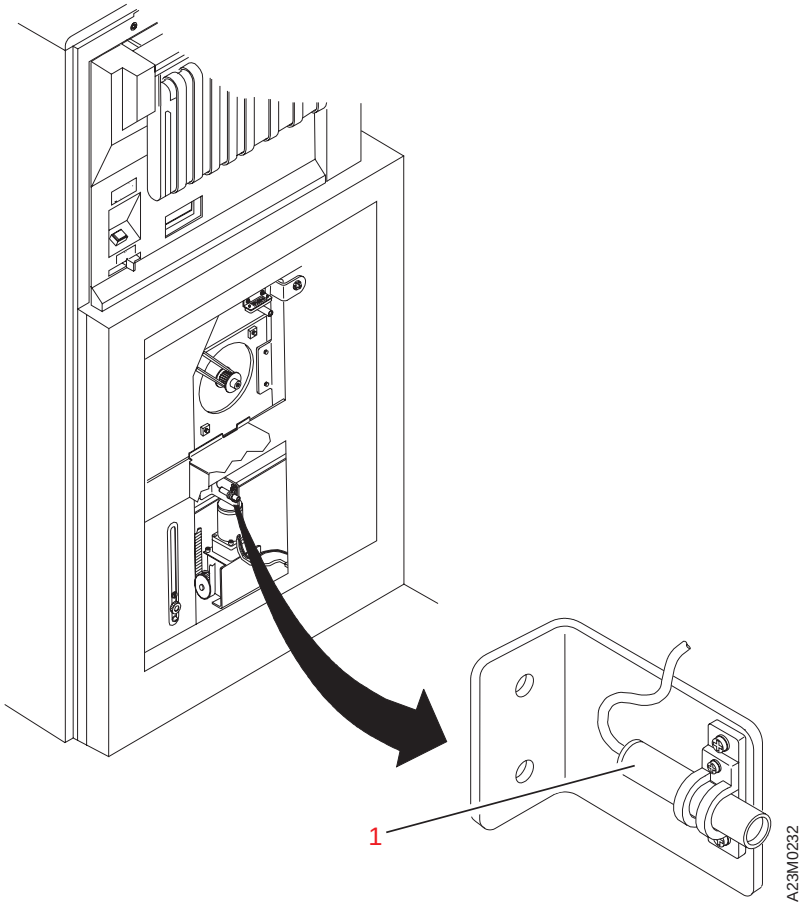
1. Adjust the discharge strip **(2)** to be approximately 1 mm (0.04 in.) below the lower chad brush.
2. Loosen the screws **(4)**.
3. Adjust the lower chad brush **(1)** so that it extends approximately 3 mm (0.12 in.) above the plate B assembly. Tighten the screws **(4)**.
4. Loosen the two screws at the rear of the upper chad brush holder hinged mounting bracket and adjust the bracket so that the upper chad brush is seated parallel to the lower chad brush.
5. Tighten the two screws at the rear of the upper chad brush holder hinged mounting bracket.

Check

Run Print Pack to check that the erase lamp is working correctly.

End-of-Forms Sensor

Table 693. EOF LED (PL103)



Removal

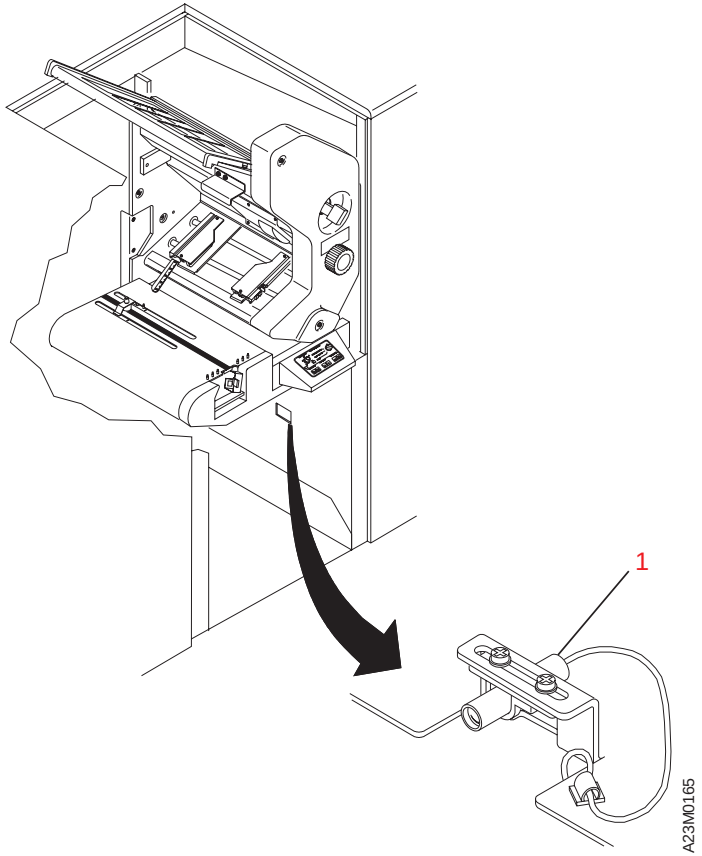
1. Remove the forms from the input area.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Shutdown and power off the printer.

EOF LED (PL103)

4. Remove the input bin left side cover.
5. Disconnect connector PJ170 (not shown).
6. Loosen or remove the clamping screw and slide the LED **(1)** out of the LED assembly.

(continued on next page)

Table 693. EOF LED (PL103) (continued)



EOF Sensor (Q103)

1. Remove the input bin right side cover.
2. Disconnect connector PJ119 (not shown).
3. Loosen the sensor wire from the cable clamp.
4. Loosen the clamping screw on the sensor bracket assembly and slide the sensor **(1)** out of the clamp.

Installation

Hint: Leave the input bin covers off until the adjustment is complete.

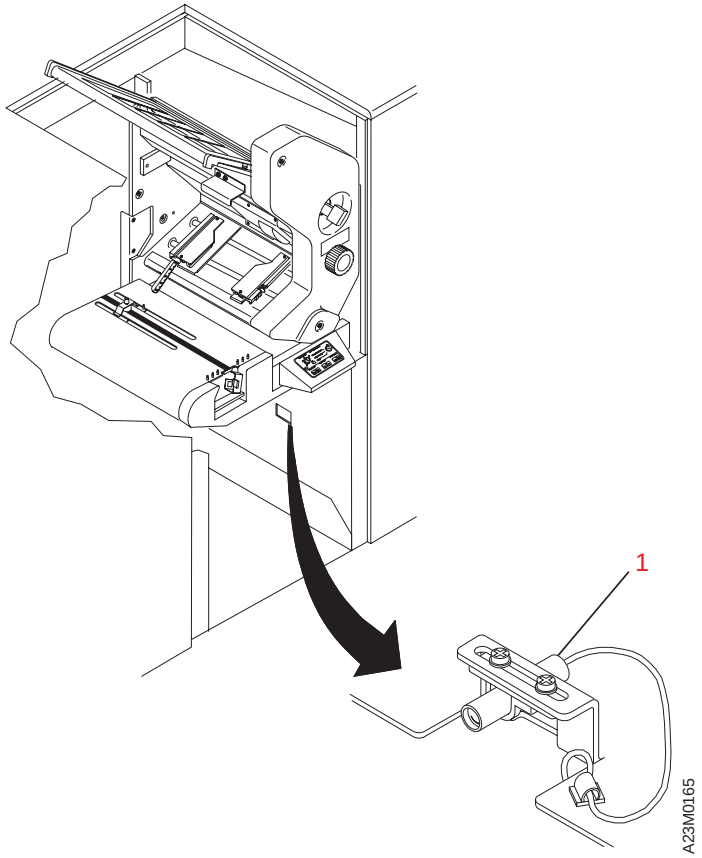
Reverse the removal procedure to install the sensor receiver or transmitter.

Check

1. Run Sensor Routine 5D to test the sensor.

(continued on next page)

Table 693. EOF LED (PL103) (continued)



Adjustment

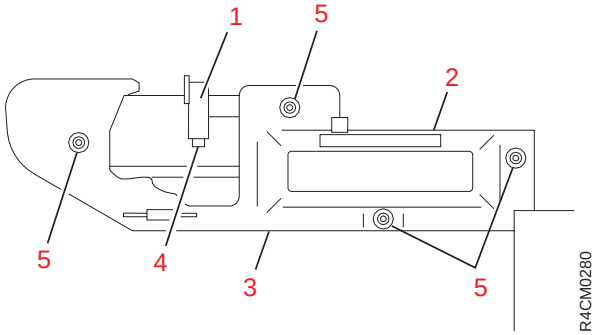
Hint: The beam will look like a red square with a dark circle in the center. Aim the beam so that a corner of the square beam (or “brightest part”) shines on the receiver.

1. Loosen the clamping screw to rotate the EOF LED if necessary.
2. Loosen the two bracket screws to adjust the EOF LED so that the brightest part of the beam fully hits the EOF sensor.

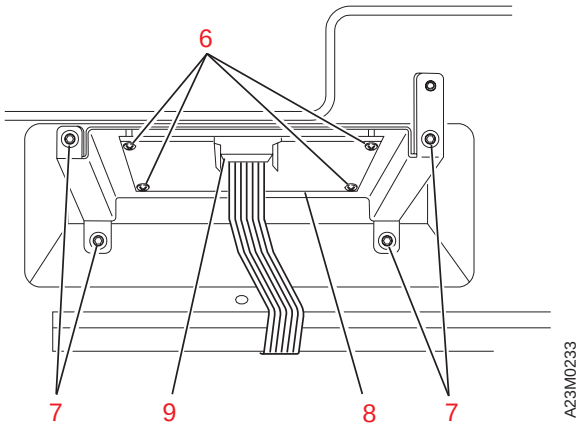
Note: Use a piece of white paper with a hole torn in the center and slip it over the sensor to see how the light pattern shines on it.

Printer Control Panel (SW721)

Table 694. Printer Control Panel (SW721)



Printer Control Panel (SW721) (Bottom View)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the screw **(4)**. Remove the splice handle **(1)**.
4. Remove the four screws **(5)**. Remove the printer control panel cover **(3)**. If necessary, remove the two screws from the top of the splicing table upper right cover **(2)**.
5. Remove the four screws **(6)**. Remove the printer control panel **(8)**.

Installation

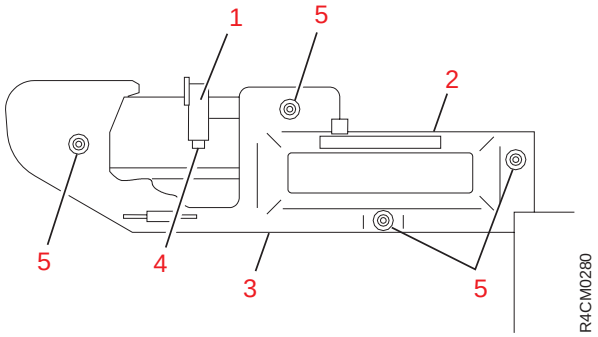
Reverse the removal procedure.

Check

1. Ensure that the AUTOLOAD, FORMS SET, and FORMS FEED functions on the printer control panel work correctly.
2. Run Print Pack to check print quality.

Splice Lever Switch (S101)

Table 695. Splice Lever Switch (S101)
Printer Control Panel (SW721)



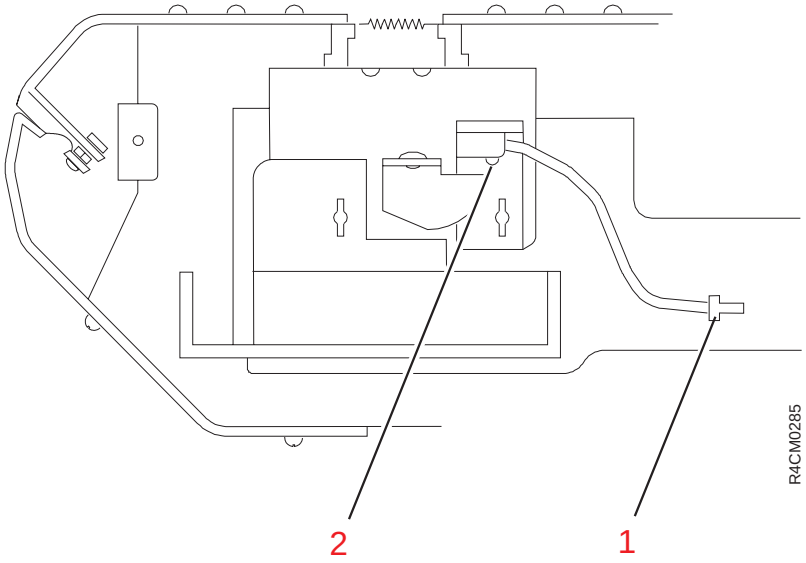
Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the screw **(4)**. Remove the splice handle **(1)**.
4. Remove the four screws **(5)** on the printer control panel cover.

(continued on next page)

Table 695. Splice Lever Switch (S101) (continued)

Splice Lever Switch (S101)



5. Disconnect connector PJ125 **(1)**.
6. Remove the screw **(2)**. Remove the switch.

Installation

Reverse the removal procedure.

Check

1. Run Driver Routine 68.
2. Run Print Pack to check that the erase lamp is working correctly.

Urge Unit

Table 696. Urge Unit

For removal or replacement, see either

- Install the Urge Unit (Hinged-Top, Pearl White Unit Only)
- Install the Urge Unit (Fixed-Top Black Unit Only)

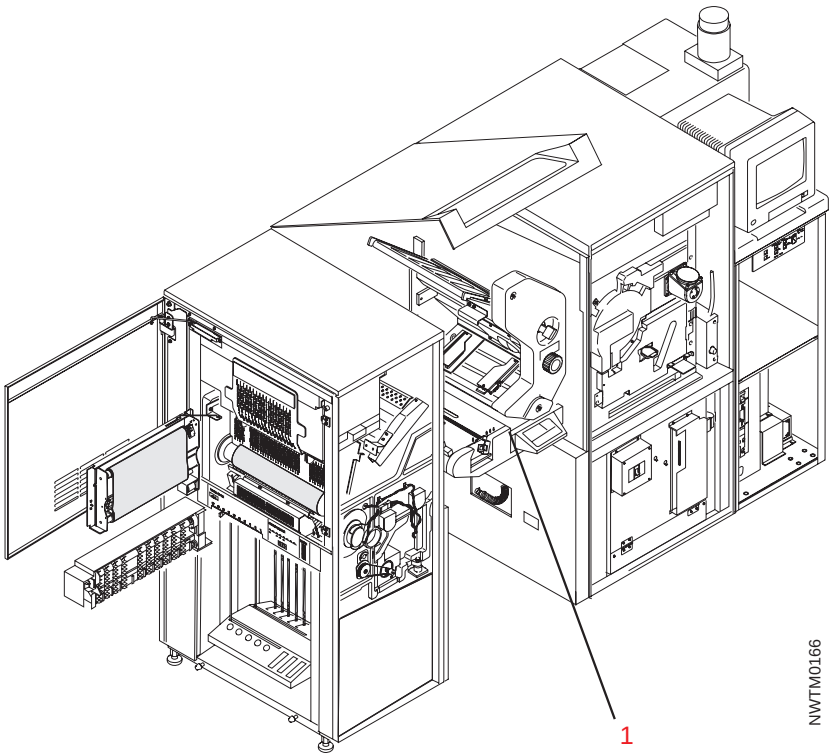
Buffer/Flipper Unit

Table 697. Buffer/Flipper Unit

For removal or replacement, see Install the Buffer/Flipper Unit.

YS011 Card

Table 698. YS011 Card



Attention:

- Use ESD procedures when working with this card.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Removing the necessary covers and locate the YS011 card (inside splicing table).
3. Disconnect all connectors attached to the card.
4. Release the plastic clips that hold the card in place.

Installation

Reverse the removal procedure.

Check

Run Print Pack to check print quality.

Lubrication Chart

Apply lubricant to these parts at the time of replacement, or when abnormal sounds or rough operation occurs.

Remove any old lubricant from the mating parts before you apply new lubricant.

Table 699. Lubrication Chart

Part Description	Lubricant	Lubricant Part #
AC motor gear assemblies	IBM No. 23	9900692
Backup roll open/close mechanism	IBM No. 23	9900692
Backup idler roll open/close mechanism	IBM No. 23	9900692
Bridge-raising link	Molycoat G	357830
Cleaner housing cam assembly	IBM No. 23	9900692
Drum drive gear	IBM No. 23	9900692
Hot roll bearing assembly	High temperature grease (Krytox)	65F6223
Hot roll drive gears	IBM SBB Grease No. 3	1665927
Hot roll NB collar (K) assembly	High temperature grease (Krytox)	65F6223
PC drum shaft extension threads	Molycoat G	357830
Pendulum-driving link	Molycoat G	357830
Stacker belt guide shaft	Fuser oil (silicon oil)	6190656
Stacker table guide and screw shaft	Molycoat G	357830
Stacker table helical wheel mechanism	IBM No. 23	9900692
Vacuum shutter drive gear assembly	IBM SBB Grease No. 3	1665927
Preheat platen lift plate assembly	IBM SBB Grease No. 3	1665927

Printer Power Supplies

Power-On and Power-Off Procedures 2630
Power-On Procedures 2630
Power-Off Procedures 2631
Power Supply Access 2633
AC Power Supply 2635
DC 1 Power Supply 2637
Mirror Motor Driver Board Voltage Adjustment 2638
DC 2 Power Supply 2641
SQ081/SQ082 Card 2642
SR081 Card 2643
Printer DC Voltage Measurements and Adjustments 2644

Power-On and Power-Off Procedures

Power-On Procedures

Attention: There are two power-on procedures: one for both the printer and the control unit, and one for only the printer.

Power On the Printing System

Both the control unit and printer are off.

1. See Table 700 for the correct **Remote**/**Local** switch settings to power on a duplex printing system.
2. Ensure that you have the correct **Remote**/**Local** settings.
3. Press the indicated **Power On** button.
4. When the microcode has loaded, enable the appropriate host attachments and pre/postprocessors.

Power On the Printer Only

The control unit is on and the printer is off.

1. See Table 700 for the correct **Remote**/**Local** switch settings to power on a duplex printing system.
2. Ensure that you have the correct **Remote**/**Local** settings.
3. Press the indicated **Power On** button.
4. Go to the Display/Touch Screen and select **Operate** on the menu bar.
5. On the menu that appears, select **Shutdown/Restart**.
6. On the next window that appears, select **Restart**. This ensures proper initialization of the printing system.
7. When the microcode has loaded, enable the appropriate host attachments and pre/postprocessors.
8. Place the printer **Remote**/**Local** switch in the **Remote** position.

Power-Off Procedures

Attention: There are two procedures to shut down printer that perform all necessary cleanup operations before powering off. **Do not** press the printer **Power Off** button or the control unit **Power Off** button without first performing one of the following procedures.

Power Off the Printing System

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. On the Display/Touch Screen, press **Stop** to make the printer **Not ready**.
3. On the menu bar of the Display/Touch Screen main window, select **Operate**.
4. On the menu that appears, select **Shutdown/Restart**. (In dual simplex mode, select **Shutdown** on the **Shutdown/Restart** window for the other printer if desired.)
5. On the next window that appears, select **Shutdown**. When **Shutdown is complete** appears on the Display/Touch Screen, continue with the next step. (In dual simplex mode, this message appears only if both printers are shutdown.)
6. See Table 700 for correct **Remote**/**Local** switch settings to power off a duplex printing system.
7. Ensure that you have the correct **Remote**/**Local** settings.
8. Press the indicated **Power Off If In Local** button.

Power Off the Printer Only

1. Request the system operator to stop activity on the printer. Disable all host attachments.

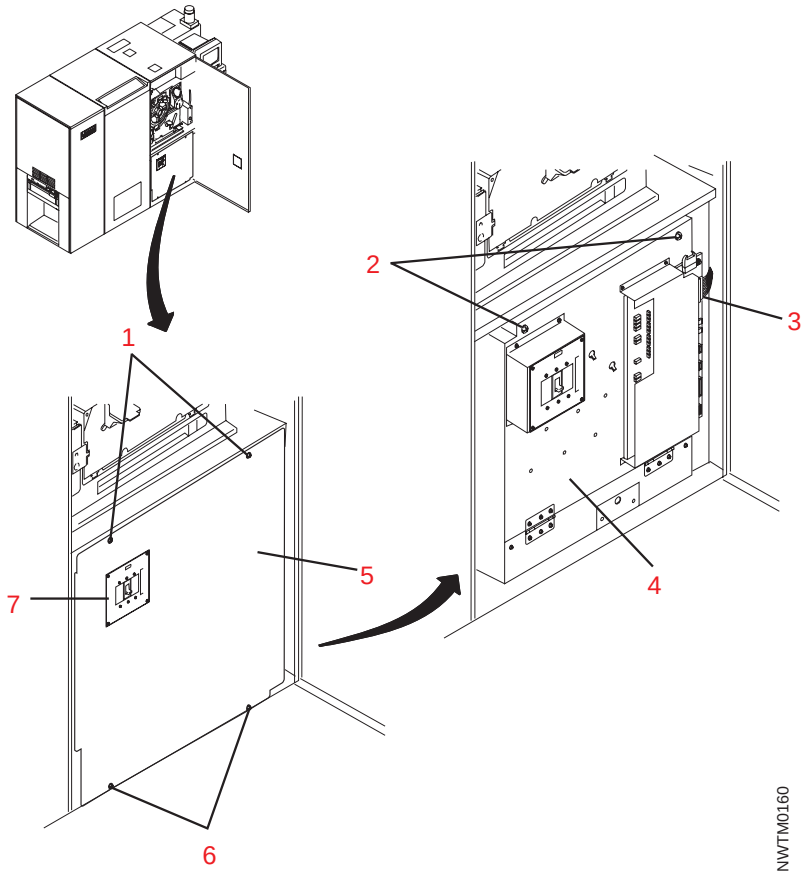
   On the printer to be serviced, select **Stop** on the Display/Touch Screen to make the printer **Not ready**.
2. See Table 700 for the correct **Remote**/**Local** switch settings to power off a duplex printing system.
3. Ensure that you have the correct **Remote**/**Local** settings.
4. Press the indicated **Power Off If In Local** button button.

Table 700. Power Control Panel Switch Settings for Duplex Systems

Condition	CU 2	Prt 2	CU 1	Prt 1	Action
Both control units and both printers	Local	Remote	Remote	Remote	Press the CU2 **Power On** button or **Power Off** button
Control unit 2 and Printer 2 only	Local	Remote	Local	Remote	Press CU2 **Power On** button or **Power Off** button
Control unit 1 and Printer 1 only	Local	Remote	Local	Remote	Press CU1 **Power On** button or **Power Off** button
Printer 2 only	Local	Local	Local	Remote	Press Printer 2 **Power On** button or **Power Off** button
Printer 1 only	Local	Remote	Local	Local	Press Printer 1 **Power On** button or **Power Off** button

Power Supply Access

Table 701. AC Power Supply Access



DANGER

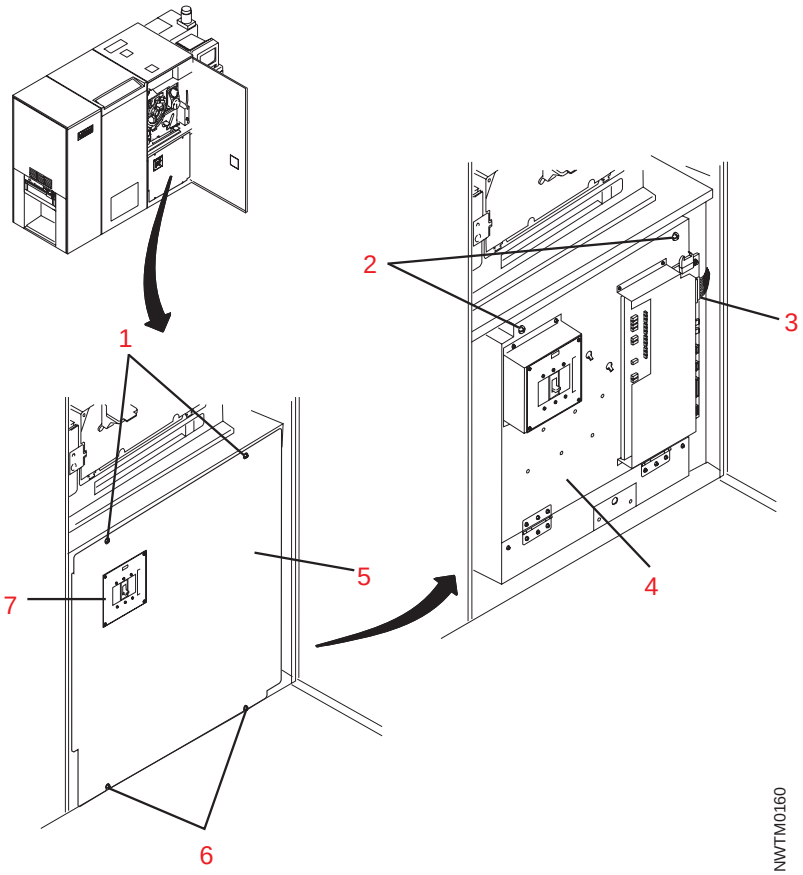
<7> Line voltage is present when the printer is powered-off. Disconnect the power cord before working in this area.

Access

1. Request the system operator to stop activity on the printer. Disable all host attachments.Shutdown and power off the printer.
2. Open the printer right front cover.
3. Turn off circuit breaker CB501 **(7)**.
4. Turn off the circuit breaker that provides power to the customer's outlet.
5. Unplug the power cord from the outlet.
6. Remove the two screws **(1)**.
7. Loosen the two screws **(6)**.
8. Remove ac power supply cover **(5)**.
9. Disconnect PJ510, PJ515, PJ516, PJ517 **(3)**.
10. Remove the two screws **(2)** and lower the ac power supply door **(4)**.

(continued on next page)

Table 701. AC Power Supply Access (continued)



Closing

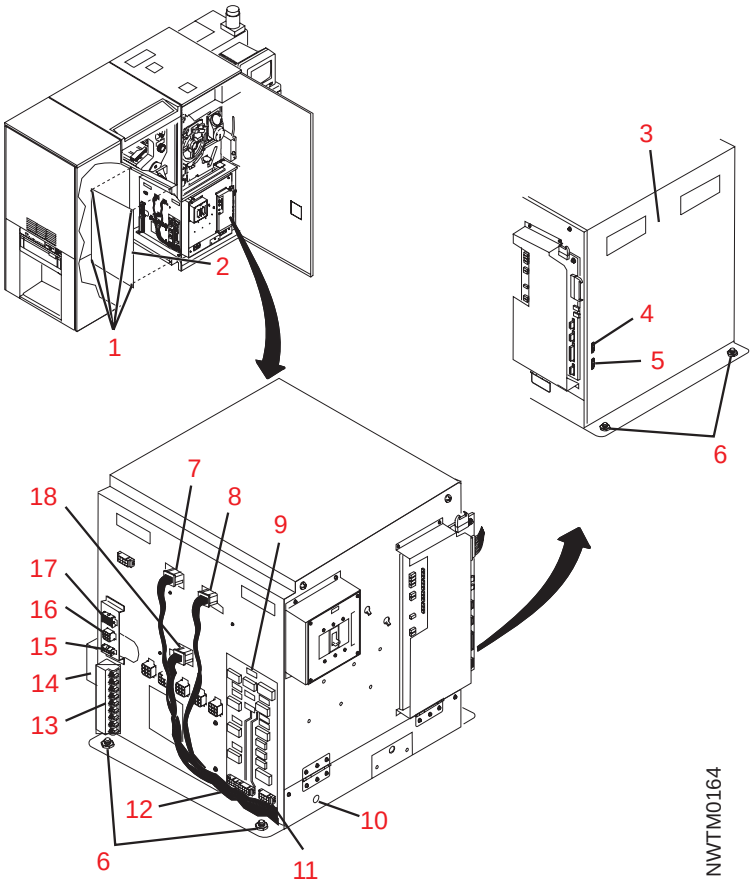
Reverse the access procedure.

Check

Run Print Pack to check print quality.

AC Power Supply

Table 702. AC Power Supply



CAUTION:
<56> The power supply weighs 58 kg (130 lb). Do not attempt to remove the power supply from the printer without first partially disassembling. If the power supply must be lifted, use three or more persons.

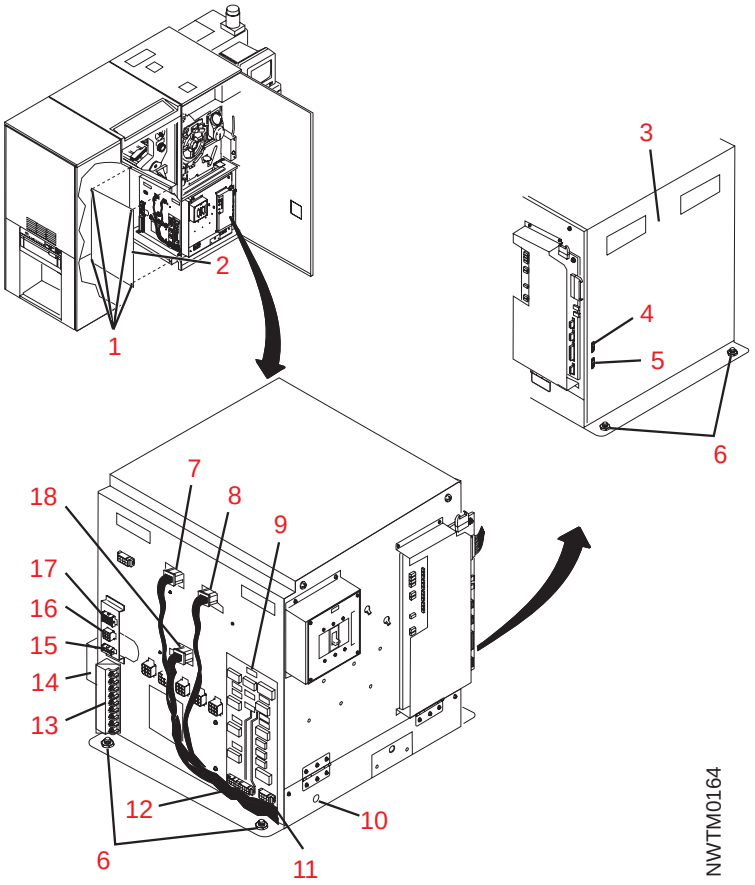
To reduce the weight of the ac power supply, first remove the DC 1 Power Supply and the DC 2 Power Supply.

Removal

1. Perform steps 1 through 9 under Power Supply Access.
2. Locate the input bin right side cover **(2)**, and remove the four screws **(1)**.
3. Disconnect PJ507 **(7)**, PJ505 **(8)** PJ501 **(9)**, ground **(10)**, PJ502 **(11)**, PJ503 **(12)**, PJ534 **(15)**, PJ533 **(16)**, PJ532 **(17)**, and PJ508 **(18)** from the left side of the power supply.
4. Disconnect the wiring from the rear side of TB502 **(13)**.
5. Disconnect PJ504 **(4)**, and PJ531 **(5)** from the right side of the power supply **(3)**.
6. Open the printer left rear and right rear covers.
7. Remove blower cover **(7)**.
8. Locate the power cord terminal block TB101 behind the blower cover. Remove the wires from the top of TB101.
9. Remove the four screws **(6)**.

(continued on next page)

Table 702. AC Power Supply (continued)



10. Remove the ac power supply.
11. Remove the wiring harness from TB501 **(14)** that was disconnected from TB101.

Installation

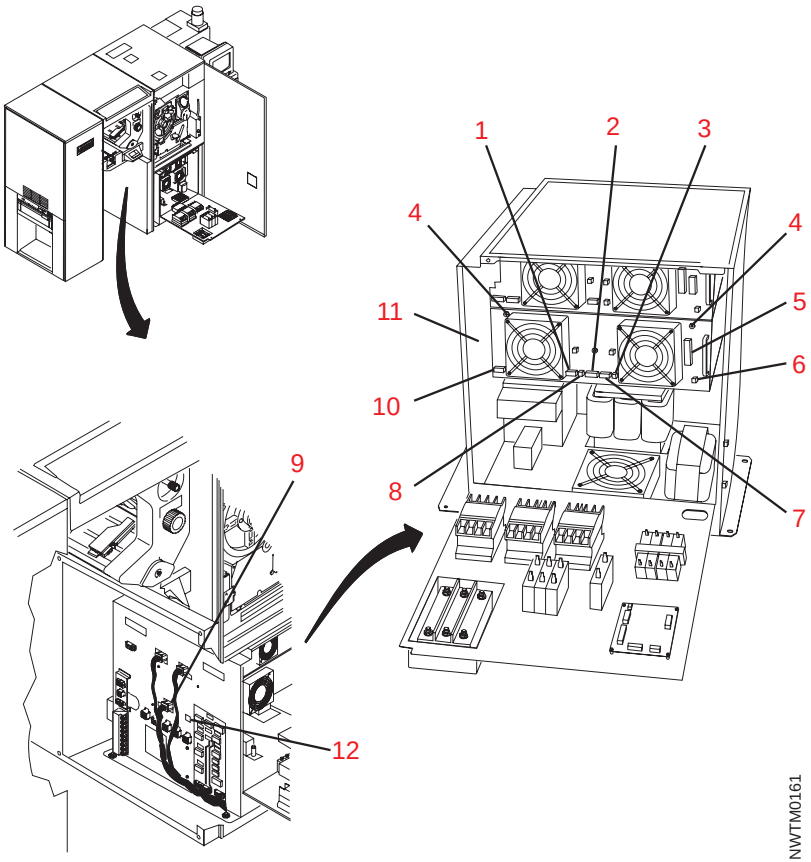
1. Install the wiring harness that you removed from the old power supply onto the new power supply.
2. Reverse the removal procedure.
3. Perform the procedure Mirror Motor Driver Board Voltage Adjustment.

Check

Run Print Pack to check print quality.

DC 1 Power Supply

Table 703. DC 1 Power Supply



Removal

1. Follow the Power Supply Access procedures to gain access to the dc 1 power supply.
2. Disconnect PJ591 **(10)**, PJ584 **(1)**, PJ571 **(8)**, PJ562 **(2)**, PJ585 **(7)**, PJ564 **(3)**, PJ553, **(5)**, and PJ555 **(6)**
3. Disconnect PJ508 **(9)**.
4. Remove the two screws **(4)**.
5. Remove the dc 1 power supply **(11)**.

Installation

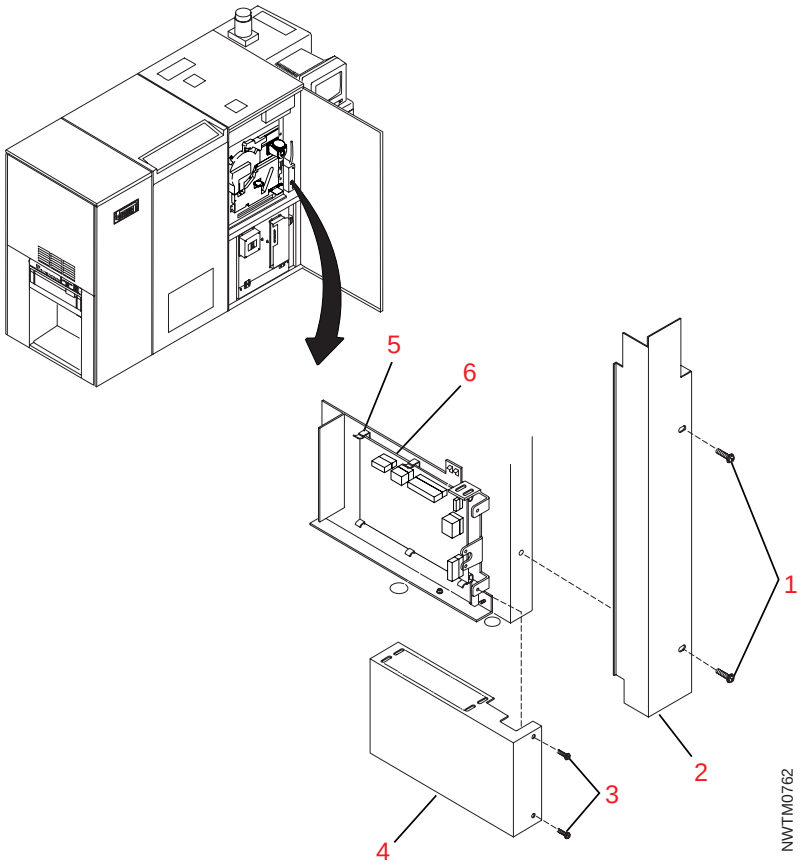
1. Reverse the removal procedure.
2. Perform the procedure Mirror Motor Driver Board Voltage Adjustment.

Check

Run Print Pack to check print quality.

Mirror Motor Driver Board Voltage Adjustment

Table 704. Mirror Motor Driver Adjustment



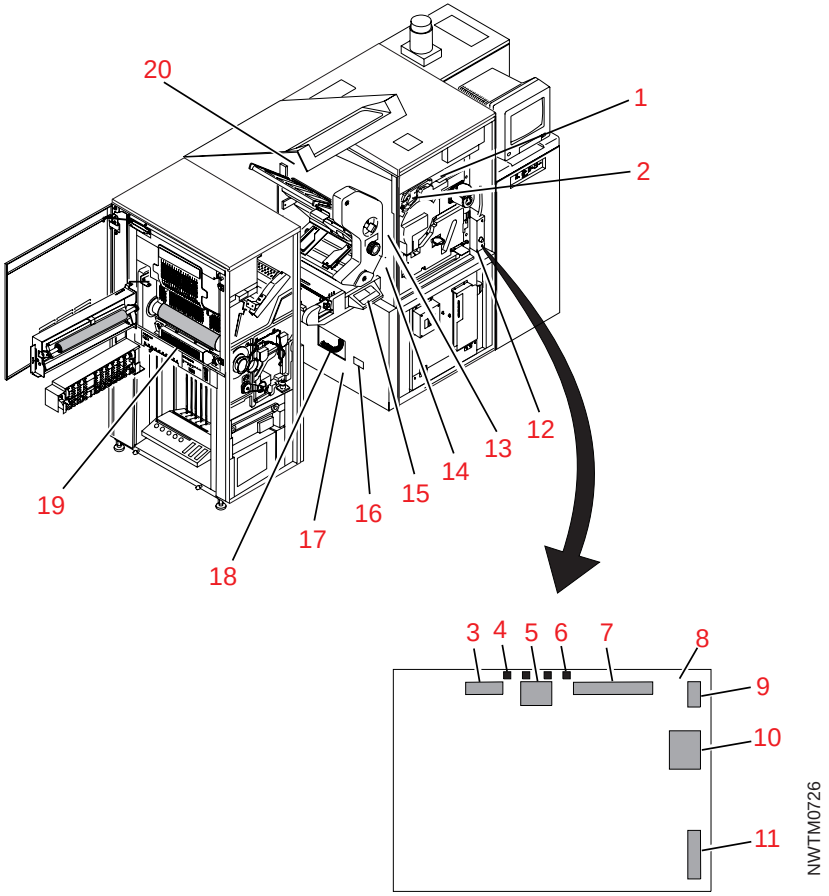
Mirror Motor Drive Voltage Adjustment

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Open the printer right front cover.
3. Remove the two screws **(1)** to remove the cover **(2)**.
4. Remove the two screws **(3)** to remove the inner mirror motor driver board cover **(4)**.

(continued on next page)

Table 704. Mirror Motor Driver Adjustment (continued)

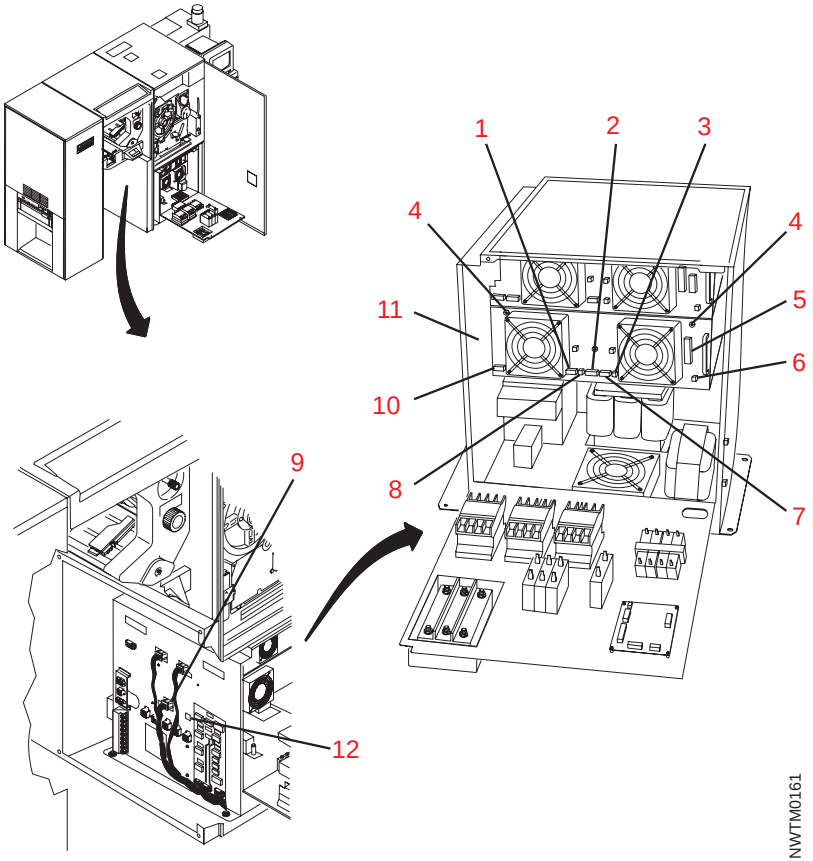
MD192 Test Points



5. Power on the printer.
6. Measure the voltage between test points 140VM **(4)** and AG **(6)** on the MD192 card **(8)**.

(continued on next page)

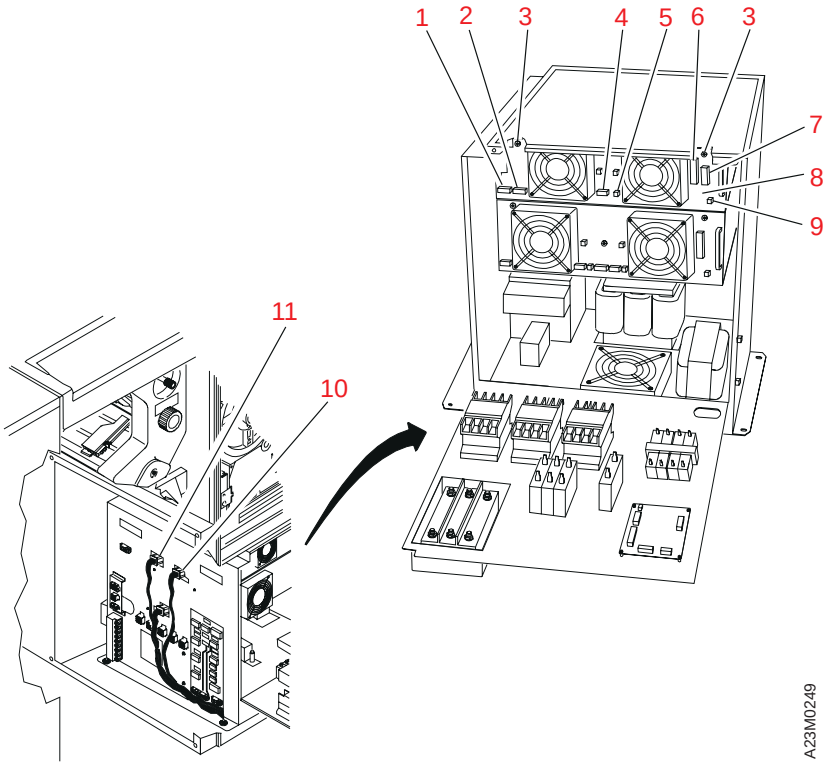
Table 704. Mirror Motor Driver Adjustment (continued)



7. Adjust the +260 V dc/+140 V dc potentiometer **(12)** on the power supply to obtain +140 ±2.0 V dc between TP 140VM and TP AG (step 6).

DC 2 Power Supply

Table 705. DC 2 Power Supply



Removal

1. Perform the Power Supply Access procedure to gain access to the dc 2 power supply.
2. Disconnect connectors PJ593 **(1)**, PJ594 **(2)**, PJ561 **(4)**, PJ563 **(5)**, PJ552 **(6)**, PJ551 **(7)**, and PJ554 **(9)**.
3. Disconnect connectors PJ507 **(11)** and PJ505 **(10)**.
4. Loosen the two screws **(3)** until they stop turning (captive).
5. Remove the dc 2 power supply **(8)**.

Installation

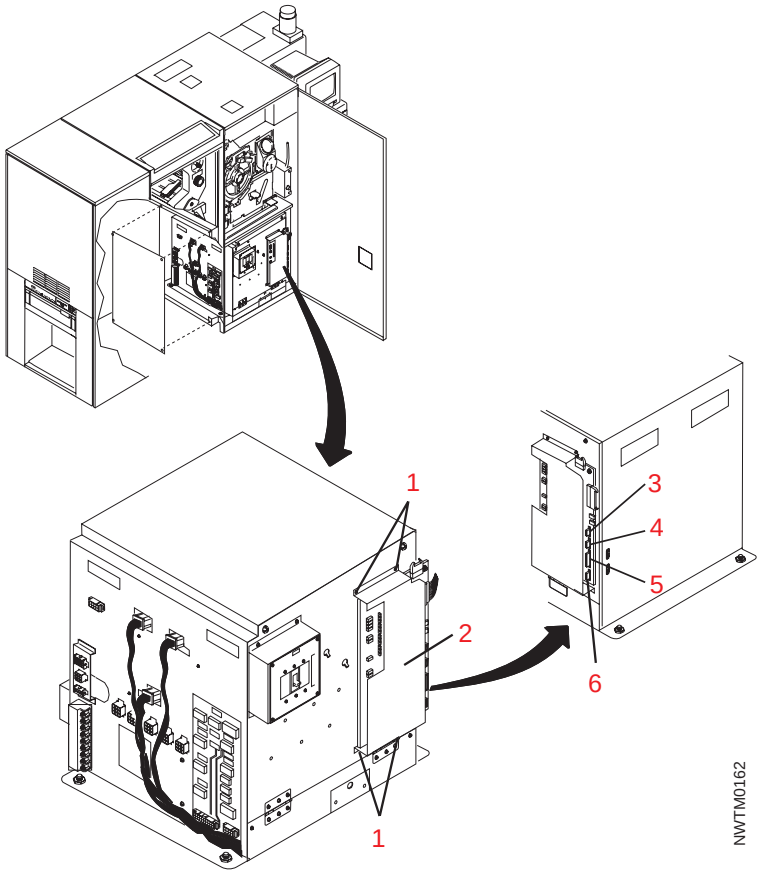
Reverse the removal procedure.

Check

Run Print Pack to check print quality.

SQ081/SQ082 Card

Table 706. SQ081/SQ082 Card



Attention: Use ESD procedures when working with either the SQ081 or the SQ082 card.

Removal

1. Perform steps 1 through 9 under Power Supply Access.
2. Remove the four screws **(1)**.
3. Remove the card cover **(2)**.
4. Disconnect PJ511 **(3)**, PJ512 **(4)**, PJ513 **(5)**, and PJ514 **(6)**.
5. Remove the four screws (not shown) from the card.

Installation

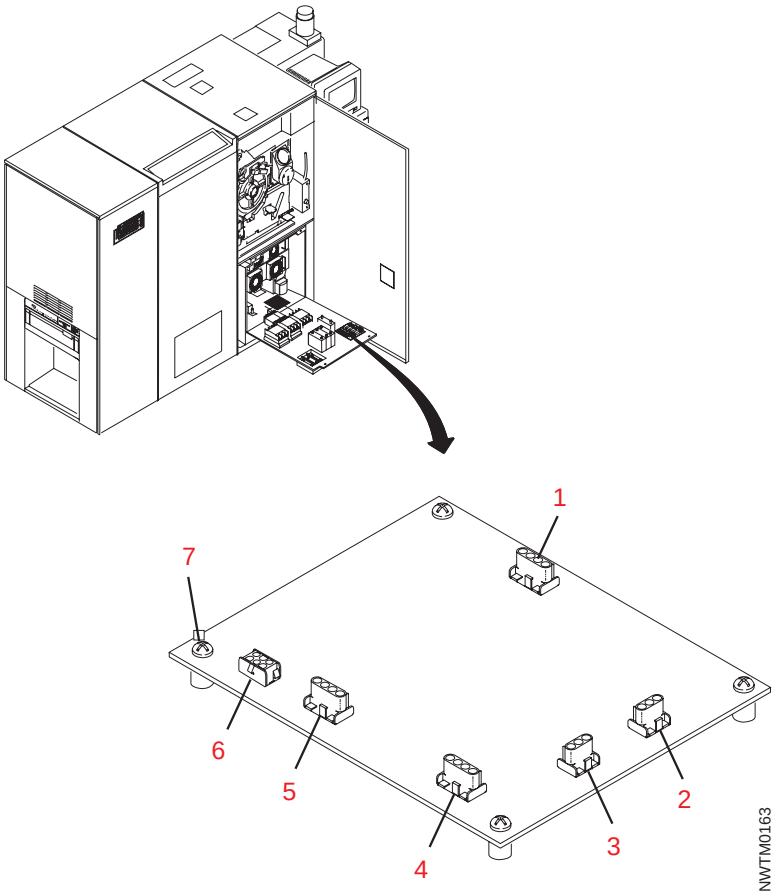
Reverse the removal procedure.

Check

Run Print Pack to check print quality.

SR081 Card

Table 707. SR081 Card



Attention: Use ESD procedures when working with the SR081card.

Removal

1. Perfrom the Power Supply Access procedure to gain access to the ac power supply.
2. Disconnect cables PJ525 **(6)**, PJ526 **(1)**, PJ527 **(3)**, PJ528 **(2)**, PJ529 **(5)**, and PJ530 **(4)**.
3. Remove the four screws **(7)**.
4. Remove the card.

Installation

Reverse the removal procedure.

Check

Run Print Pack to check print quality.

Printer DC Voltage Measurements and Adjustments

Note: The dc voltages are factory adjusted and should not require any further adjustment. If any voltage measurement at the test points shown above is outside the specified range shown in the table, the following supplies may be adjusted in emergency conditions to keep the printer running: DC 1: +42 V dc and +260 V dc, DC 2: +5V V dc, +24 V dc, and +24 V dc H. The adjusting potentiometers are located on the left side of the power supplies.

Table 708. Voltage Test Points on SQxxx Card

Voltage	Voltage Range	Test Point
+12 VS	+12 ±1.0 V	TP9 (+12 V) and TP10 (ground)
+5 V	+5.1 ±0.1 V	TP1 (+5 V) and TP10 (ground)
+12 V	+12 ±1.0 V	TP2 (+12 V) and TP10 (ground)
-12 V	-12 ±1.0 V	TP3 (-12 V) and TP10 (ground)
+24 V	+24 ±1.0 V	TP4 (+24 V) and TP10 (ground)
+24vVH	+24 ±0.7 V	TP7 (+24 VH) and TP11 (ground)
+42 V	+41.5 ± 1.0 V	TP8 (+42 V) and TP10 (ground)

Table 709. Voltage Test Points on Mirror Motor Driver (MDxxx)

Voltage	Voltage Range	Test Point / Connector
+5 VM	+5 ± 0.23 V	P224-3(+5 VM) and P224-6 (+5 VM RTN)
+12 VM	+12 ±1.0 V	P224-2 (+12VM) and P224-5 (+12VM RTN)
+140 V	+140 ±2.0 V	TP 140VM and TP AG (ground)
+260 V	+260 ±5.0 V	P224-1 (+260 V) and P224-4 (+260V RTN)

Single Beam Printhead

Laser Safety 2647
Laser Interlock 2648
Laser Shutter 2649
Laser Safety Filter Check 2650
Single Beam Printhead Components 2652
Single-Beam Path 2654
What You Should and Should Not Do 2655
Special Tools 2656
Printhead Access 2657
Printhead Cleaning Procedure 2658
Acousto-Optic (AO) Modulator AM201 2660
Acousto-Optic (AO) Modulator Driver AM202 2661
Beam Detect Card (BD121) 2663
Cylinder Lens (CYL1) 2665
F-Theta Lens Assembly 2667
Front Printhead Fan (B201) 2668
Laser 2669
Simplified Laser Adjustment Procedure 2673
Laser Power Supply and Laser Current Meter (L102) 2679
L1 Lens 2680
L2 Lens 2682
Mirror Motor (M201) 2684
Mirror Motor Driver Board (MD141) 2685
Printhead Interface Card (VI111) 2686
Printhead Pressurizing Fan (B202) and Filter 2687
Printhead Checks and Adjustments 2688
Zero Beam Alignment Check 2690
Beam Pattern Check 2696
Aperture Adjustment 2699

M2 Mirror Check 2700
Beam Power Check 2703
Interrupt Mirror Check. 2711
Beam Detect Mirror Check 2713
Print Sample Adjustments 2715
Print Width 2716
Print Skew 2719
Registration 2721
PQE Stroke Width Adjustment 2734

Laser Safety

Observe the following precautions when working in the area of the printhead:

Perform the Laser Safety Filter Check to ensure that the laser filter operates correctly.

DANGER

<8> Laser radiation is present. Always power-off the printer before removing the printhead cover. After the cover has been removed, ensure that the laser-filter slide is operating correctly before powering-on the printer.

DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

DANGER

<2> Laser radiation is present when the printer is powered-on.

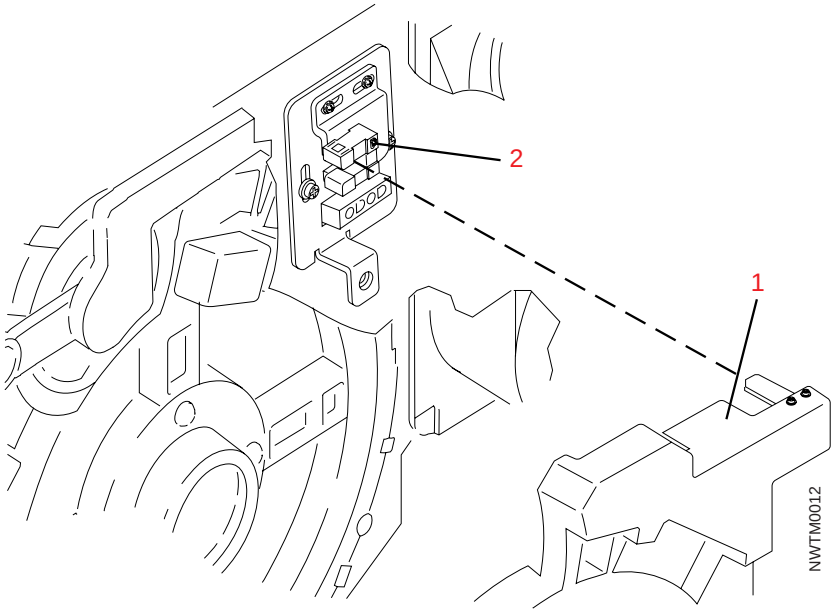
Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Laser Interlock

Table 710. Laser Interlock



A switch **(2)** is provided to remove power from the laser when you remove the PC drum cover **(1)**. This prevents accidental exposure to the laser beam when working in the PC drum cavity with power on.

Disconnecting switch S122, disables this safety feature. Do not disconnect the switch. If you must disconnect the switch, check for pushed pins and good contact when the connector is reconnected.

When it is necessary to work in the PC drum cavity with power on:

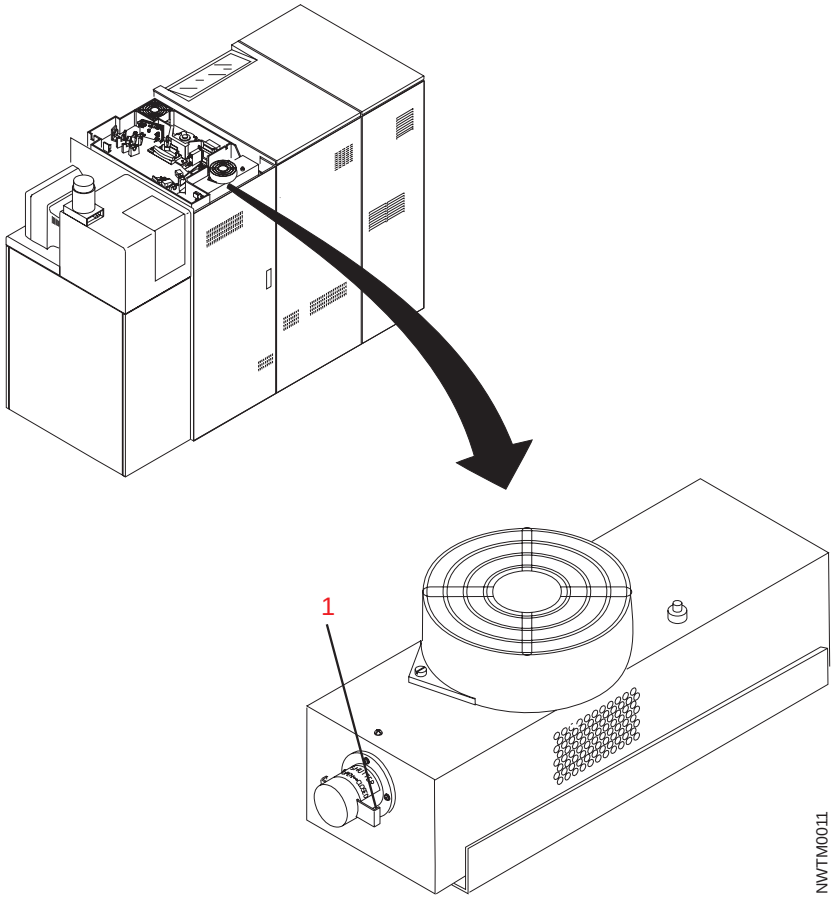
1. Use only the routines available with the diagnostic function switch in position **3**.
2. Open the printhead internal cover so that the safety filter will reduce beam power. See Printhead Access.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser Shutter

Table 711. Laser Shutter



To close the laser shutter **(1)** push the slide towards the rear of the printer.

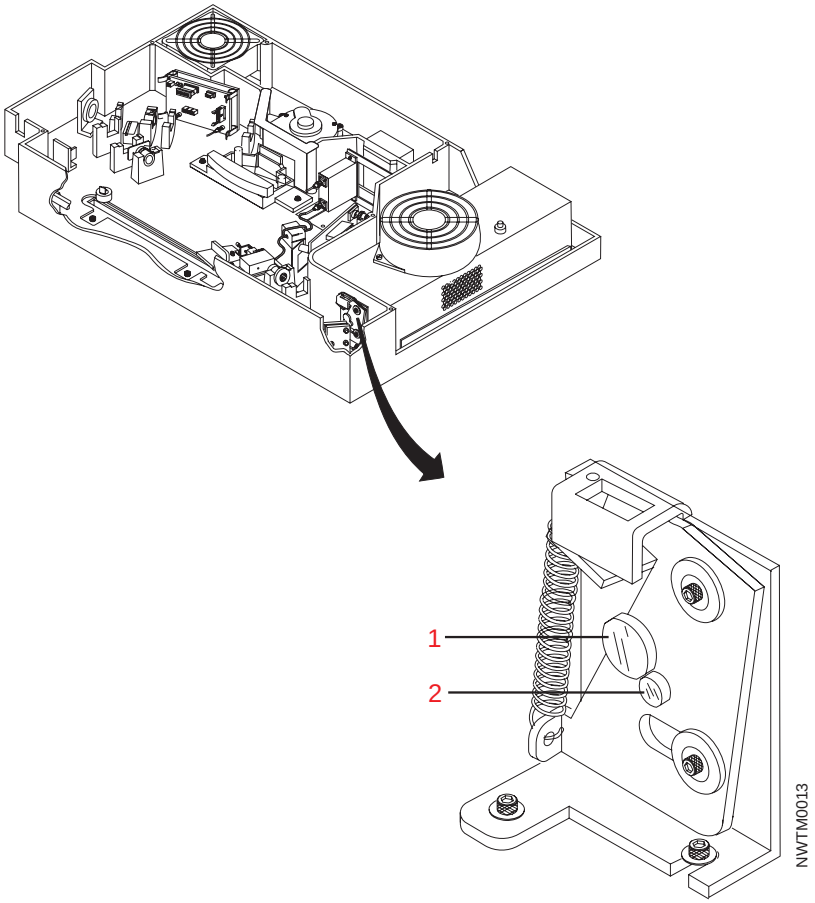
Remember to open the laser shutter before printing. If the laser shutter is closed, a D706 error displays.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser Safety Filter Check

Table 712. Laser Safety Filter



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

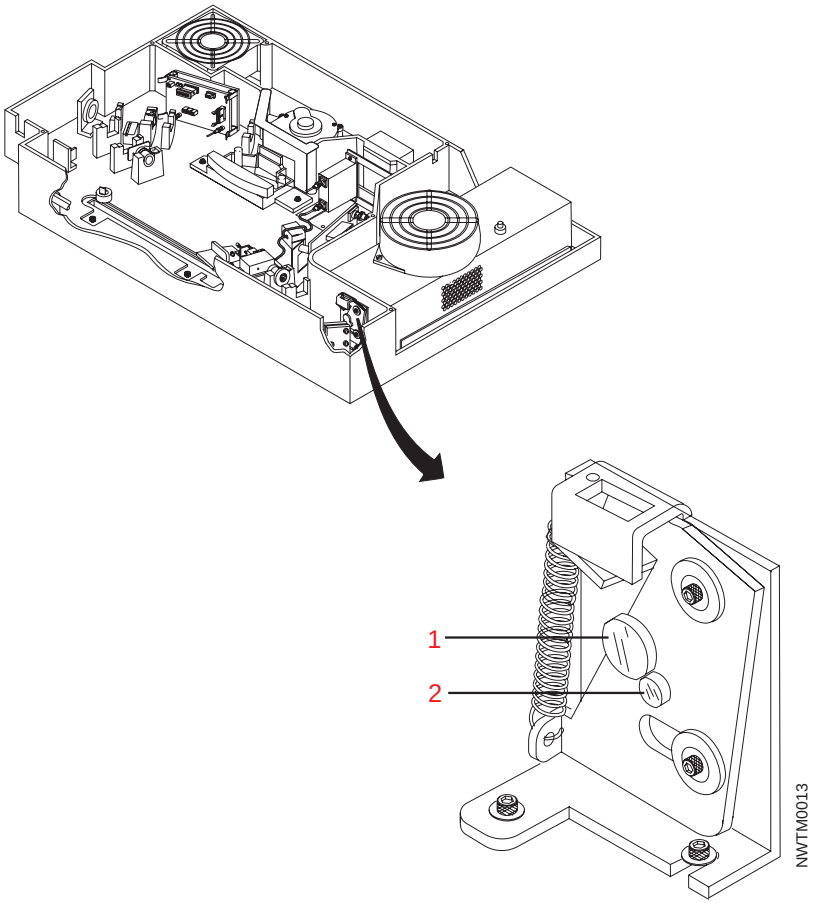
Do not push the laser filter slide while the printer is powered-on.

The operating power of the laser can damage the eyes.

For maintenance purposes, a spring loaded filter, held out of the beam path by the printhead cover, is positioned between the laser and the printhead. Removing the printhead cover releases the filter into the beam path. This reduces the beam power to less than 1 milliwatt for servicing.

(continued on next page)

Table 712. Laser Safety Filter (continued)

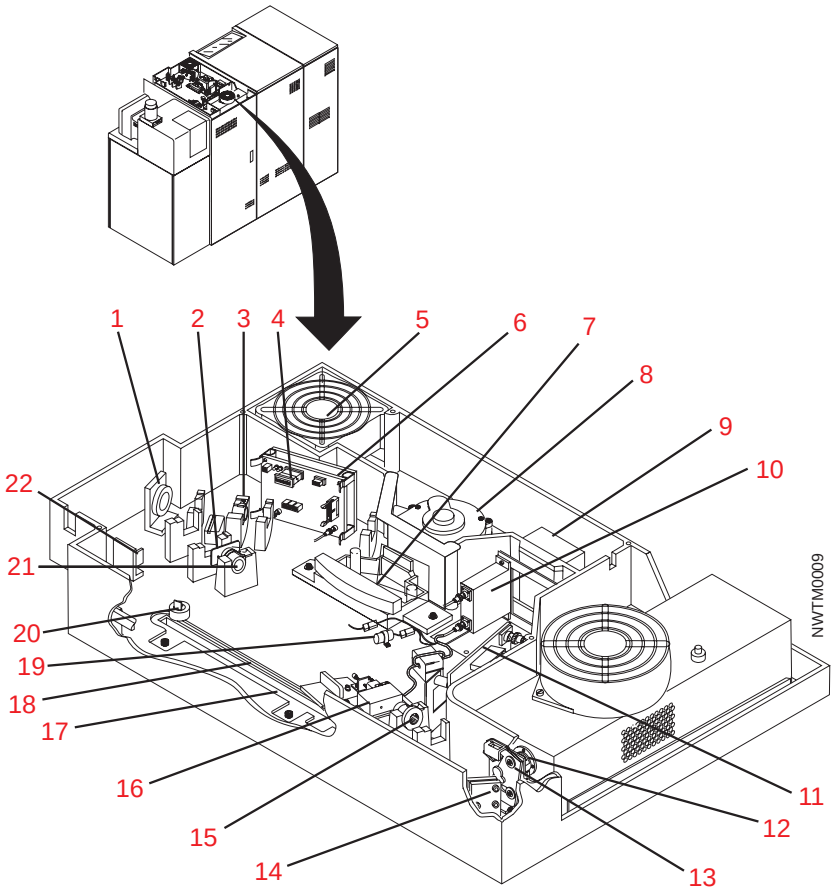


Perform the following safety check before servicing the printhead:

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Ensure that the glass safety filter **(2)** is in place.
4. Ensure that the laser safety filter mechanism **correctly operates with no binds**.

Single Beam Printhead Components

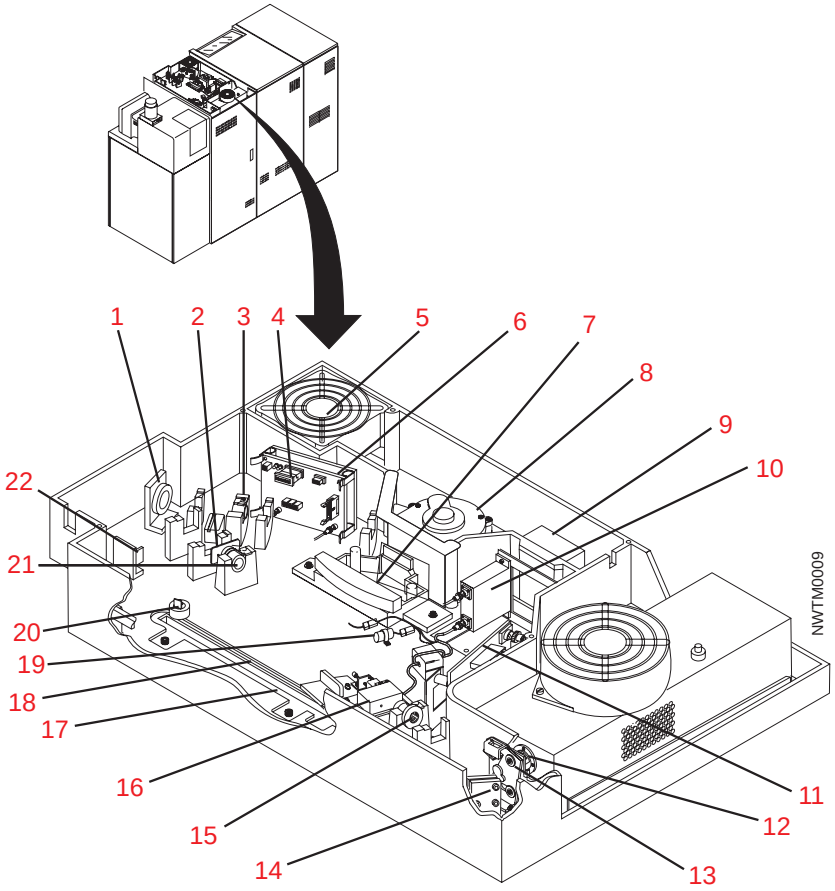
Table 713. Single-Beam Printhead Components (Rear View)



(1) M2 mirror 2
(2) Aperture
(3) CYL 1, cylinder lens
(4) PJ208
(5) Front printhead fan (B201)
(6) Printhead interface card (VI111)
(7) F-Theta lens
(8) Mirror motor (M201)
(9) Printhead pressurizing fan (B202)
(10) AO driver (AM202)
(11) Beam detect card (BD121)
(12) Shutter, laser
(13) Filter, laser safety
(14) M1 mirror 1

(continued on next page)

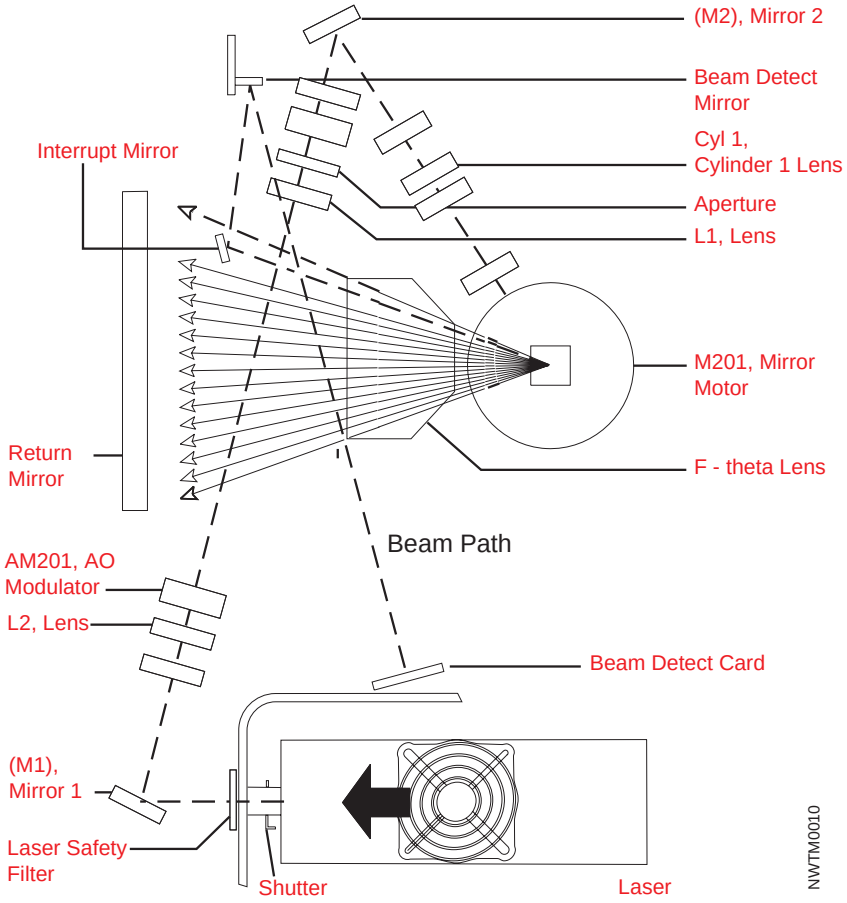
Table 713. Single-Beam Printhead Components (Rear View) (continued)



(15) L2 lens
(16) AO modulator (AM201)
(17) Return mirror
(18) Exit window
(19) Capacitor (C201)
(20) Interrupt mirror
(21) L1 lens
(22) Beam detect mirror

Single-Beam Path

Table 714. Single-Beam Path



What You Should and Should Not Do

Before working in the area of the printhead, ensure the following:

- Review Laser Safety.
- Review Single Beam Printhead Components.

Adjust only the following:

- Laser
- AO modulator
- Aperture
- M1 mirror
- M2 mirror
- Beam detect card (BD121)
- Printhead interface card (VI111)
- Mirror motor driver board (MD121)
- AOM driver
- Return mirror
- Beam detect mirror

Do not perform any of the following, unless directed by your next level of support:

- The printhead is very sensitive. Do not randomly replace parts or loosen screws as this could cause more problems.
- **Do not** remove or adjust the following, unless directed by your next level of support:
  - F-Theta lens
  - L1 lens
  - Cylinder 1 lens
  - Interrupt mirror
- Do not disable, remove, or press down the laser safety filter.
- Do not look directly into the laser beam. If the beam seems uncomfortably bright, close your eyes, and turn your head. Use a darker or less shiny piece of paper (a piece of cardboard from the top of a box of forms). Look at the target and not into the source.
- Do not use shiny tools when the laser beam is present. If necessary, wrap black tape around the tools that you are using.
- Do not connect or disconnect any cables between the AO modulator and the AO driver while any beam is switched on.

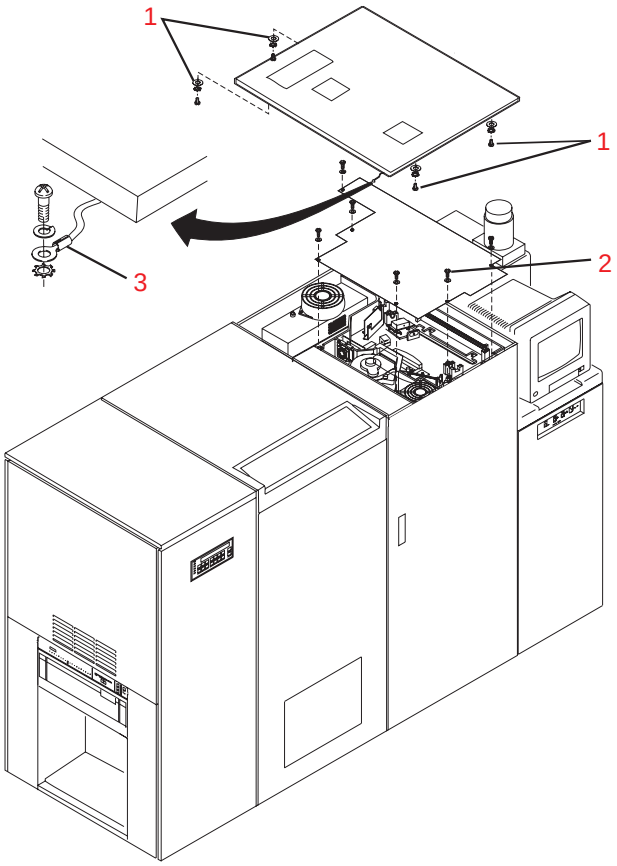
Special Tools

The following special tools may be required when performing maintenance on the printhead:

- Laser alignment tool (PN 30H2978)
- Laser alignment tool stand (PN 57G6641)
- Registration template (PN 04H0739)
- Stool (PN 2497185)

Printhead Access

Table 715. Printhead Access



DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

Removal

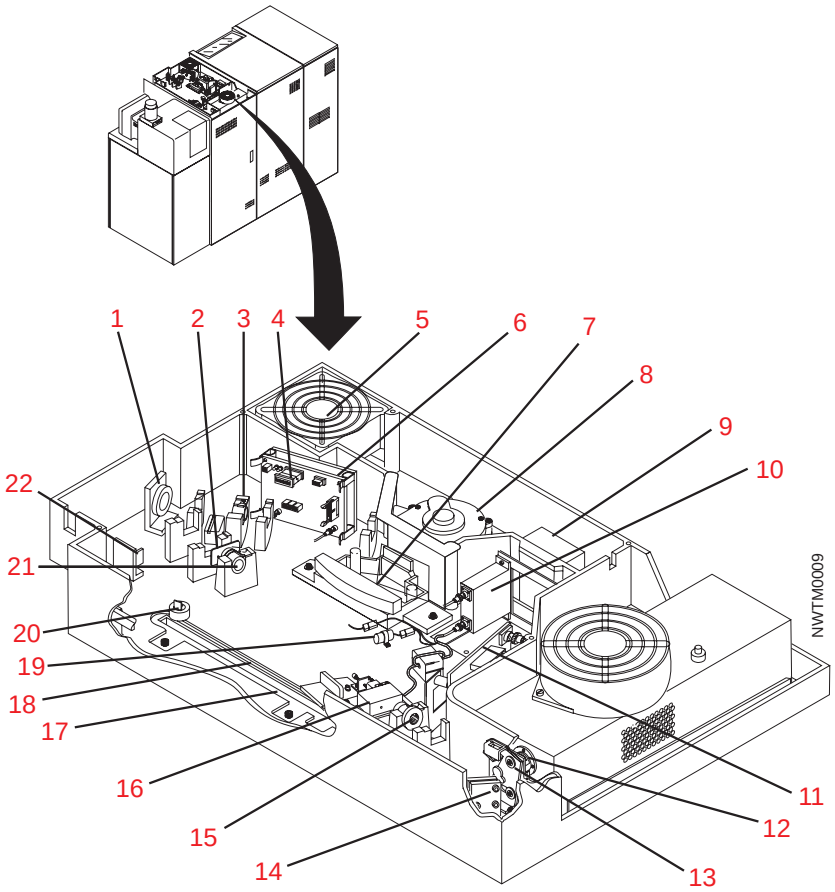
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right front cover.
4. Open the printer left rear cover.
5. Remove the four screws **(1)** in the printer right top cover (two front and two rear).
6. Disconnect the ground strap **(3)** from the printer frame.
7. Remove the printer right top cover.
8. Remove the six screws **(2)** from the printhead top cover and lift off the printhead cover.
9. Perform the Laser Safety Filter Check.

Installation

Reverse the removal procedure. Ensure that you install the star washer between the ground strap and the printer frame.

Printhead Cleaning Procedure

Table 716. Printhead Cleaning Procedure



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Attention: Use this procedure to clean contamination from the printhead lenses and mirrors only if you find a contamination problem.

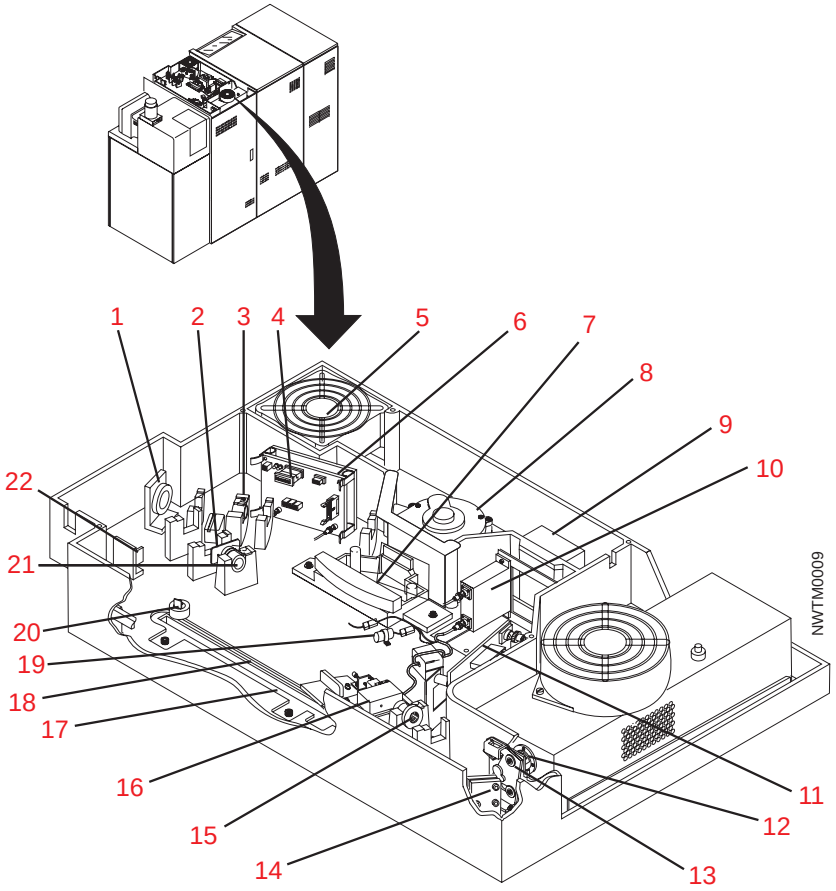
The printhead fan provides a positive pressure inside the printhead to keep out contamination. If the fan fails, check the lenses and mirrors carefully for toner and paper dust.

Review What You Should and Should Not Do.

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.

(continued on next page)

Table 716. Printhead Cleaning Procedure (continued)



4. Inspect the lenses and mirrors for toner, paper dust, and fingerprints.

   Avoid cleaning whenever possible. Most of the lenses and mirrors have special coatings that can be damaged by solvents or abrasion.
5. If you need to clean, first try using a soft, dry brush to remove dust or toner from a lens.

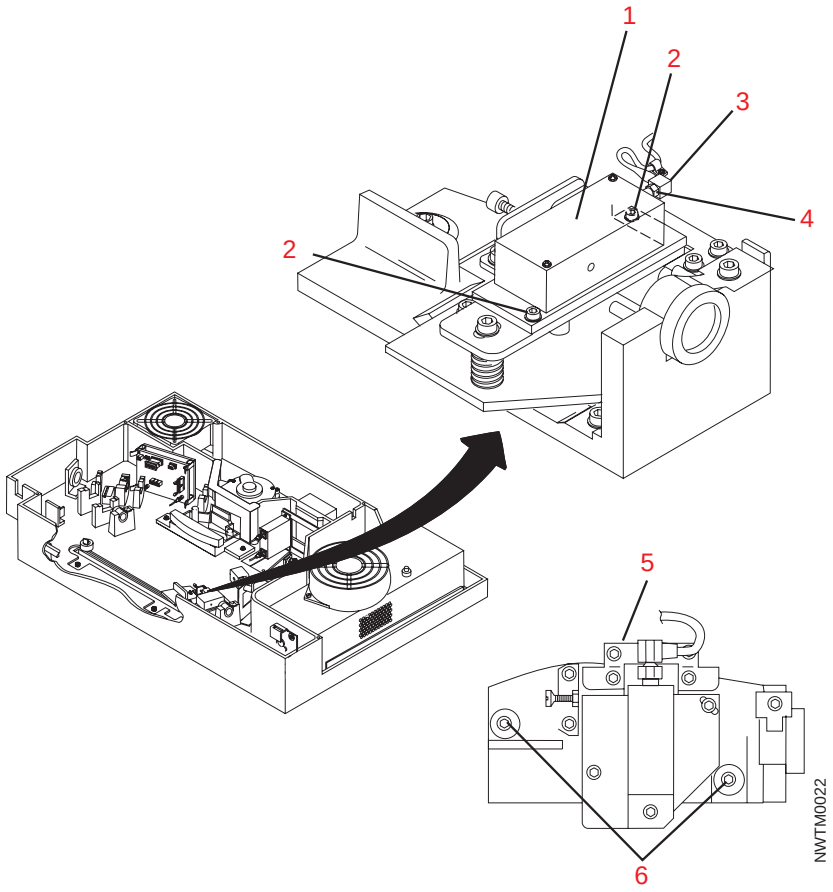
Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

Check

Run Print Pack to verify print quality.

Acousto-Optic (AO) Modulator AM201

Table 717. Acousto-Optic (AO) Modulator



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Loosen the nut **(4)** to disconnect the AO modulator cable, PJ215 **(3)**, from the AO modulator **(1)**.
4. Remove the two screws **(2)** and remove the AO modulator **(1)**.

Installation

Reverse the removal procedure.

Before you tighten the two screws **(2)**, ensure the AO modulator **(1)** is held toward the guide **(5)**.

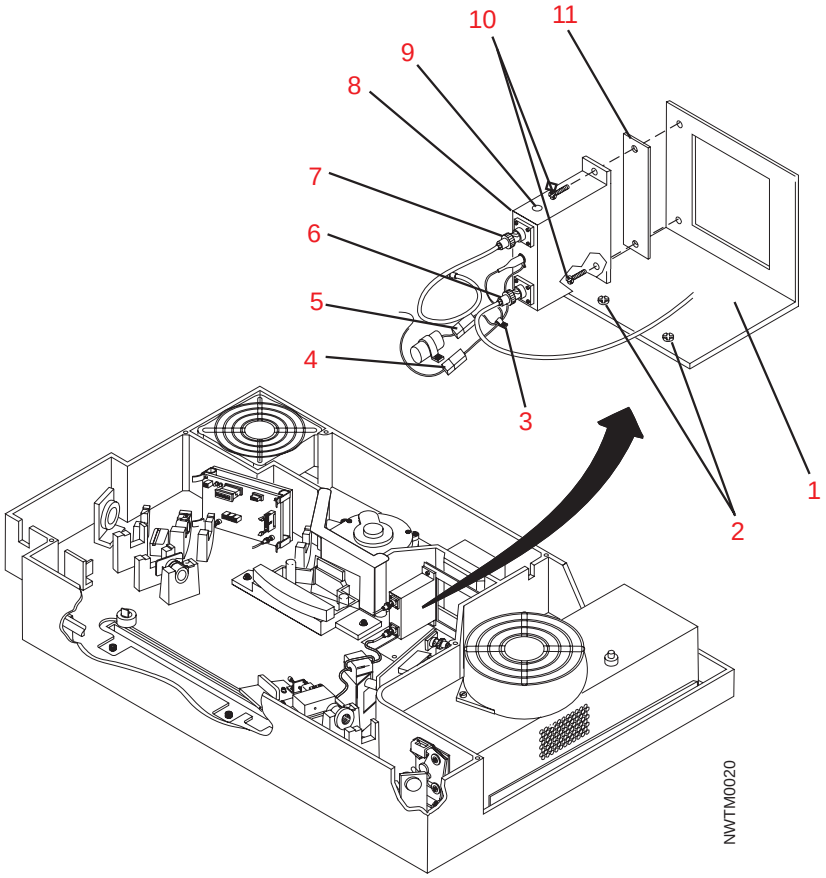
Attention: Do not loosen screws on the guide **(5)** or the screws **(6)** on the AO modulator base mount.

Adjustment

Perform Beam Power Check of the Printhead Checks and Adjustments.

Acousto-Optic (AO) Modulator Driver AM202

Table 718. Acousto-Optic (AO) Modulator Driver



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect connector PJ213 **(6)**, connector PJ214 **(7)**, connector PJ216 **(4)**, and connector PJ220 **(5)**.
4. Remove the cable clamp **(3)**, if it is present.
5. Remove the two screws **(2)** to remove the AOM driver **(8)**, and the mounting plate **(1)**.
6. Remove the two screws **(10)** and insulating washers to remove the AOM driver **(8)** from the mounting plate **(1)**.
7. Do not discard the insulating sheet **(11)**. The insulating sheet is not provided with a new AOM driver.

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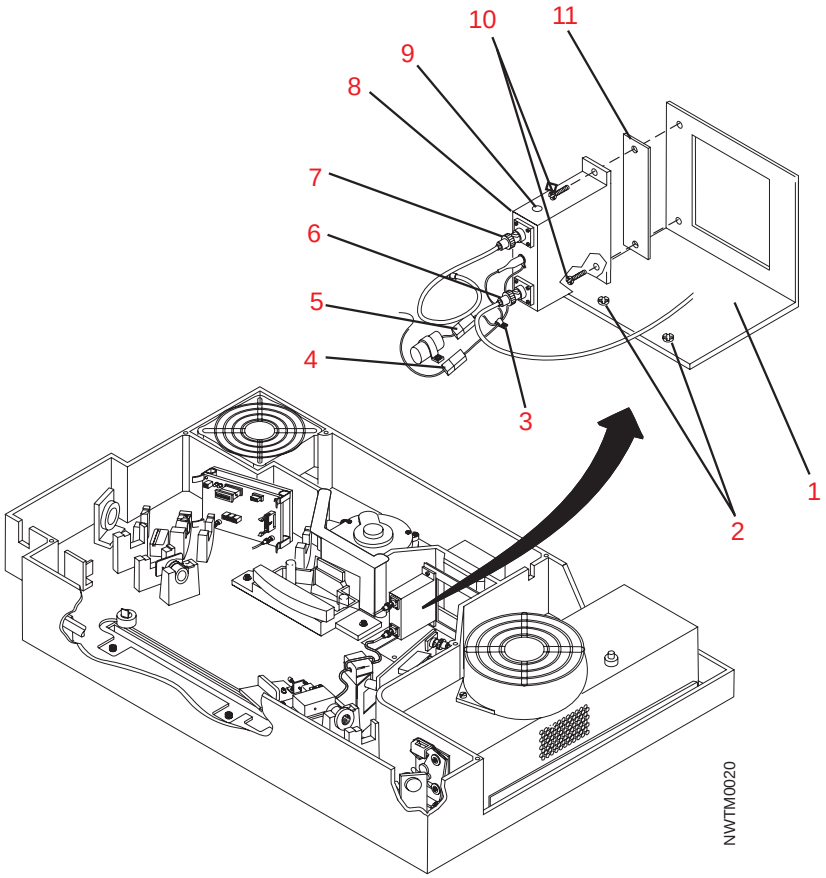
Table 718. Acousto-Optic (AO) Modulator Driver (continued)



Installation

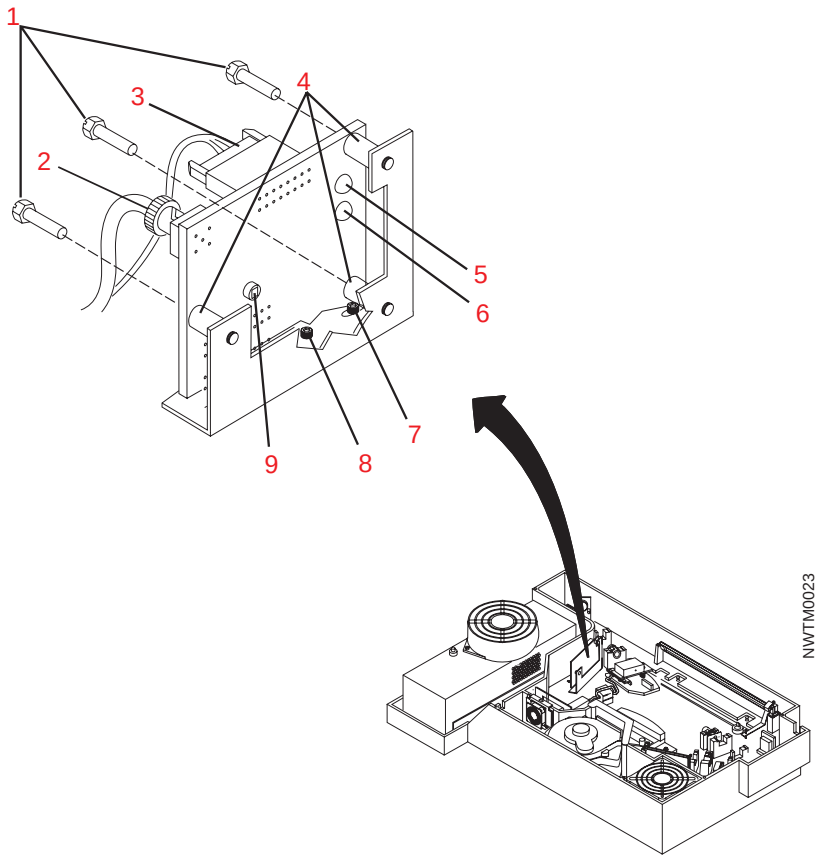
1. Before you install the AOM driver, turn the power adjustment potentiometer fully clockwise to ensure maximum power.
2. Ensure that the insulating sheet **(11)** is installed between the AOM driver **(8)** and the mounting plate **(1)**.
3. Ensure that the insulating washers are on the two screws **(10)**.
4. Install connectors PJ213 **(6)**, PJ214 **(7)**, PJ216 **(4)**, and PJ220 **(5)**.
5. Adjust the potentiometer **(9)** fully clockwise.
6. Ensure that all cables are lying flat against the bottom of the printhead housing to avoid blocking the beam path.
7. Reverse the removal procedure.

Check

1. Cover the return mirror with paper.
2. Run Adjustment Routine C0 to switch on the primary beam without scanning the mirror.
3. Perform Beam Power Check in Printhead Checks and Adjustments.
4. Run Print Pack to verify print quality and that no system reference code is displayed.

Beam Detect Card (BD121)

Table 719. Beam Detect Card (BD121)



Removal

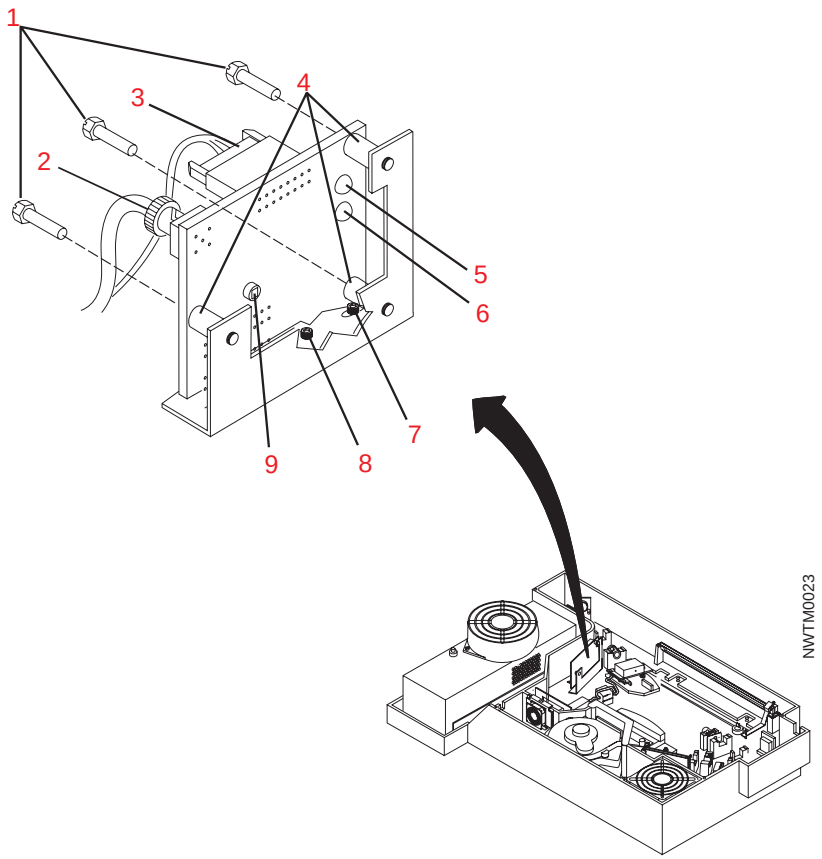
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect connector PJ211 **(2)**.
4. Disconnect connector PJ212 **(3)**.
5. Loosen the Allen screw **(7)**.
6. Remove the Allen screw **(8)**.
7. Lift out the card and bracket.
8. Remove the three screws **(1)** and the standoffs **(4)**.

Installation

Reverse the removal procedure, leaving screws **(7)** and **(8)** loose so that you can adjust the card position.

(continued on next page)

Table 719. Beam Detect Card (BD121) (continued)



Check

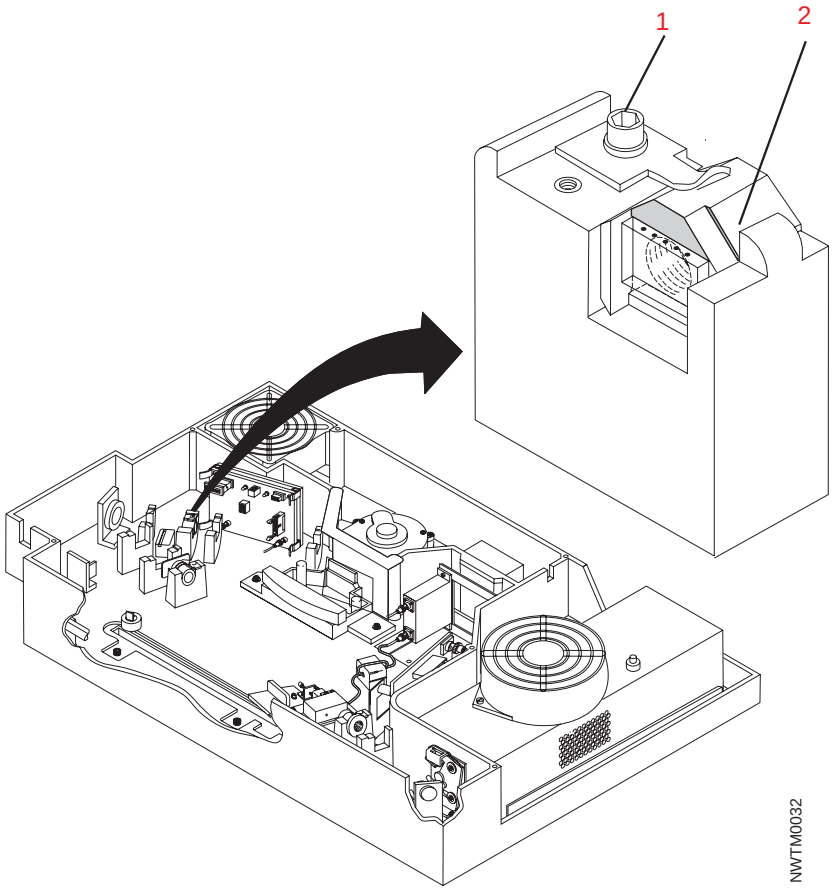
1. Cover the return mirror with paper.
2. Run Adjustment Routine C0 to switch on the laser and the mirror motor.
3. Move the beam detect card assembly horizontally until the scanning beam is centered on the sensor **(9)**.
4. Tighten screws **(7)** and **(8)**.
5. Ensure that LEDs **(5)** and **(6)** are on. If they are not on, perform the Adjustment procedure.
6. Stop the diagnostics and remove the paper from the return mirror.
7. You must check the Scan Direction (Horizontal) Adjustment to set the final position of the beam detect card.

Adjustment

1. Perform Beam Detect Mirror Check in the Printhead Checks and Adjustments.
2. If the LEDs are still not on, there may be a problem with the connections, beam position, beam power, or the card itself. For further assistance, use MAP D706: Beam Detect Missing (For Single-Beam Printhead).
3. Perform the Registration check.

Cylinder Lens (CYL1)

Table 720. Cylinder Lens (CYL1)



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

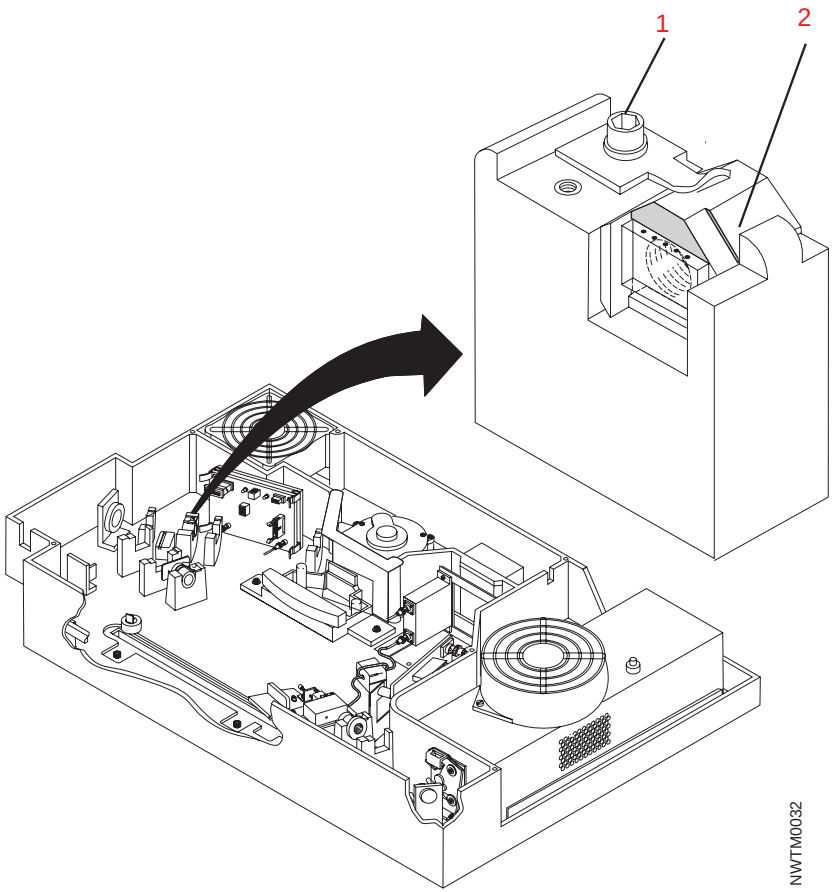
Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Scribe a mark on cylinder lens 1 **(2)** at the reference surface so that it can be reinstalled in that exact position.
4. Loosen screw **(1)** to remove the spring retainer that holds the lens **(2)**.

(continued on next page)

Table 720. Cylinder Lens (CYL1) (continued)



Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

5. Carefully, lift out the lens **(2)**.

Installation

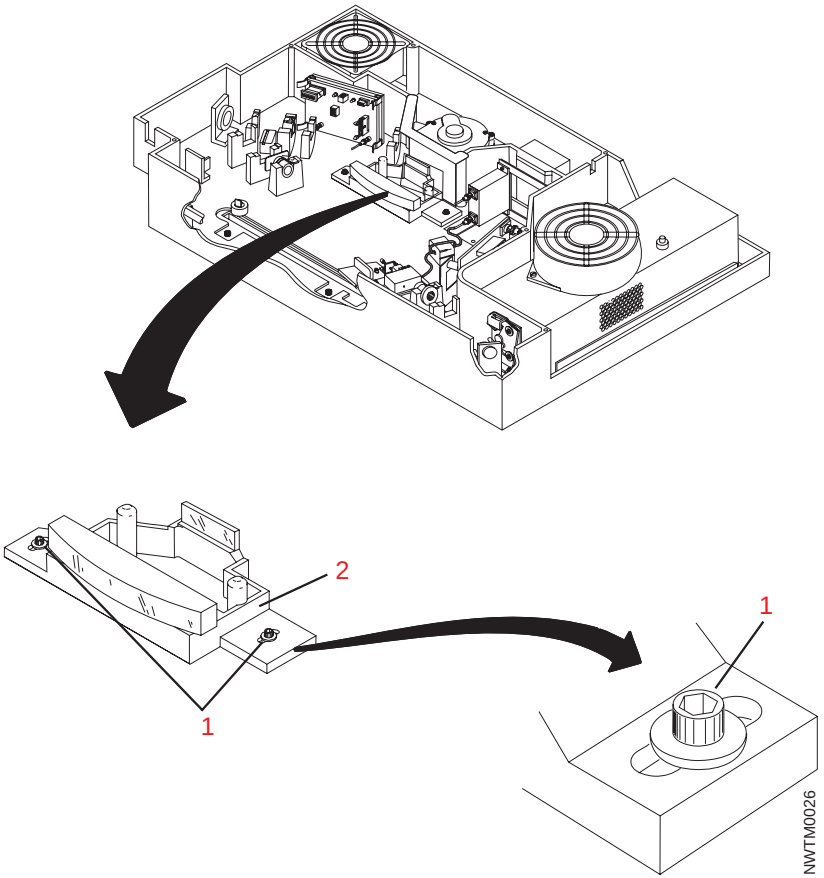
1. Install the CYL 1 lens **(2)** in the exact same position as the one you removed. The glass side should be toward the front of the printer.
2. Install the spring retainer and screw **(1)**.
3. Install the printhead cover but do not install the screws.

Check

1. Check the PQE Stroke Width Adjustment.
2. Reverse the Printhead Access procedure.

F-Theta Lens Assembly

Table 721. F-Theta Lens Assembly



DANGER

<22> You will need a wrench and a screwdriver to do this procedure. These tools can reflect the laser beam. Whenever these tools are used in the printhead, ensure that the printer is powered off.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Scribe the position of the F-Theta lens so that it can be reinstalled in that exact position.
4. Remove the two screws **(1)** and washers.
5. Remove the F-Theta lens **(2)** assembly.

Installation

1. Reverse the removal procedure.
2. Ensure that the F-Theta lens is positioned exactly as before.

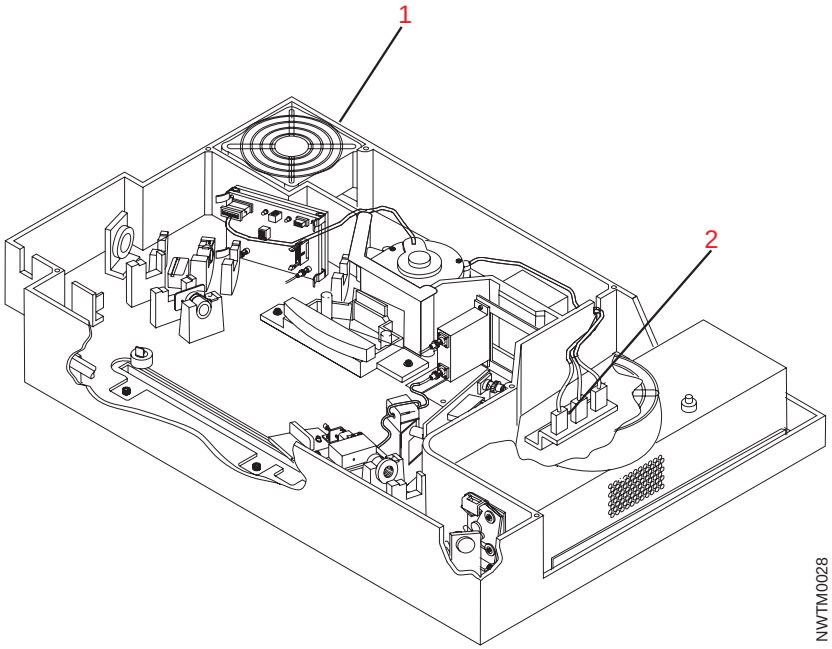
Adjustment

Perform the following procedures and adjust if necessary:

1. Print Skew
2. Print Width

Front Printhead Fan (B201)

Table 722. Front Printhead Fan (B201)



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ217 **(2)**.
4. Remove the cable clamp(s).
5. Lift and remove the fan **(1)**.

Installation

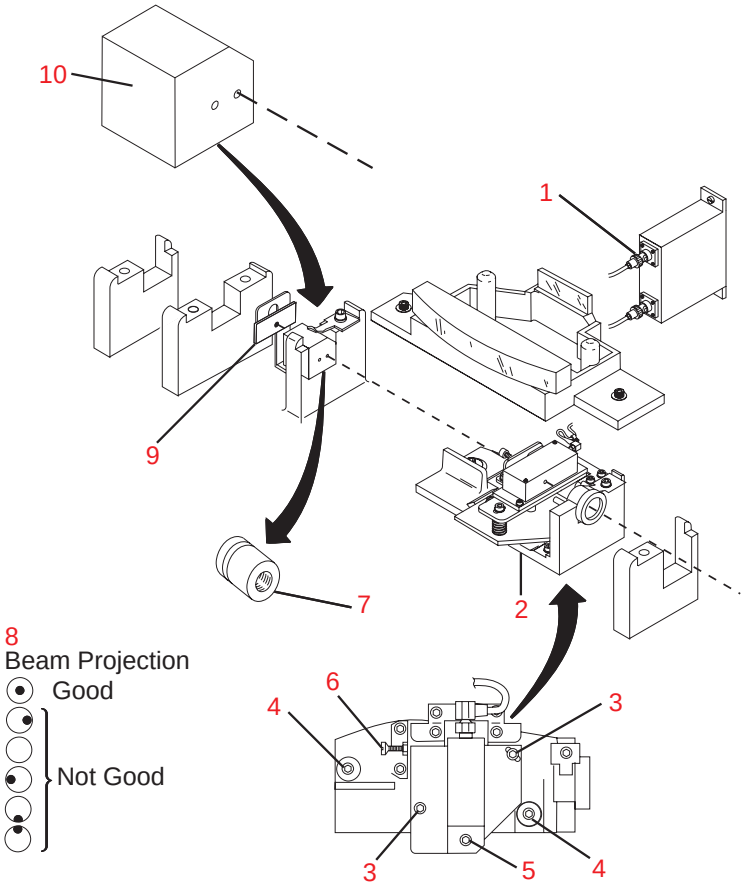
Reverse the removal procedure.

Check

1. Check the front printhead fan (B201) for rotation.

Laser

Table 723. Laser



DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

Check

1. If the laser current meter indicates 12.0 Amps or more, replace the Laser.
2. Perform the Zero Beam Alignment Verification.

   If the old laser is correctly aligned, you can use the Simplified Laser Adjustment Procedure after you install the new laser. This procedure adjusts only the new laser to put it in the same position as the old laser.

Zero Beam Alignment Verification

1. Request the system operator to stop activity on the printer. Disable all host attachments.

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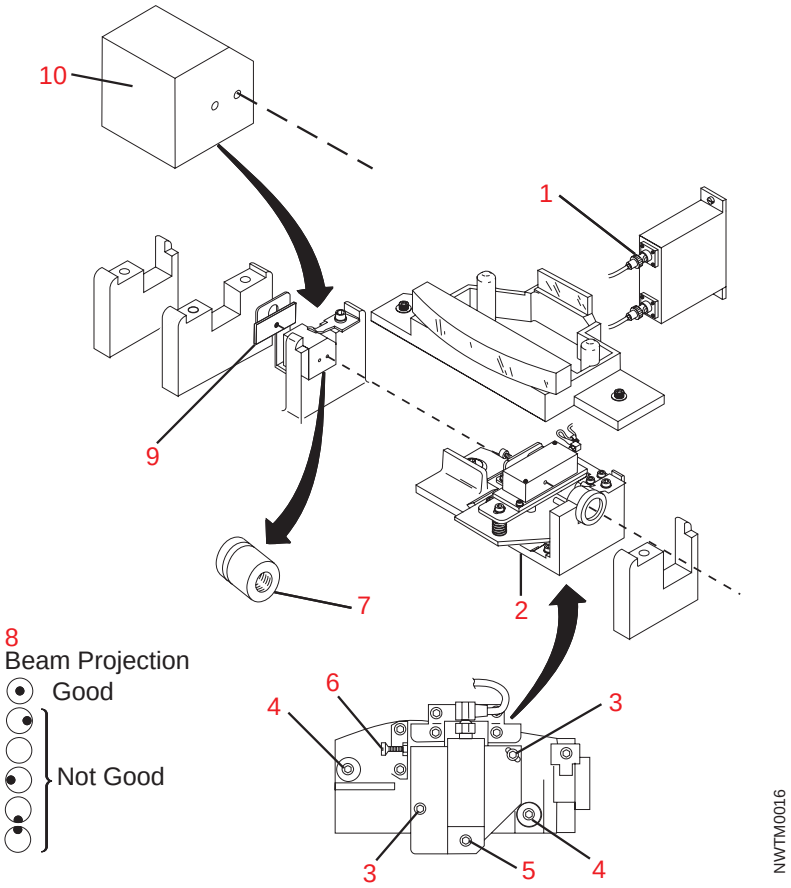
Table 723. Laser (continued)



2. Scribe the position of the L1 lens **(7)**, so that you can reinstall it in the exact position.
3. Remove the L1 lens **(7)**.
4. Install the laser alignment tool **(10)** in the lens 1 position.

Note: Ensure you have the correct alignment tool before you continue. See Laser Alignment Tool.

5. Take one of the magnetic strips **(9)** that comes with the laser power tool stand and place it on the aperture. This lets you see the projection of the beam when the laser is switch on.
6. Run Adjustment Routine C1, and set it to switch on only the zero beam. You should see only one beam hitting the white magnetic strip **(9)**.
7. If the zero beam projection **(8)** is centered on the right-hand spot on the laser alignment tool as viewed from the rear of the printer, you can use the Simplified Laser Adjustment Procedure to adjust the new laser.
8. If the zero beam projection is misaligned, use the procedures in Printhead Checks and Adjustments to adjust the new laser.
9. Leave the laser alignment tool in place.

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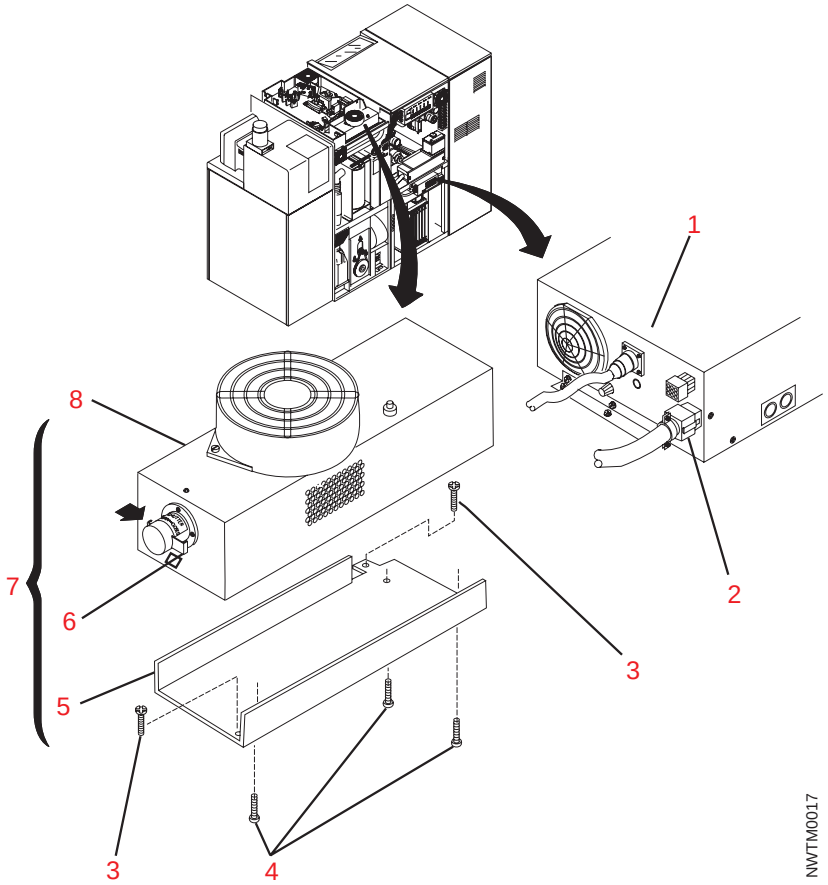
Table 723. Laser (continued)

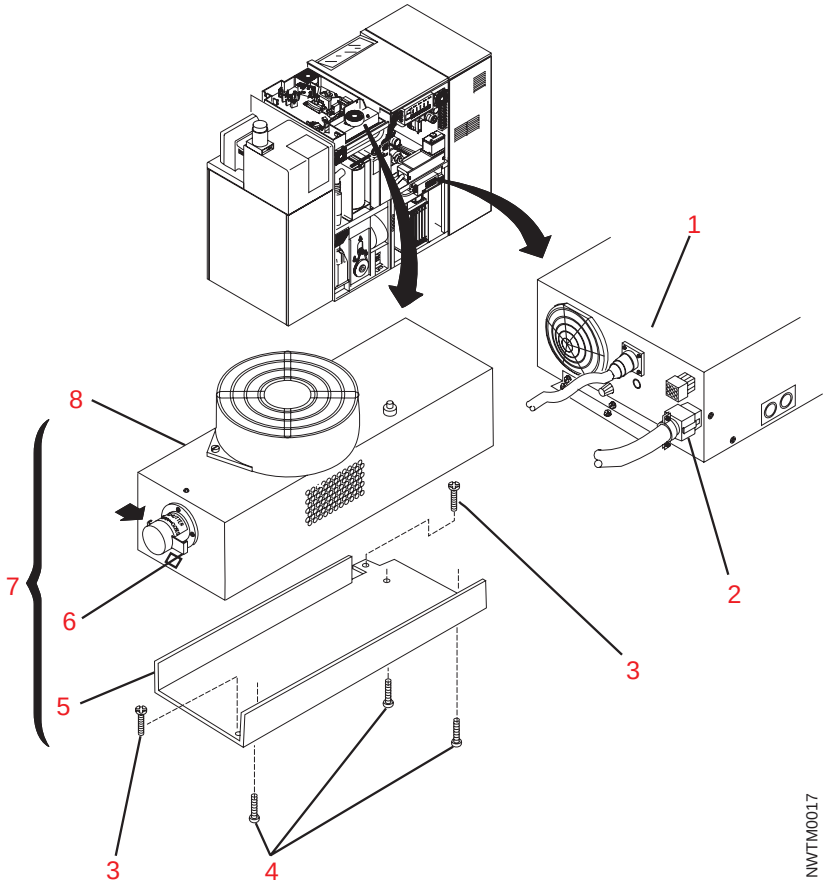


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the B1 board cover.
3. Remove the rear process cover.
4. Disconnect PJ596 **(2)** from the laser power supply **(1)**.
5. Note the path of the laser power cable through the printer.
   a. Disconnect the laser power cable.
   b. Feed the laser power cable back to the laser so that it can be removed with the laser.
6. Slide the laser shutter **(6)** to the **CLOSED** position.
7. Remove the two screws **(3)**. Some machines may have three mounting screws.
8. Remove the laser assembly **(7)**.
9. Remove the three screws **(4)** and remove the laser **(8)** from the laser mounting plate **(5)**.

(continued on next page)

Table 723. Laser (continued)



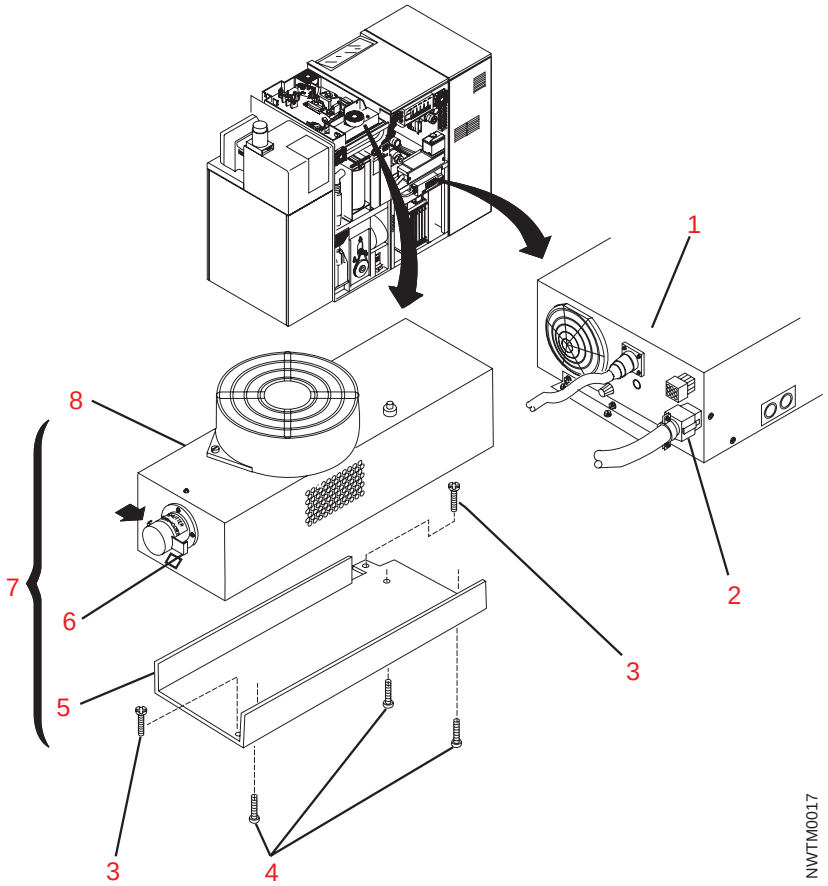
Installation

Attention: Use care if you place the laser on the printer covers. The corners of the laser can scratch the cover paint.

1. Attach the new laser to the laser mounting plate **(5)** with the three screws **(4)**.
2. Feed the laser power cable down and behind the laser support shelf.
3. Set the new laser in place and loosely install the three screws **(3)** into the laser mounting plate **(5)**.
4. Connect PJ596 **(2)** to the laser power supply **(1)**.
5. Slide the laser shutter **(6)** to the OPEN position.
6. Install the printhead cover. See Printhead Access.
7. Power-on the printer.
8. Run Adjustment Routine C0. Press **Enter** two times, five seconds apart, to ensure that the laser is switched on.
9. Wait for 30 seconds, and then read the laser current meter. If the reading is less than 5 Amps, the laser is not switched on. In this case, press **Enter** again.
10. If the current meter reading is 12 Amps (indicator fully to the right), the laser is defective.
    a. Do not open the printhead cover.
    b. Power off immediately.
    c. Perform the necessary steps in the Laser Removal and Installation procedures to install a new laser.
11. If the new laser is OK, and the old laser was correctly adjusted, go to the Simplified Laser Adjustment Procedure.
12. If the old laser was not correctly aligned, go to Printhead Checks and Adjustments.

Simplified Laser Adjustment Procedure

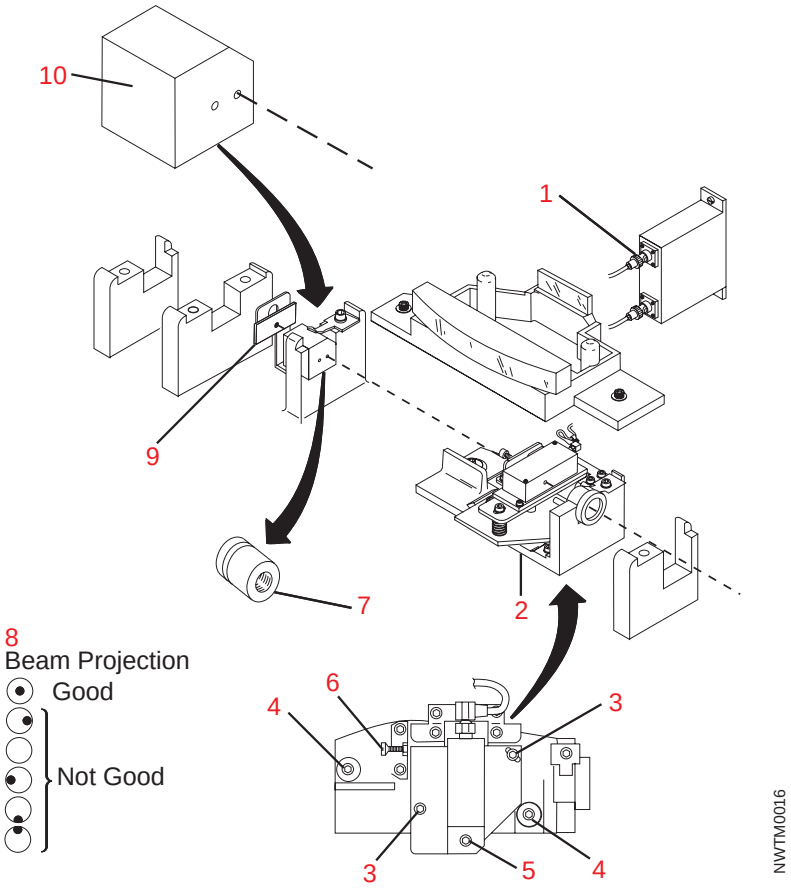
Table 724. Simplified Laser Adjustment Procedure



1. Install the screws **(3)** into the laser. Leave them loose so that the laser can be horizontally adjusted.
2. Cover the return mirror with paper.
3. Run Adjustment Routine C1 to switch on the zero beam.

(continued on next page)

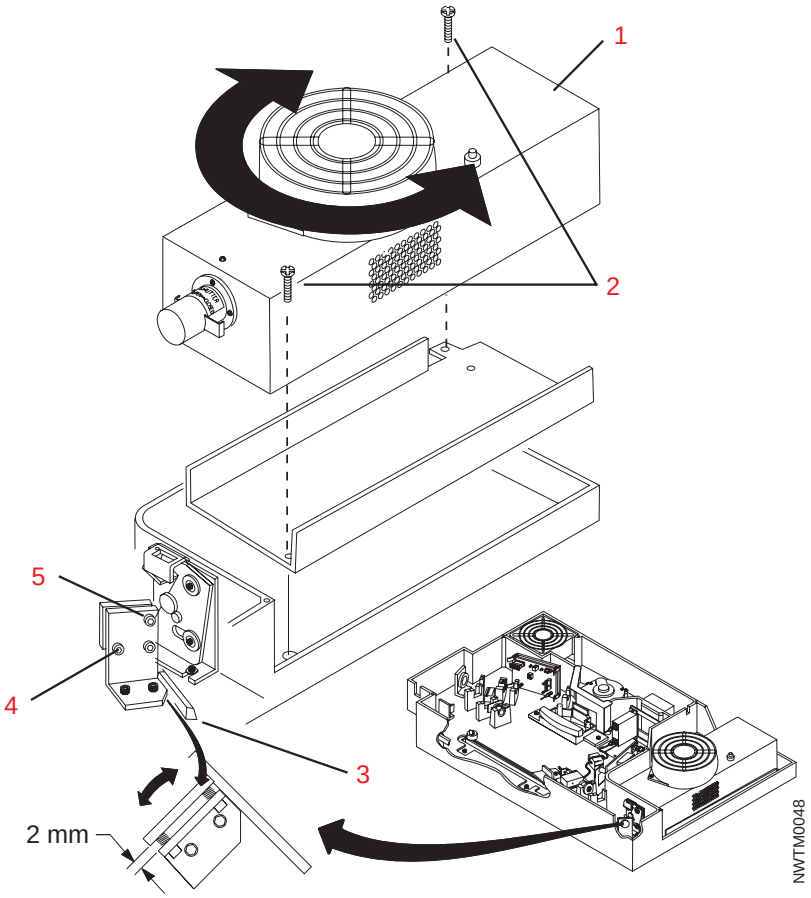
Table 724. Simplified Laser Adjustment Procedure (continued)



4. Move the laser so that the beam is on the right-hand spot of the laser alignment tool. It may be slightly high until the laser screws are tightened.

(continued on next page)

Table 724. Simplified Laser Adjustment Procedure (continued)



5. If necessary, adjust the vertical beam position using mirror 1. Use screw **(5)** to adjust the M1 mirror (the vertical beam position).

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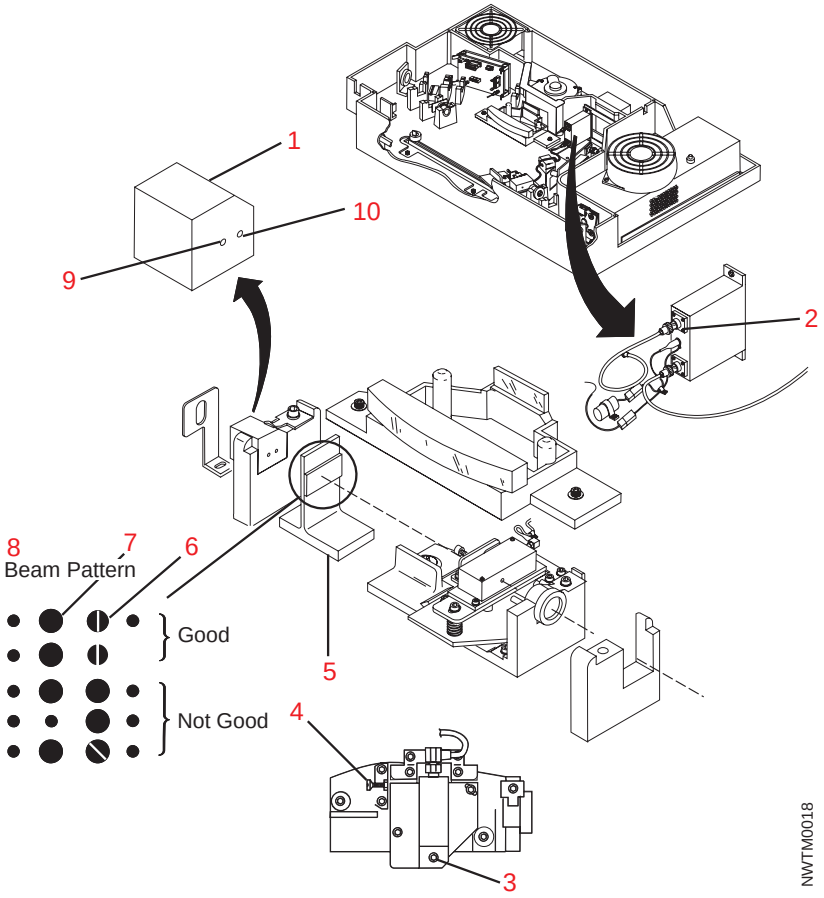
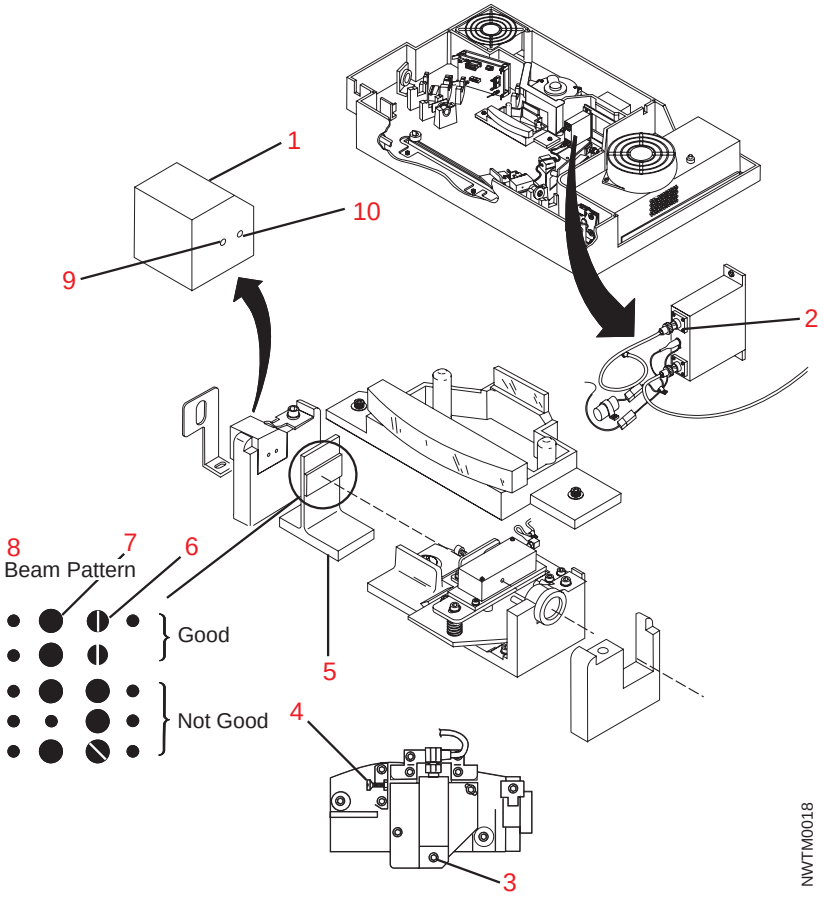
Table 724. Simplified Laser Adjustment Procedure (continued)



6. Attach one of the white magnetic strips to the laser power tool support **(5)**.
7. Place the laser power tool support in front of the L1 lens.
8. Press **Enter** on the maintenance panel to switch on the primary beam. You should see multiple beams **(8)**.
9. Gently move the laser until the zero beam is split into equal-size spots by a vertical line **(6)**.
10. Remove the laser power tool support from the beam path to see if the split zero beam **(6)** is still centered on the right-hand spot **(10)** of the alignment tool.
11. Two conditions must be present:
    - The zero beam must be split into two smaller equal-size spots.
    - The zero beam must be centered on the right-hand spot of the alignment tool.
12. If the correct beam pattern cannot be created on the right-hand spot with the zero beam (as would happen when you replace an old laser with a new one), then position the zero beam on the right-hand spot and perform Beam Pattern Check in Printhead Checks and Adjustments.

(continued on next page)

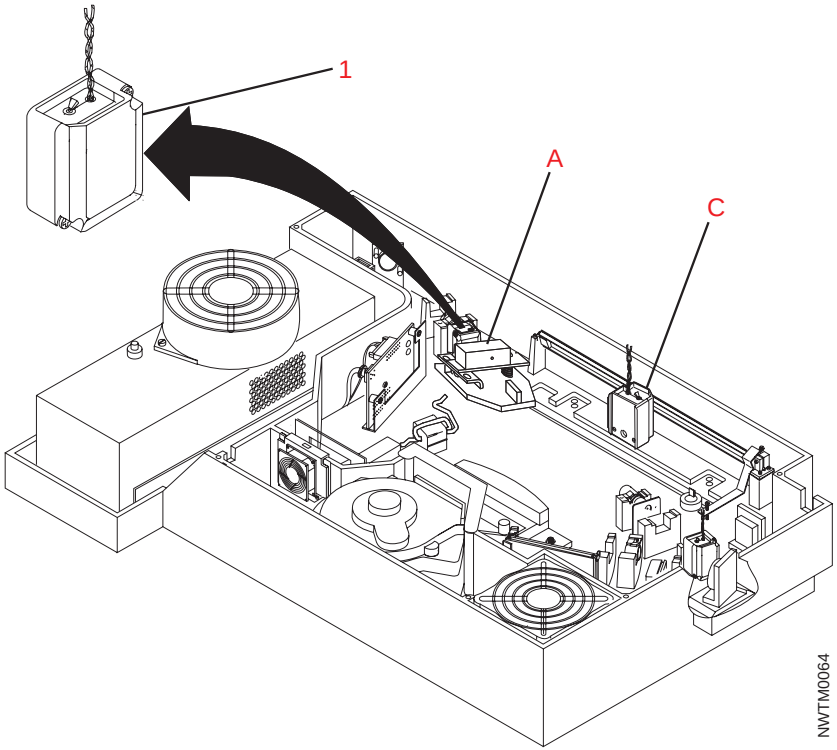
Table 724. Simplified Laser Adjustment Procedure (continued)



13. Gently tighten the laser screws in an alternating fashion. Try to maintain the beam pattern. If it changes slightly as you tighten the screws, you can correct the pattern by adjusting mirror 1.
14. Perform a final tightening of the screws.
15. Remove the laser alignment tool.
16. Remove the magnetic strip from the aperture.
17. Remove the laser power tool support.
18. Reinstall the L1 lens to the position to its original position.

(continued on next page)

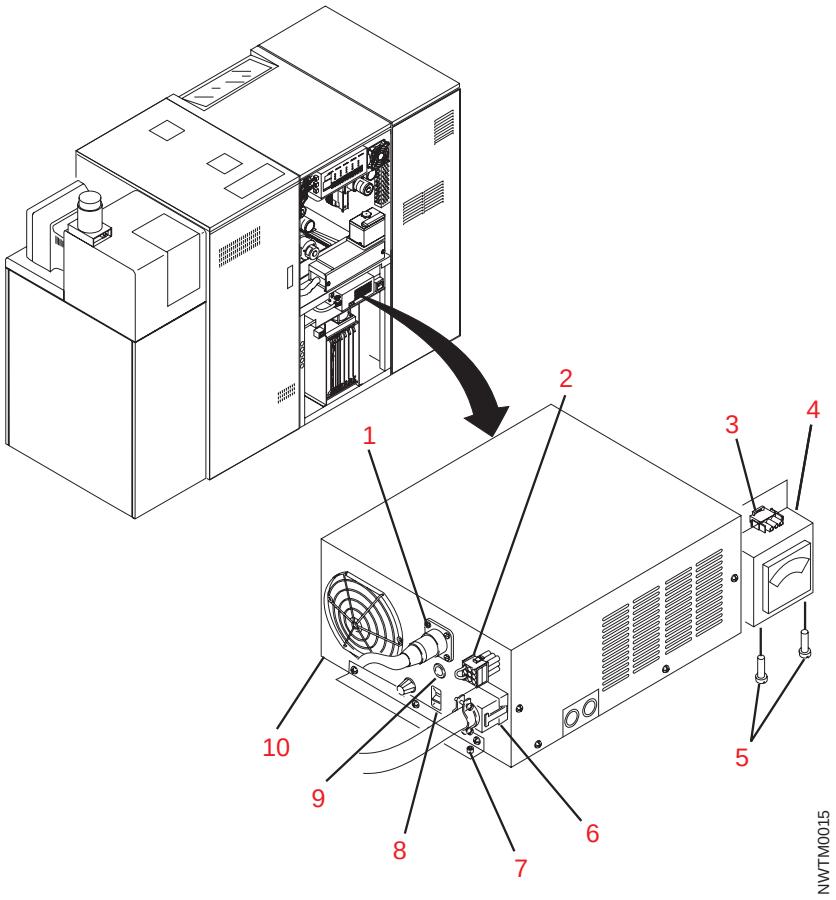
Table 724. Simplified Laser Adjustment Procedure (continued)



19. Check the power at position **C** with the printhead cover on. See Beam Power Check in Printhead Checks and Adjustments for details about measuring power.
20. If **C** is less than 45 mV, then perform AO Modulator Adjustments.
21. If the power is OK, check the vertical beam position at the beam detect sensor while you run adjustment routine C0 so that the beam is scanning.
22. If the beam is not passing through the center of the sensor, perform M2 Mirror Check and then Beam Detect Mirror Check in Printhead Checks and Adjustments.
23. If the old laser was not correctly adjusted, or if you are having difficulty with the quick procedure, perform the entire sequence in Printhead Checks and Adjustments.
24. Remove the paper from the return mirror.
25. Install the printhead cover.
26. Install the rear process cover.
27. Perform the Registration procedure.
28. Perform the PQE Stroke Width Adjustment.

Laser Power Supply and Laser Current Meter (L102)

Table 725. Laser Power Supply and Laser Current Meter (L102)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the B1 board cover.
3. Disconnect PJ595 **(1)**, PJ596 **(6)**, and PJ597 (to the left and below the usage meter).
4. Remove the two screws **(5)**.
5. Disconnect PJ599 **(3)** and remove the laser current meter (L102) **(4)**.
6. Remove the two screws **(7)** to remove the laser power supply **(10)**. One screw is on the left side of the power supply, the other on the right side.

Installation

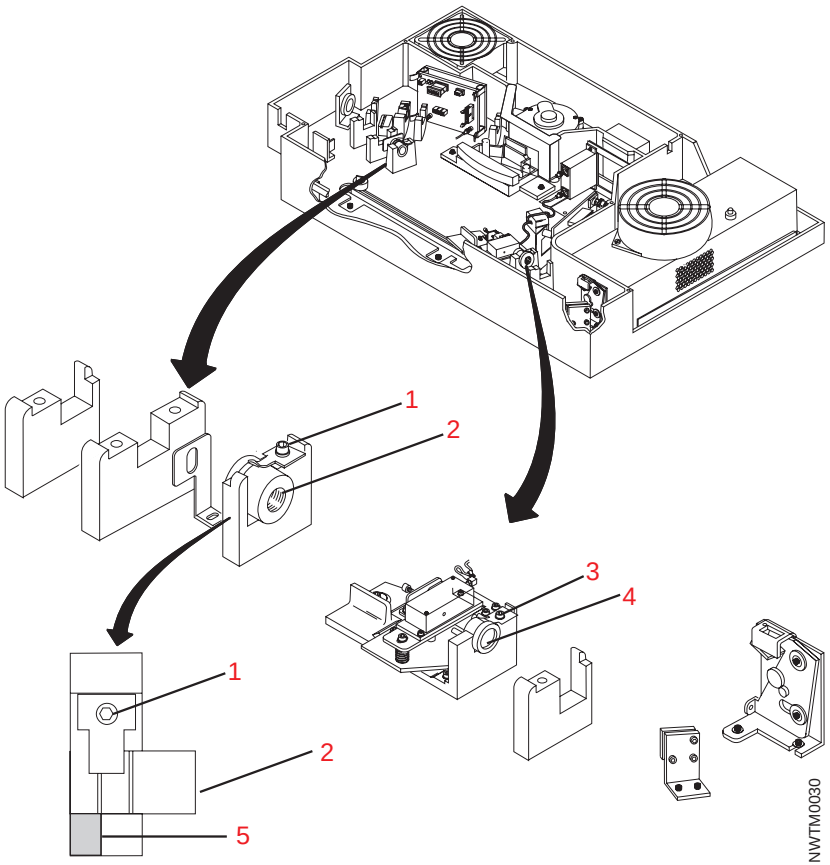
1. Ensure that the key **(9)** on the new laser power supply is in the **On** position.
2. Ensure the power-on switch **(8)** is in the **On** position.
3. Ensure the jumper plug PJ598 **(2)** is in place.
4. Reverse the removal procedure.

Check

1. Run Adjustment Routine C0 to ensure that the laser current meter is correctly operating when the laser is powered on.
2. Run Print Pack to verify print quality and that no system reference code is displayed.

L1 Lens

Table 726. L1 Lens



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

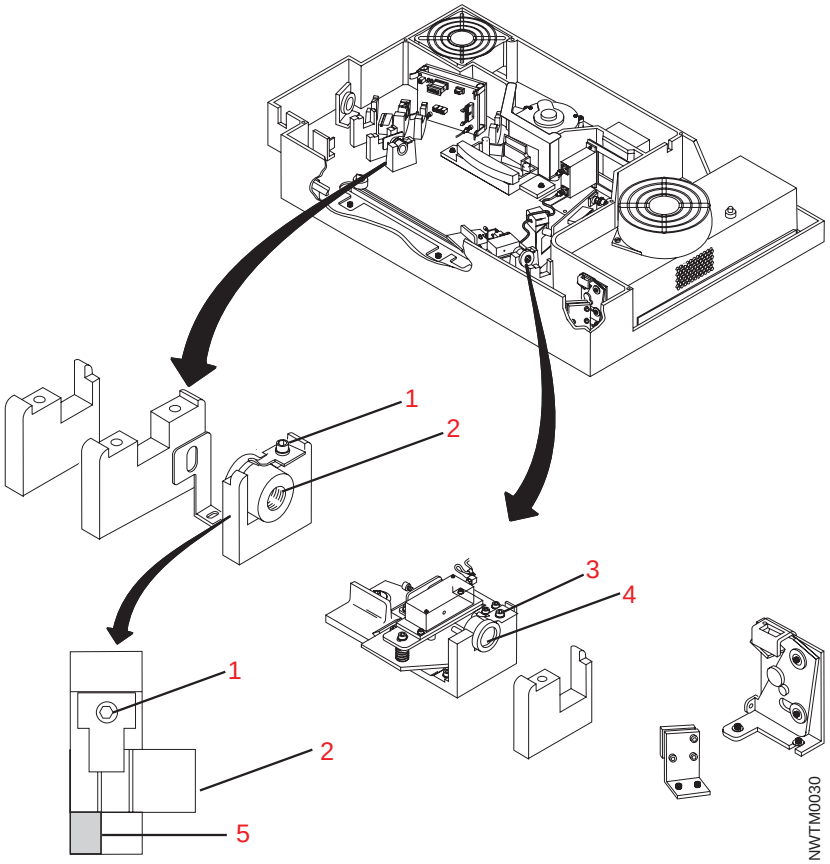
Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Scribe the position of the L1 lens **(2)** at the reference surfaces so that it can be reinstalled in that exact position.
4. Loosen screw **(1)**.

(continued on next page)

Table 726. L1 Lens (continued)



Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

5. Remove the L1 lens **(2)**.

Installation

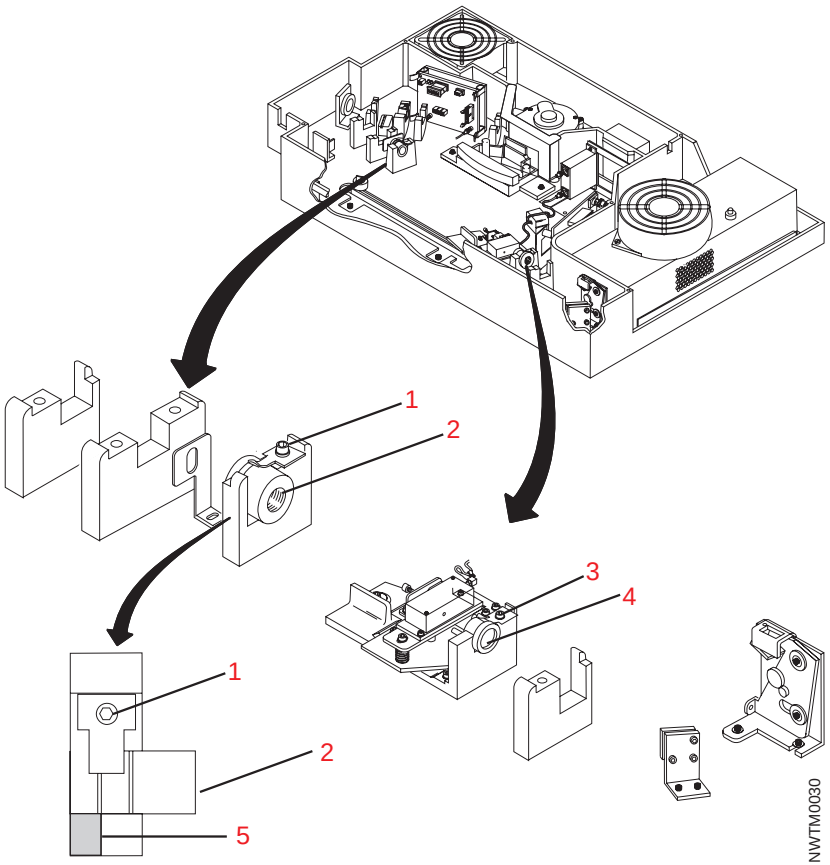
1. Reverse the removal procedure.
2. Ensure that the L1 lens is positioned exactly as before.

Check

1. Check the PQE Stroke Width Adjustment.
2. Run Print Pack to verify print quality and that no system reference code is displayed.

L2 Lens

Table 727. L2 Lens



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

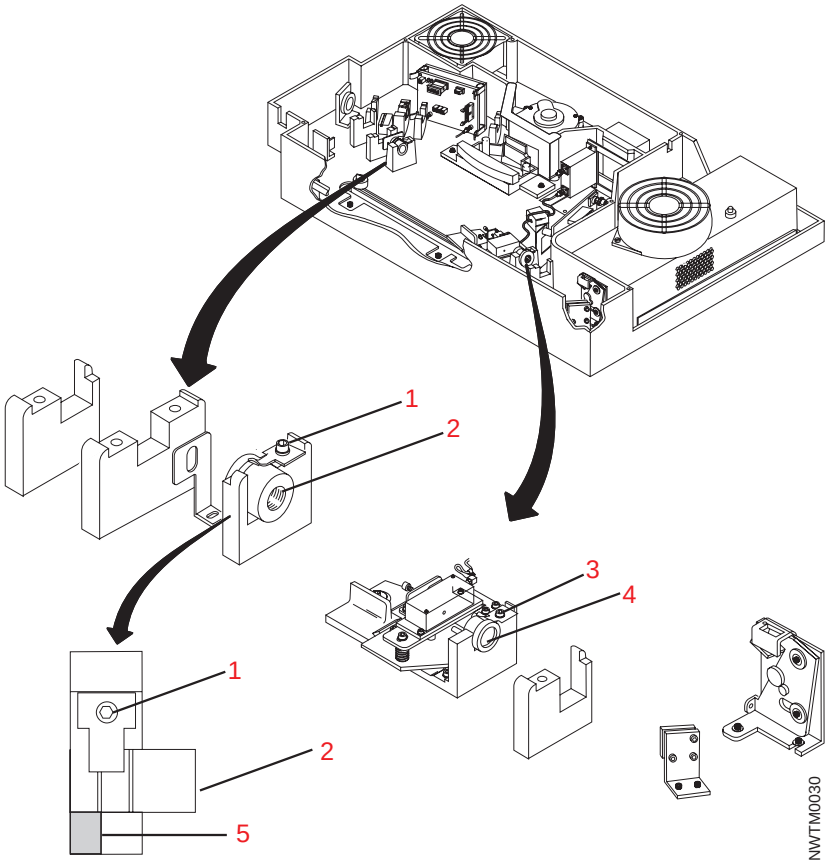
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Loosen screw **(3)**.

Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

4. Remove the L2 lens **(4)**.

(continued on next page)

Table 727. L2 Lens (continued)



Installation

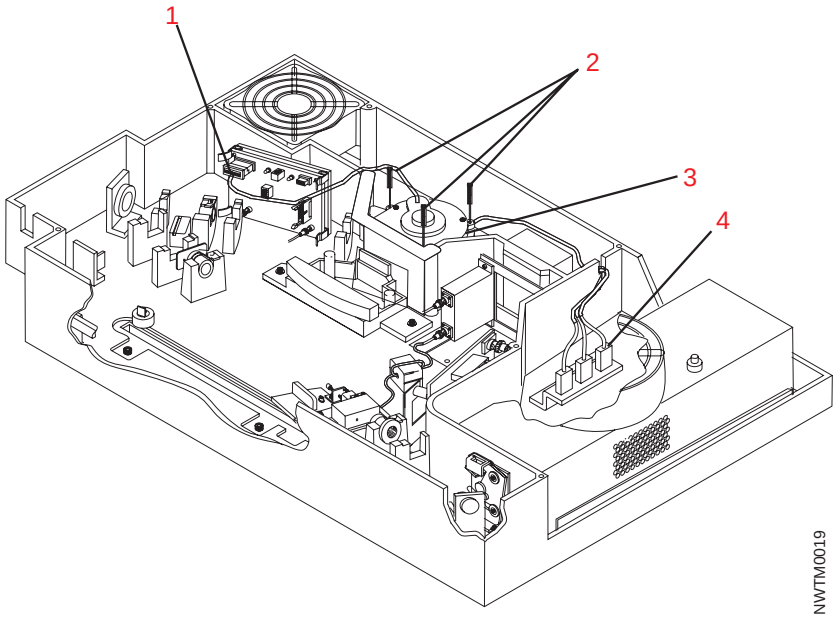
1. Install the lens **(4)** so that the collar is to the rear as shown.
2. Slide the lens so that the collar rests against the support.
3. Rotate the lens so that the white L2 is at the top.
4. Tighten screw **(3)**.
5. Install the printhead covers.

Check

Run Print Pack to verify print quality and that no system reference code is displayed.

Mirror Motor (M201)

Table 728. Mirror Motor (M201)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ208 **(1)** and PJ219 **(4)**.

Attention: Do not loosen or remove the three hex bolts on the mirror motor assembly.

4. Remove the three Phillips screws **(2)** from the mirror motor.
5. Remove the mirror motor **(3)**.

Installation

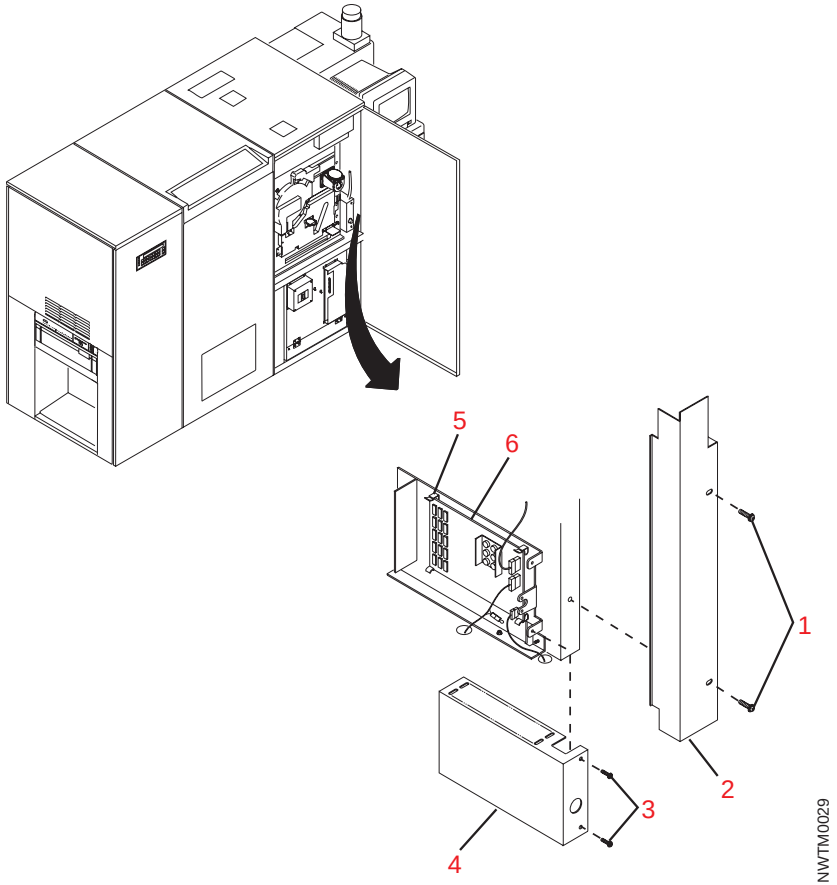
Reverse the removal procedure.

Check

Run Print Pack to verify print quality and that no system reference code is displayed.

Mirror Motor Driver Board (MD141)

Table 729. Mirror Motor Driver Board (MD141)



Attention: Use ESD procedures when working with the mirror motor driver board .

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Open the printer fight front cover.
3. Remove the two screws **(1)** and remove the cover **(2)**.
4. Remove the two screws **(3)** and remove the inner mirror motor driver board cover **(4)**.
5. Disconnect P224, P225, P226, and P231.
6. Release the four card holders **(5)** and remove the mirror motor driver board **(6)**.

Installation

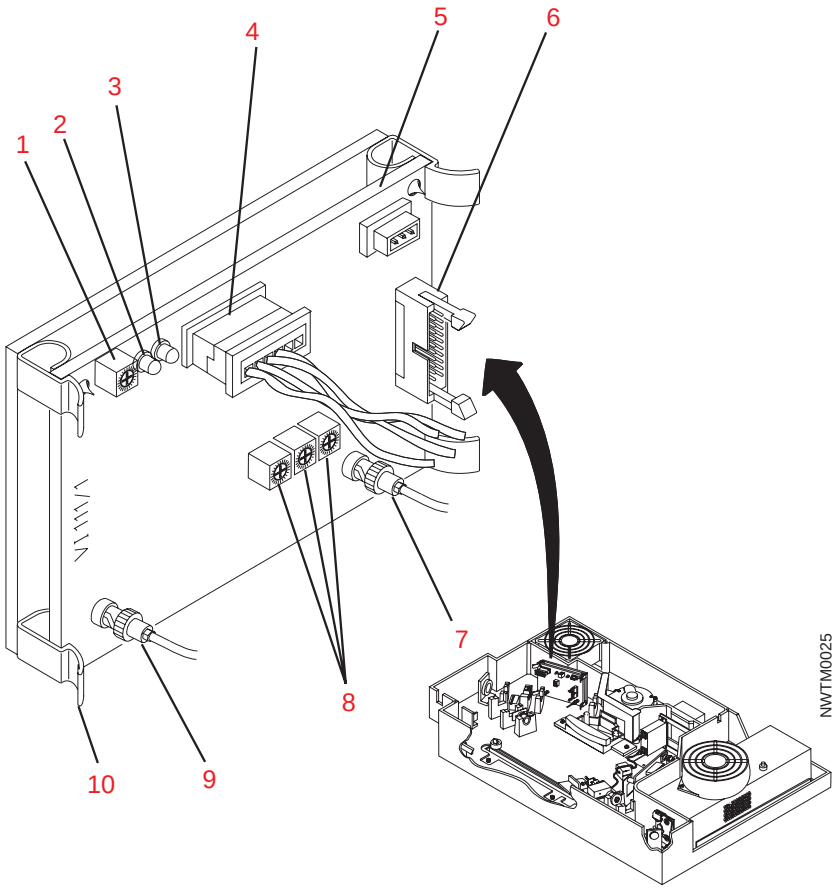
Reverse the removal procedure.

Check

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Interface Card (VI111)

Table 730. Printhead Interface Card (VI111)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ208 **(4)** and PJ210 **(6)** from the card **(5)**.
4. Disconnect the two coax connectors PJ206 **(7)** and PJ207 **(9)**.
5. Release the four card clips **(10)** and remove the card **(5)**.

Installation

Reverse the removal procedure.

Adjustment

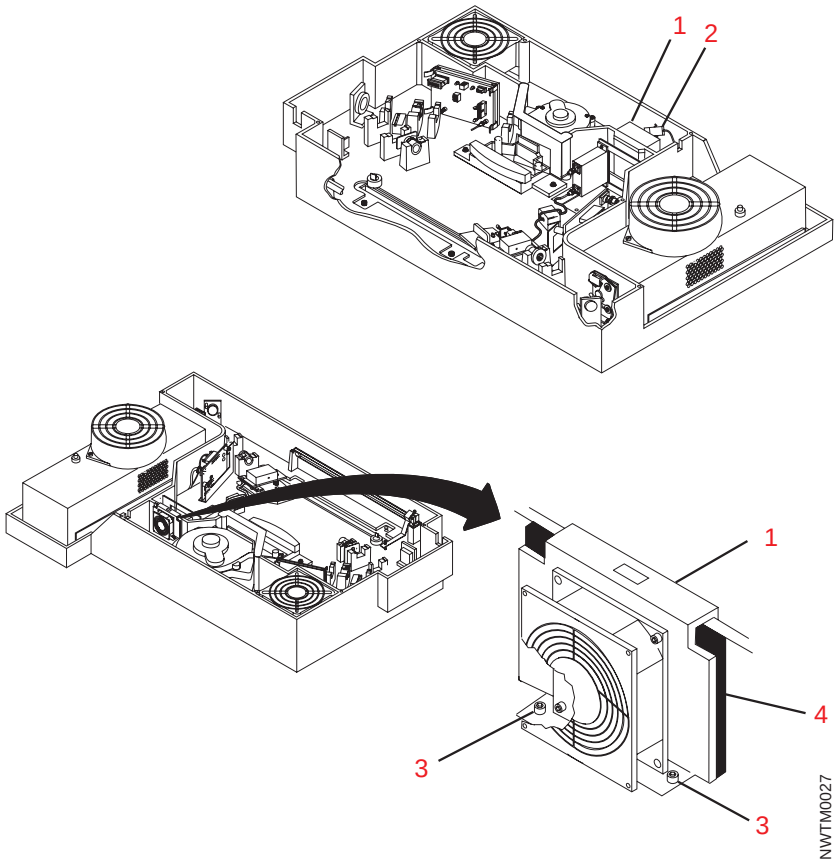
1. Cover the return mirror with paper.
2. Run Adjustment Routine C1.
3. Adjust potentiometer **(1)** **CCW** until LED **(2)** switches off. Note the position of the potentiometer.
4. Adjust potentiometer **(1)** **CW** until LED **(3)** switches off. Note the position of the potentiometer.
5. Adjust potentiometer **(1)** to a point that is centered between that of step 3 and step 4.
6. Stop the diagnostic and remove the paper from the return mirror.
7. Do not attempt to adjust the three potentiometers **(8)**. They are set at the factory and do not require adjustment.

Check

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Pressurizing Fan (B202) and Filter

Table 731. Printhead Pressurizing Fan (B202) and Filter



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ222 **(2)**.
4. Remove the two screws **(3)** and remove the printhead pressurizing fan (B202) assembly **(1)** and the filter **(4)**.

Installation

Reverse the removal procedure.

Check

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Checks and Adjustments

This section provides procedures for adjusting the printhead using the laser alignment target and laser power tool.

When You Should Use These Procedures

- You have just replaced a laser and are not able to complete the Simplified Laser Adjustment Procedure under Laser.
- You are having trouble with the printable area or beam alignment or low printing power.
- You are having beam detect errors.
- You are concerned about the beam positions at every point in the printhead.

Sequence

The printhead adjustments are all related and you must perform them in the correct sequence. Before you make any adjustments, you must make the checks in the following sequence to locate the source of the problem.

1. Printhead Checks and Adjustments
   a. Zero Beam Alignment
   b. Beam Pattern
   c. Aperture
   d. M2 Mirror
   e. Beam Power
   f. Interrupt Mirror
   g. Beam Detect Mirror
2. Print Sample Adjustments
   a. Print Width
   b. Print Skew
   c. Registration
   d. PQE Stroke Width

Table 732. Preparation for Printhead Checks and Adjustments

Preparation

To prepare for the printhead checks and adjustments follow the steps below.

- **Step 1** Disable all host attachments. See the *Operator's Guide.*
- **Step 2** Shutdown and power off the printer.
- **Step 3** Follow the Printhead Access procedure.
- **Step 4** Set the diagnostic function switch to **3**. (See Exerciser Routines (Position 3).)
- **Step 6** Cover the return mirror with paper.
- **Step 7** Power on the printer. (See Power-On Procedures.)

DANGER

<2> Laser radiation is present when the printer is powered-on.

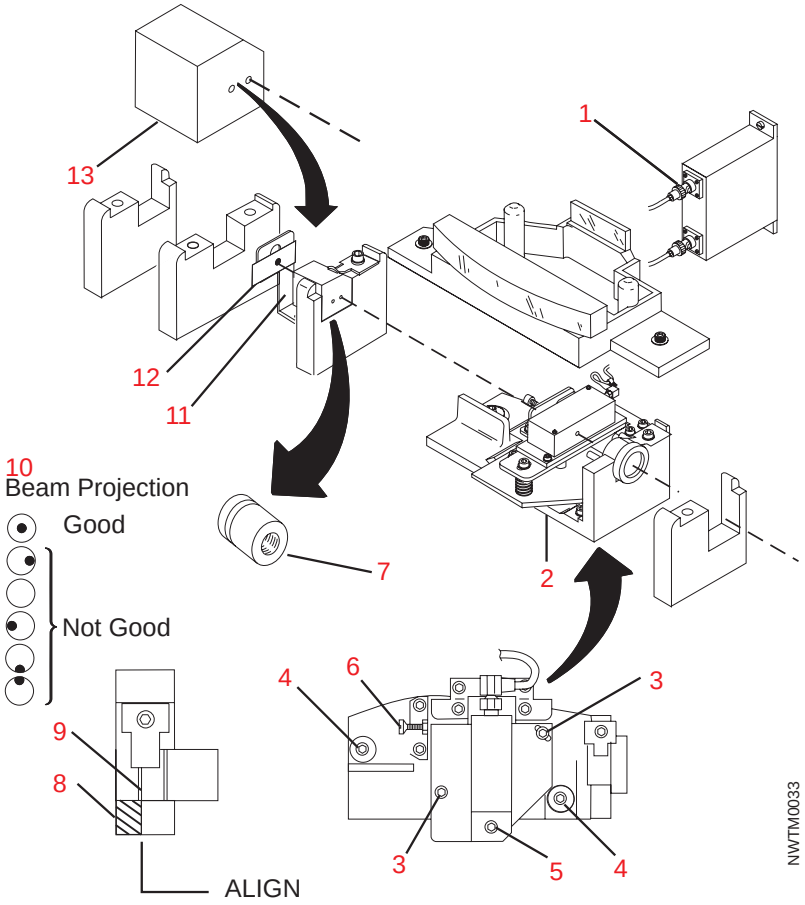
Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Zero Beam Alignment Check

Table 733. Zero Beam Alignment

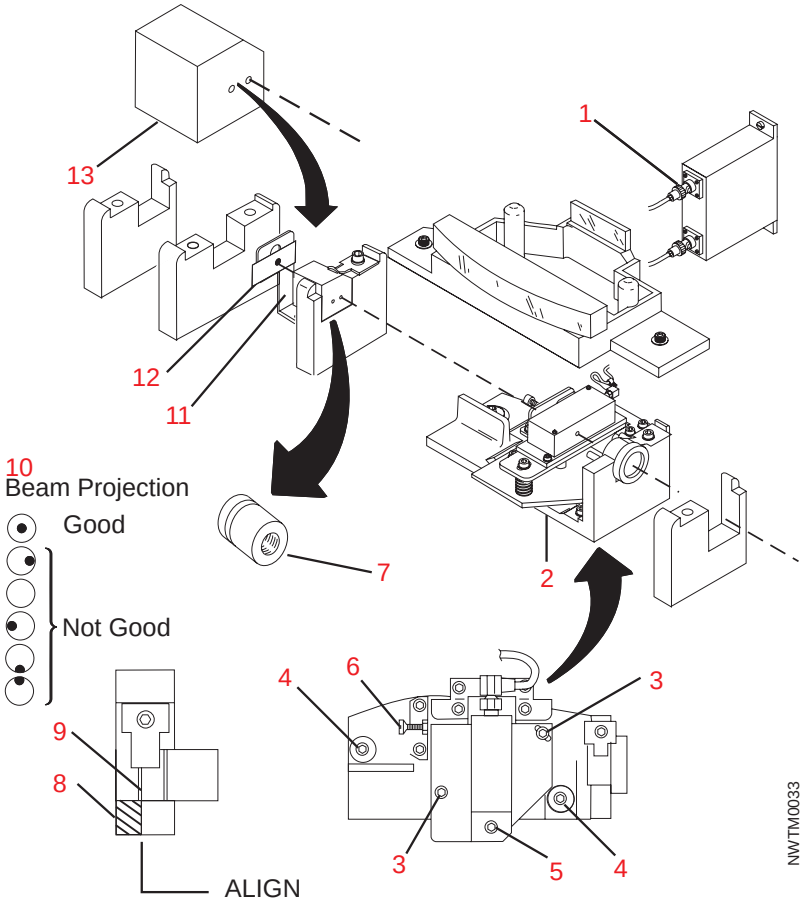


1. Perform all steps under preparation.
2. For ease of adjustment, attach the maintenance panel extension cable to the maintenance panel and place the maintenance panel on top of the printer.
3. Run Adjustment Routine C1 to project only the zero beam.
4. Scribe the position of the L1 lens **(7)** so that it can be reinstalled in that exact position.
5. Remove the L1 lens **(7)**.
6. Install the laser alignment tool **(13)** in the L1 lens location and tighten the screw.

Note: Ensure you have the correct alignment tool before you continue. See Laser Alignment Tool.

(continued on next page)

Table 733. Zero Beam Alignment (continued)

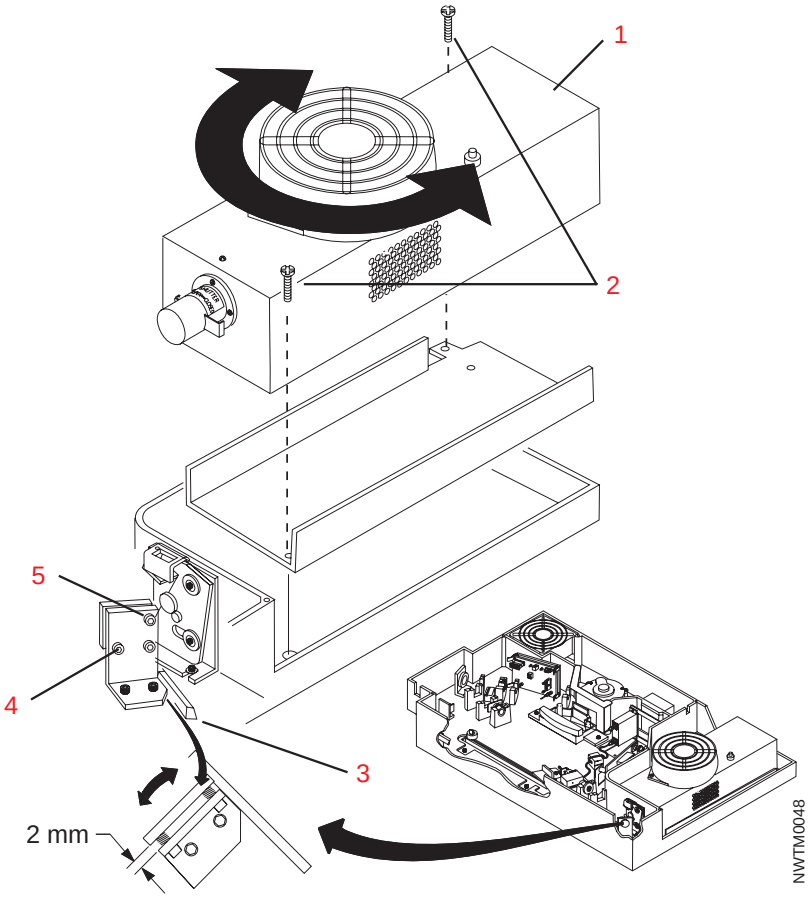


7. Place one of the white magnetic strips **(12)** shipped with the laser power tool stand, on the aperture **(11)**. Observe the beam projection **(10)** on the magnetic strip.
8. Compare the beam projection.
   - If the beam projection is good, go to Beam Pattern Check in Printhead Checks and Adjustments.
   - If the beam projection is slightly off center, go to M1 Mirror Adjustment.
   - If the beam projection is not centered on M1 or is not on the right-hand spot of the alignment tool, go to Laser Horizontal Adjustment.

(continued on next page)

Laser Horizontal Adjustment:

Table 734. Laser Horizontal Adjustment



The zero beam alignment is not correct because M1 mirror is not correctly positioned.

1. Ensure that M1 is 2 mm from the base plate. Measure with a 2 mm Allen wrench. If the distance is not close to 2 mm, go to M1 Mirror Adjustment and adjust the distance.
2. Loosen the two screws **(2)**.

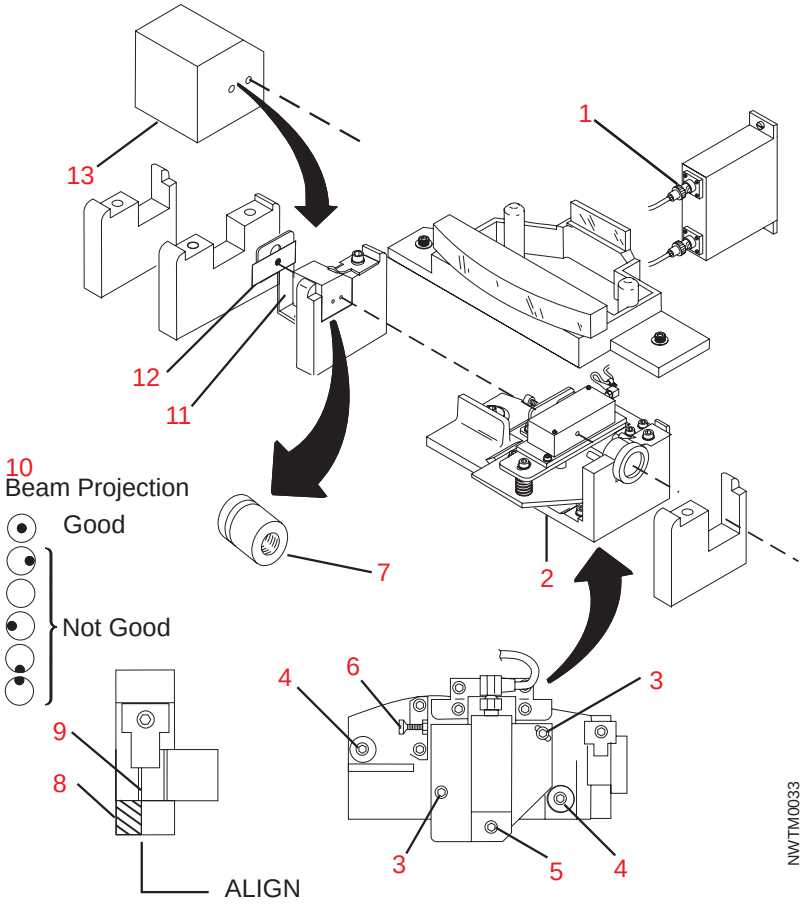
Attention: Whenever you move the laser, ensure that the laser exit opening is firmly seated against the foam seal on the safety shutter housing and that the foam seal does not interfere with the laser beam.

3. Rotate the laser **(1)** as necessary to center the beam on the M1 mirror and to correctly position the zero beam on the right-hand spot on the laser alignment tool.

   There is no vertical adjustment on the laser. Adjust M1 for vertical beam adjustment.

(continued on next page)

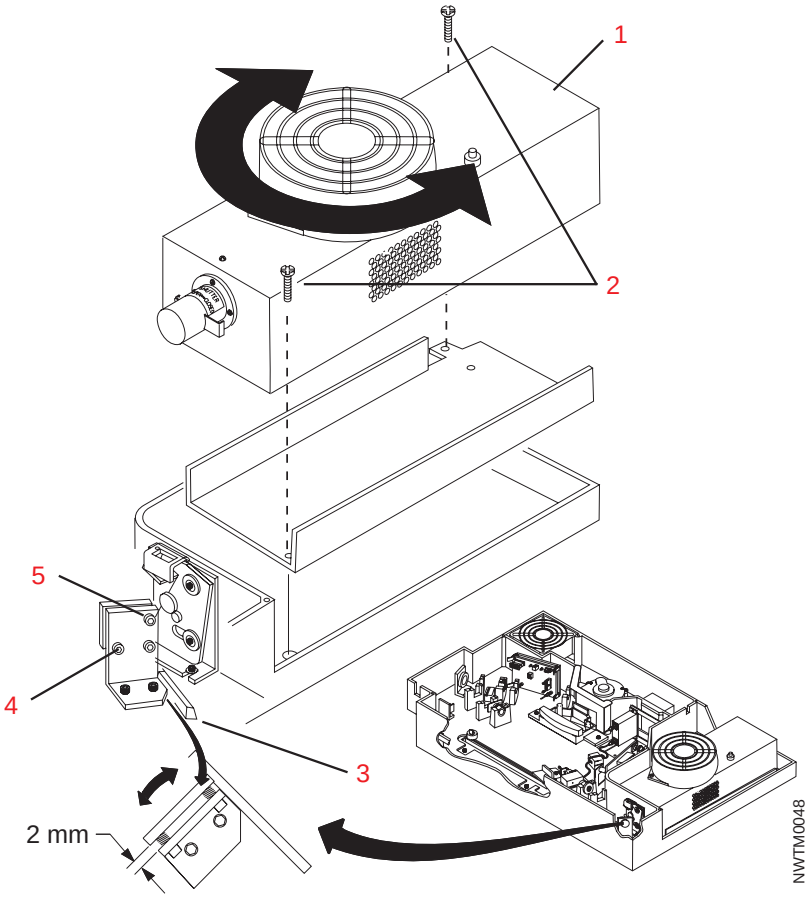
Table 734. Laser Horizontal Adjustment (continued)



4. Tighten the screws **(2)** to lock the laser into position. If the beam position changes when the screws are tightened, go to M1 Mirror Adjustment.
5. Compare the beam projection **(10)**.
   - If the beam projection is good, go to Beam Pattern Check in Printhead Checks and Adjustments.
   - If the beam projection is slightly off center, go to M1 Mirror Adjustment.

M1 Mirror Adjustment:

Table 735. M1 Mirror Adjustment

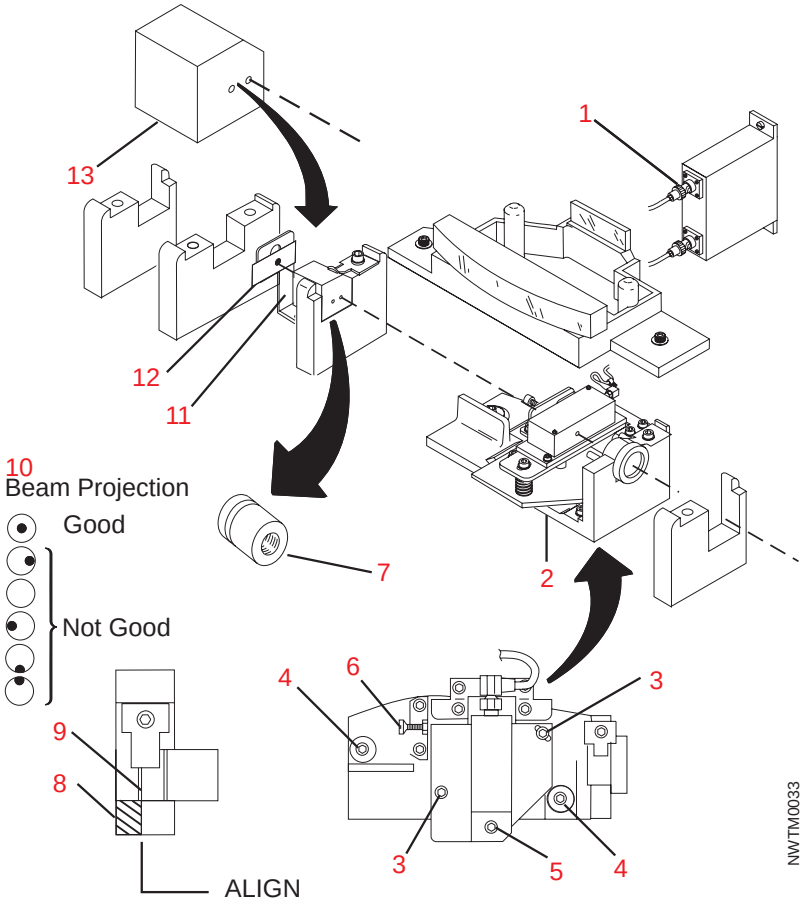


Note: If mirror M1 has been removed, ensure that the slots in the mirror M1 stand are centered over the holes in the casting. Also, ensure that the mirror M1 stand is against the reference edge **(3)** on the casting.

1. Adjust M1 as follows:
   - To move the beam **vertically**, slowly turn screw **(5)**.
   - To move the beam **horizontally**, slowly turn screw **(4)**.

(continued on next page)

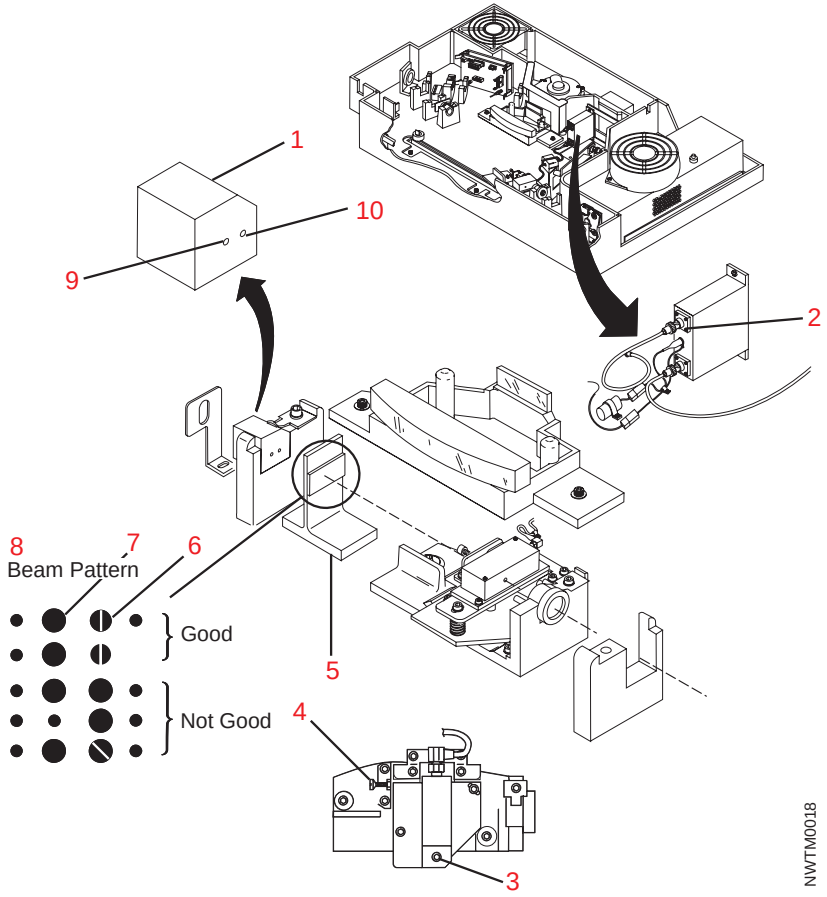
Table 735. M1 Mirror Adjustment (continued)



2. Compare the beam projection **(10)**.
   - If the beam projection is good, go to Beam Pattern Check in Printhead Checks and Adjustments.
   - If the beam projection is slightly off center, repeat M1 Mirror Adjustment.

Beam Pattern Check

Table 736. Beam Pattern



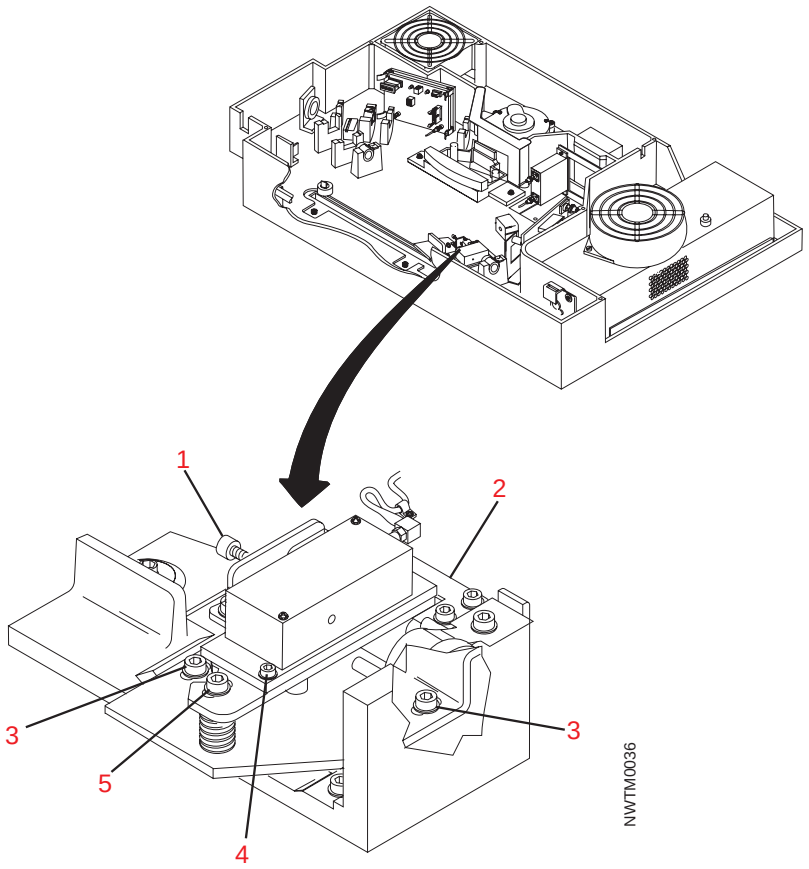
1. Perform all steps under preparation, if not already done.
2. Remove the laser alignment tool **(1)**.
3. For ease of adjustment, attach the maintenance panel extension cable to the maintenance panel and place the maintenance panel on top of the printer.
4. Place the white magnetic strip on the laser power tool stand **(5)**, and then place the stand in front of the lens 1 position.

   You should see four rows of beams **(8)**.

   As you slide the stand toward the L1 lens, the four rows of beams increase in size, and merge into one, out of focus, beam. Position the stand to the position for best viewing.
5. Adjustment routine C1 should still be running. If only the zero beams are showing, press **Enter** on the maintenance panel to produce the primary beam as well.
6. Compare the beam pattern. the zero beam **(6)** should be split.
7. Press **Enter** to switch off the primary beams.
8. The zero beam **(6)** is always on. The primary beam **(7)** is the beam just to the left of the zero beam as viewed from the rear of the printer. The primary beam passes through the center of lens 1. The beam to the right of the zero beam **(6)** may or may not be visible.
   a. If the beam pattern is good, go to Aperture Adjustment of Printhead Checks and Adjustments.
   b. If the beam pattern is not good, go to Beam Pattern Adjustment.

Beam Pattern Adjustment:

Table 737. Beam Pattern Adjustment



1. Turn the vertical adjustment screw **(5)** until the beams are as close as possible to the “Good” pattern shown in the figure on page 2696.

   If it is not possible to make the beam pattern correct now, adjust for the brightest possible primary beam **(7)** in the figure on page 2696.
2. Adjustment routine C1 should still be running with the primary beams visible.
3. Loosen, but do not remove the two screws **(3)**.
4. Turn the horizontal adjustment screw **(1)** until the beams are as close as possible to the “Good” pattern shown in the figure on page 2696.
5. Adjust for the zero beam **(6)** to split into two spots of equal size. The separation between the spots should be a vertical line. The beam to the right of the zero beam **(6)** may or may not be visible. (See the figure on page 2696.)
6. Repeat steps 1 and 4, if necessary.

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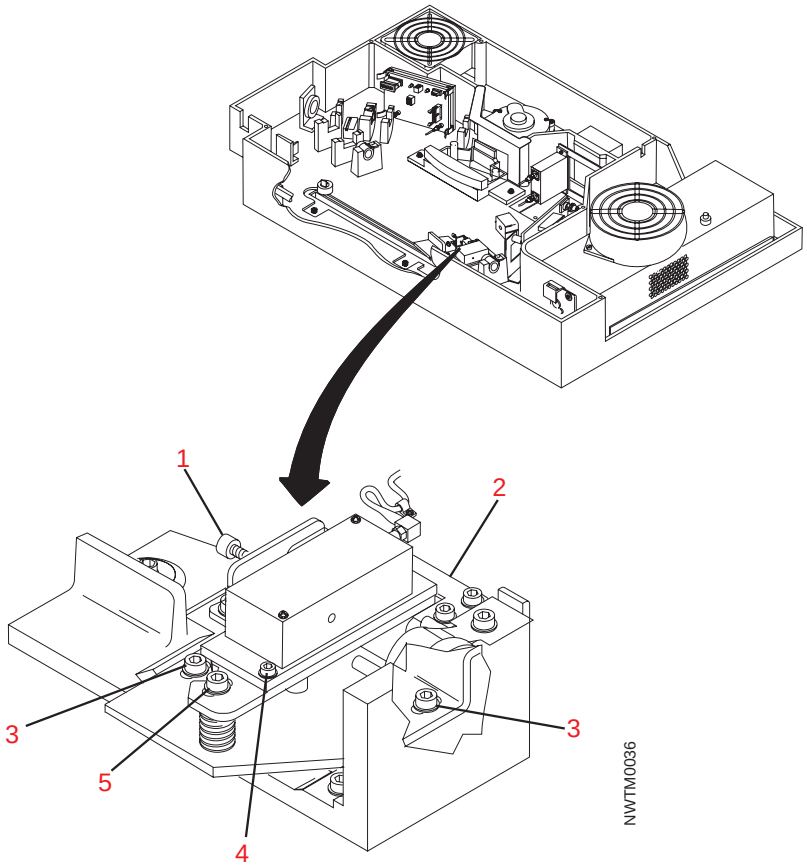
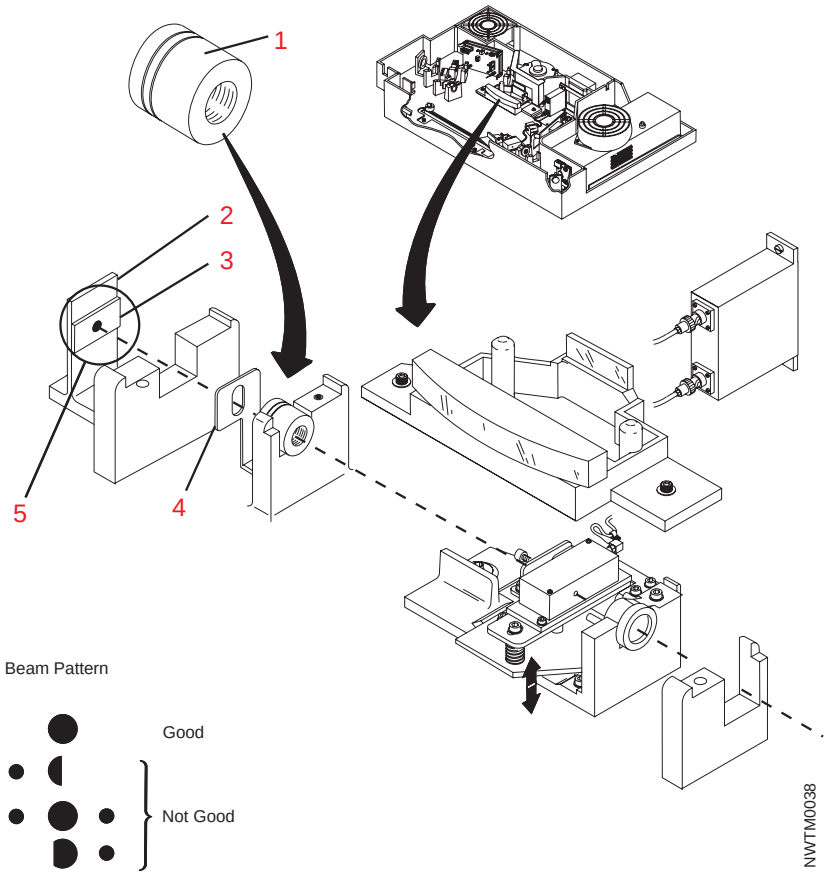
Table 737. Beam Pattern Adjustment (continued)



7. When the beam pattern is good, gently tighten the screws **(3)**.
8. Ensure that the beam pattern did not change as the screws were tightened.
9. Press **Enter** on the maintenance panel, so that only the zero beam is present.
10. Remove the laser power tool stand and verify that the zero beam is still correctly aligned.
11. Go to Aperture Adjustment in Printhead Checks and Adjustments.

Aperture Adjustment

Table 738. Aperture Adjustment

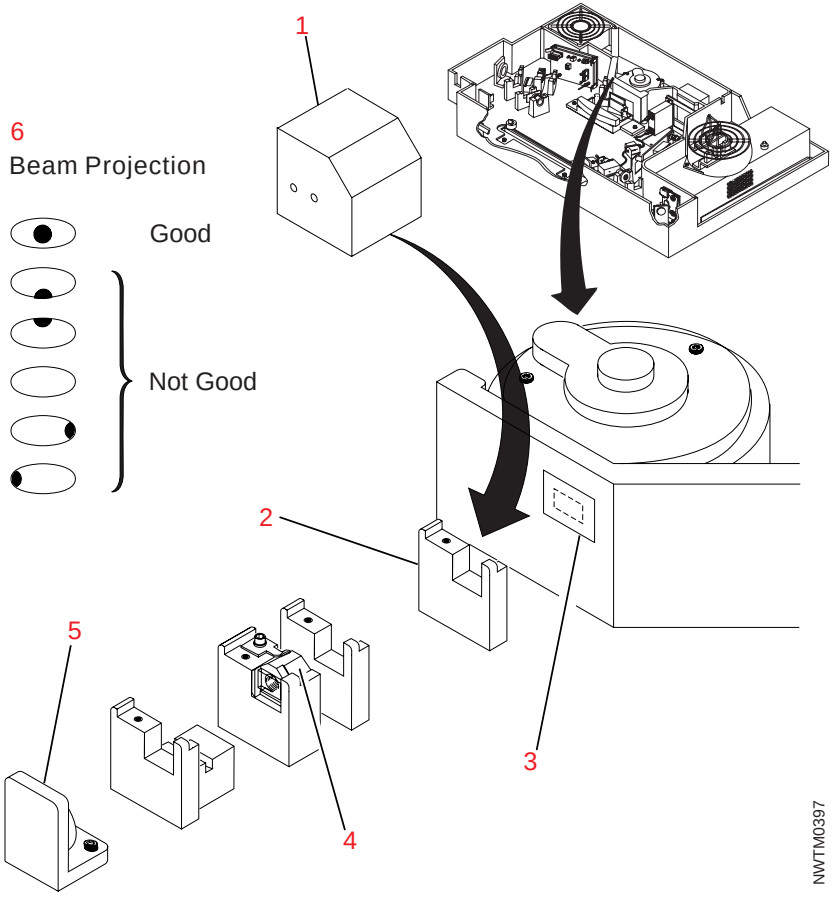


1. Perform all steps under preparation, if not already done.
2. Adjustment routine C1 should still be running with the primary beams visible.
3. Install the L1 lens **(1)** in the exact position from which you removed it.
4. Place the laser power tool stand **(2)** with the magnetic strip **(3)** behind the aperture **(4)** so that the beam pattern is projected on the strip.
5. Adjust the aperture **(4)** to obtain the “Good” beam pattern shown here.

   Position the aperture at an angle, for best results.
6. Remove the laser power tool stand **(2)**.
7. Go to M2 Mirror Check of Printhead Checks and Adjustments.

M2 Mirror Check

Table 739. M2 Mirror



1. Perform all steps under preparation, if not already done.
2. Adjustment routine C1 should still be running with the primary beams visible.
3. Place the alignment tool **(1)** on the pedestal **(2)** that is just in front of the mirror motor wall **(3)**. The spots on the alignment tool face the front of the printer.
4. Place one of the white magnetic strips on the mirror motor wall **(3)**, so that the beam will be projected on the strip.
5. Compare the beam projection **(6)**.
   - If the beam is “Good,” remove the alignment tool and the magnetic strip and go to Beam Detect Mirror Check in Printhead Checks and Adjustments.
   - If the beam is “Not Good,” go to step 6.

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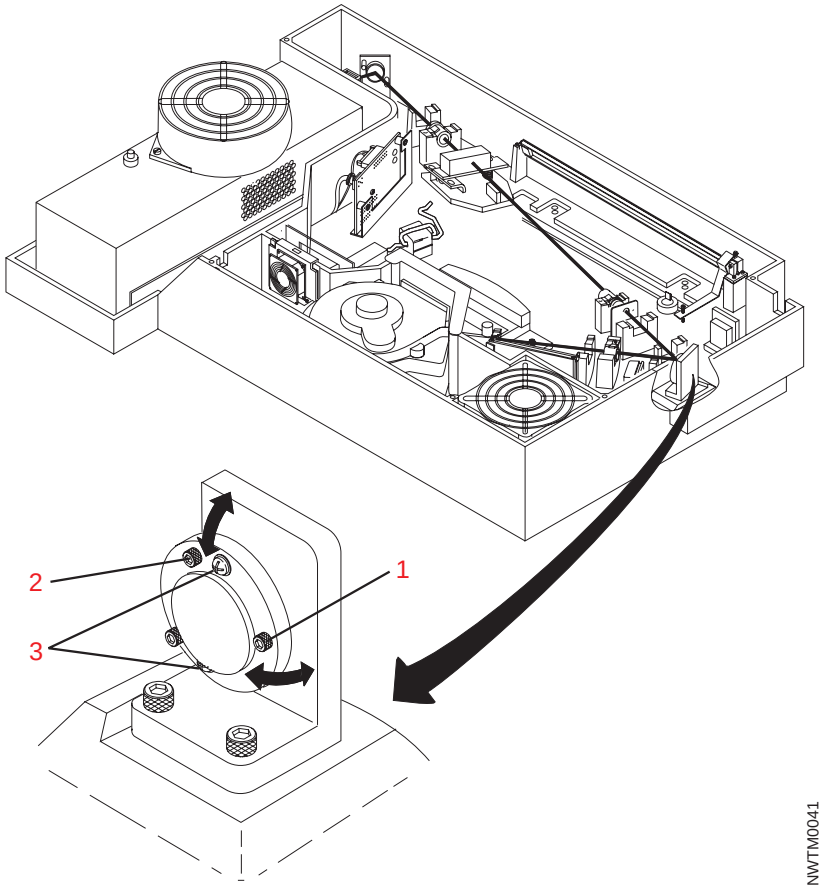
Table 739. M2 Mirror (continued)



M2 Mirror Adjsutment

6. Loosen the locking screws **(3)** if they are present.
7. Adjust the spot vertically by turning screw **(2)**.
8. Adjust the spot horizontally by turning screw **(1)**.
9. Tighten the M2 mirror locking screws **(3)**, if they are present.

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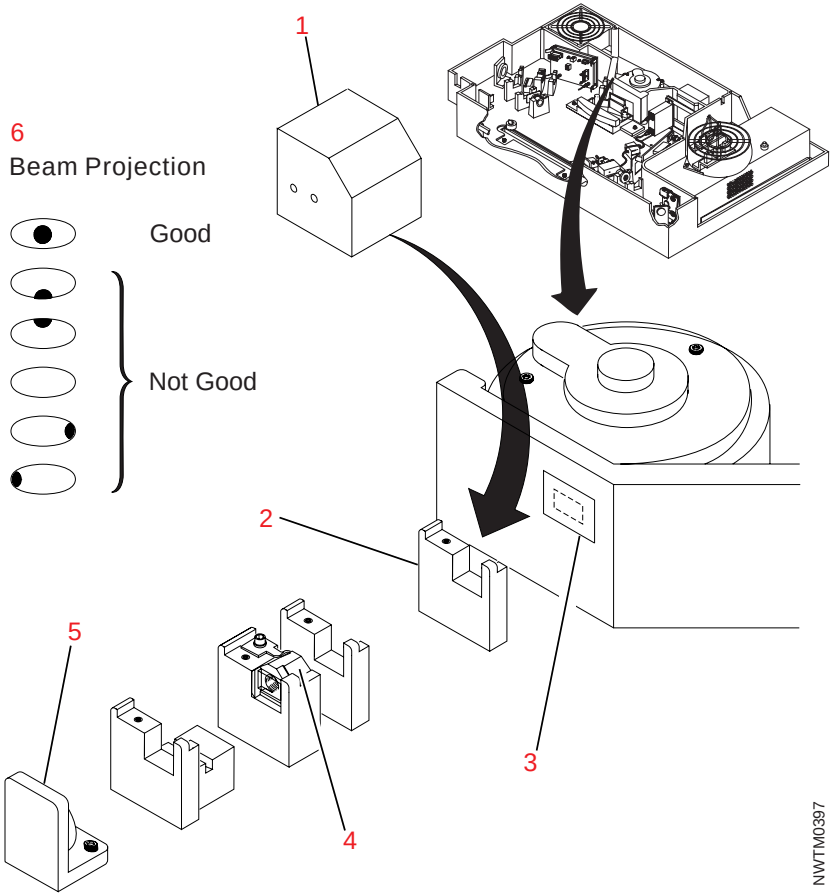
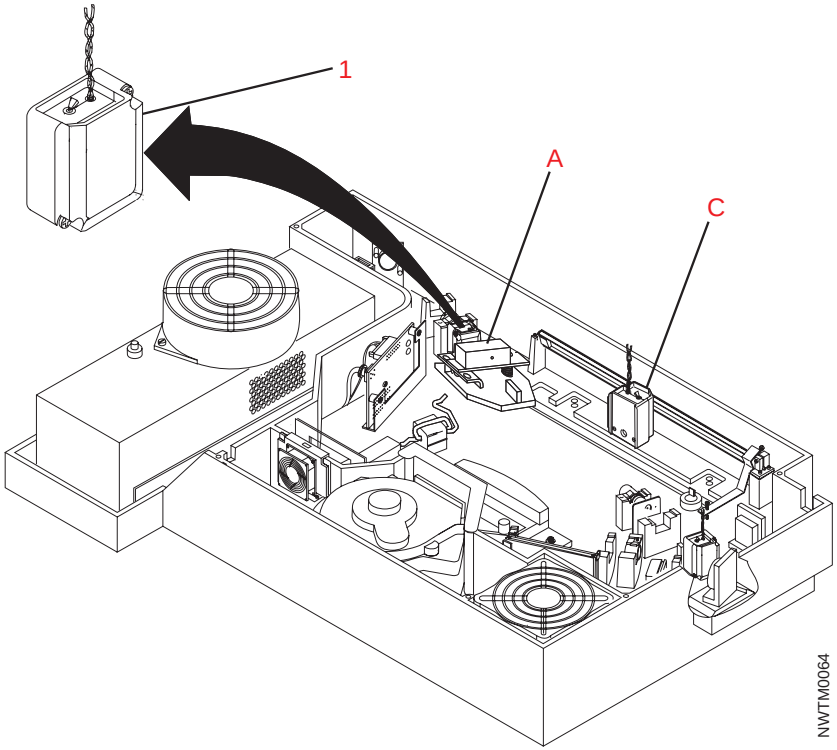
Table 739. M2 Mirror (continued)



10. Ensure that projection **(6)** is still good.
11. When the beam projection is good, remove the alignment tool and the magnetic strip, and then go to Beam Power Check in Printhead Checks and Adjustments.

Beam Power Check

Table 740. Beam Power



Beam Power Measuring Points

1. Perform all steps in preparation, if not already done.
2. If you are not sure that the laser is correctly aligned, perform the following Printhead Checks and Adjustments:
   a. Zero Beam Alignment Check
   b. M2 Mirror Check
3. Run Adjustment Routine C0 to switch on the primary beam without switching on the mirror motor.
4. If you see a scanning beam at the return mirror, press **Stop/Start**.
5. Run Adjustment Routine C0 again, pressing **Enter** only once.
6. Wait for the mirror motor to stop scanning. This may take up to two minutes.
7. Ensure that the printhead cover is installed and the switch on the laser power tool is set to **High**. (The **High** setting is 10% of the **Low** setting.)
8. Record the power readings at positions **A** and **C**.
   - **A** is located on the pins between the L2 lens and the AO modulator.
   - **C** is located in front of the return mirror.

     The most accurate **C** reading is obtained in the center of the return mirror.

(continued on next page)

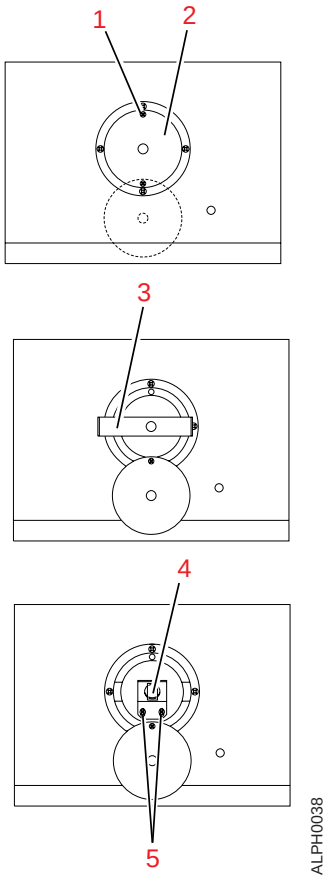
Table 740. Beam Power (continued)

9. Check the following conditions and then use the table to determine which adjustment procedure to use. (Reference Beam Power Measuring Points.)
   - The power at position **A** is 95 mV or more with the cover on and the power tool switch set to **High**.
   - The power at position **C** is 45 mV or more with the cover on and the power tool switch set to **High**.

A **95 mV or more**	**C** **45 mV or more**	**Go To...**
No	—	Go to Power Adjustment A.
Yes	No	Go to AO Modulator Adjustments. If this procedure has been performed, and the power at **C** is still too low, go to Power Adjustment C.
Yes	Yes	Go to AO Modulator Adjustments. If this procedure has been performed, go to Beam Detect Mirror Check.

Power Adjustment A:

Table 741. Power Adjustment A



The beam power at **A** is less than 95 mV. The problem is one or more of the following:

- Bad laser
- Beam path obstruction
- Dirty or damaged beam splitter, L2 lens, M1 mirror, or laser safety filter mechanism

Attention: Do not remove lenses, prisms, or mirrors from the printhead to examine or to clean them.

Perform the following:

1. Check for obstructions in the beam path.
2. Check the shutter and foam gasket for clipping of the beam.
3. Check the L2 lens, the M1 mirror, and the laser safety filter for dirt or damage **without removing them** from the printhead.

Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

4. Clean any dirty parts.
5. If you have not yet solved the problem, power-off the printer and remove the Laser.

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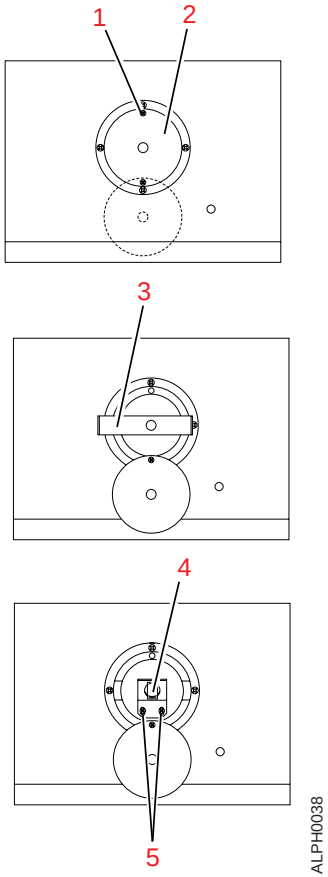
Table 741. Power Adjustment A (continued)



Attention: The corners of the laser can scratch the cover paint. Use care.

6. With the laser on a suitable work surface, remove screw **(1)** from the cover **(2)**.
7. Remove the sliding shutter **(3)**.
8. Remove the two screws **(5)** holding the beam splitter **(4)** in place.
9. Carefully clean and dry both sides of the beam splitter using cotton swabs and isopropyl alcohol.
10. Reinstall the beam splitter, biasing the two screws toward the top of the elongated holes in the support.
11. Reinstall the sliding shutter with the hole closer to the right end of the shutter than the left.
12. Close the rotating cover, and reinstall the cover screw.
13. Tighten the upper and the lower cover screws.
14. Reinstall the Laser.
15. Perform the Simplified Laser Adjustment Procedure.
16. Measure the power at **A** again (See the figure on page 2703).
17. If the power is greater than 110 mV, go to step 7 of Beam Power Check in Printhead Checks and Adjustments.
18. If the low power problem still exists, replace the Laser.

Power Adjustment C:

The beam power at **A** is good but the beam power at **C** is not, and performing the AO Modulator Adjustments did not correct the problem. The problem is most likely the AO modulator or the AOM driver. However, the problem could be the L1 lens, the M2 mirror, the CYL1 lens, the mirror motor, the aperture, or the F-Theta lens.

Perform the following:

1. Using the straight edge of a white sheet of paper, hold it up to the right edge and then the left edge of the AO modulator window (laser beam entrance window).
2. Check the window on the other side of the AO modulator (laser beam exit window).
3. Verify that the laser is not being clipped by the edges of these windows.
4. If the beam is being clipped, perform the Beam Power Check of the Printhead Checks and Adjustments.
5. Insert a piece of paper into the beam path, before and after each component. See Single Beam Printhead Components. Check the beam projection on the paper to isolate any component that is clipping the beam. If the component is a lens or a prism, return to Zero Beam Alignment Check and try to realign the laser. Otherwise, adjust the component if it is the aperture or one of the mirrors.

(continued on next page)

Attention: Do not remove lenses, prisms, or mirrors from the printhead to examine or for cleaning.

Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

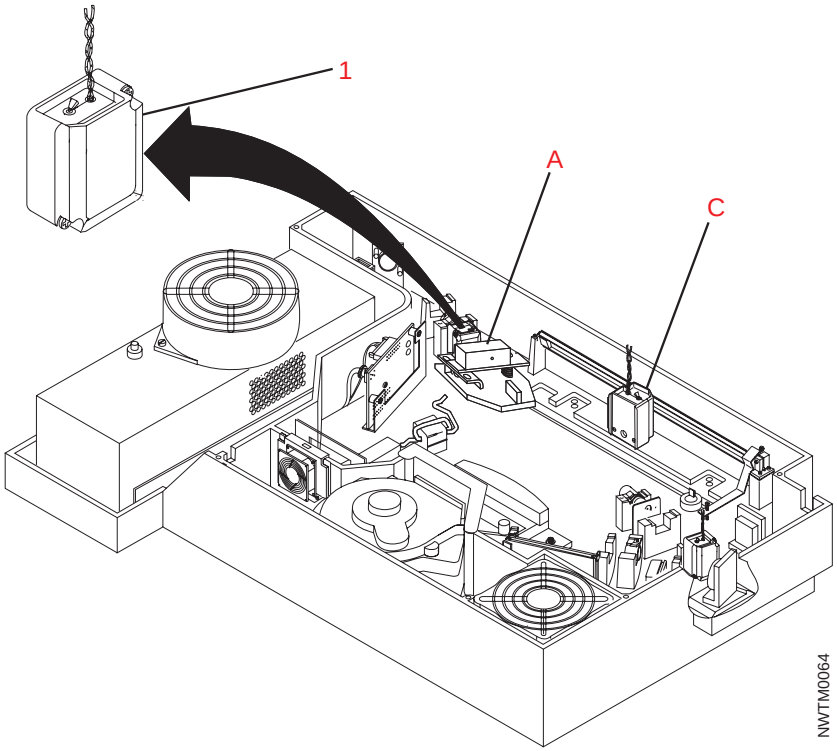
6. Closely examine and clean the following components without removing them:
   - L1 lens
   - M2 mirror
   - CYL1 lens
   - Mirror motor
   - F-Theta lens

Attention: If any component is replaced in the next step, scribe the position of the component so that it can be reinstalled in that exact position.

7. Replace damaged components.
8. If the low power at position **C** is still not corrected, replace the AO modulator, and then return to step 7 of Beam Power Check.

AO Modulator Adjustments:

Table 742. AO Modulator Adjustments

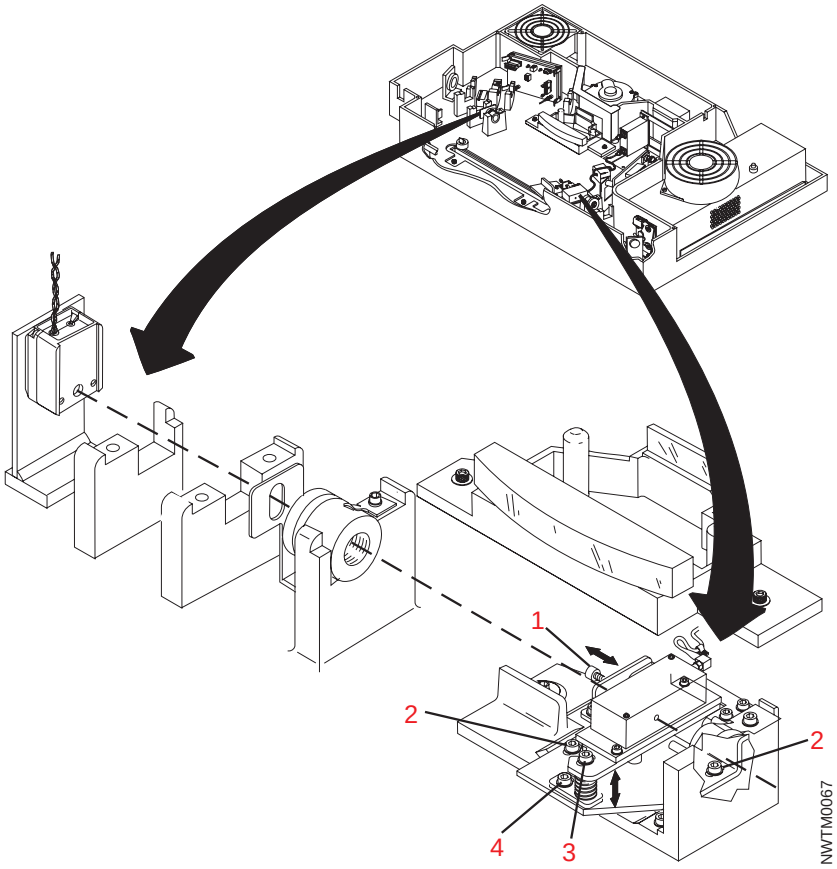


Beam Power Measuring Points

1. Cover the return mirror with paper.
2. Set the switch on the power tool to **Low**.
3. Ensure the power adjustment potentiometer on the AOM driver is turned fully clockwise.
4. Run Adjustment Routine C0 to switch on the primary beam without running the scanning mirror motor.
5. Place the power tool at position **C** located in front of the return mirror.
6. Ensure that the eye of the power tool is centered on the primary beam projection. Adjust its position to obtain the maximum power. (See item **(8)** in the figure on page 2696.)

(continued on next page)

Table 742. AO Modulator Adjustments (continued)



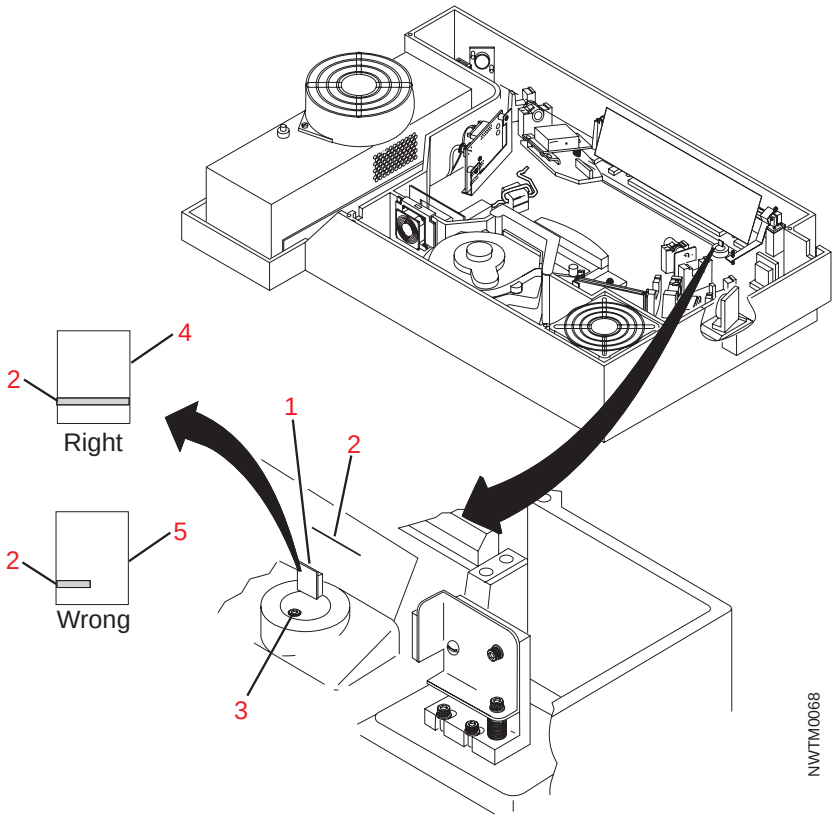
7. Loosen the locking screw **(4)**.

Note: Your printhead may or may not have this locking screw. If not, continue to the next step.

8. Adjust screw **(3)** to obtain maximum power at **C**.
9. Tighten the locking screw **(4)**.
10. Loosen the two screws **(2)**.
11. Adjust the screw **(1)** to obtain maximum power at **C**.
12. Tighten the two screws **(2)**.
13. Ensure that maximum power is not decreased when the screws **(2)** and **(4)** are tightened.

Interrupt Mirror Check

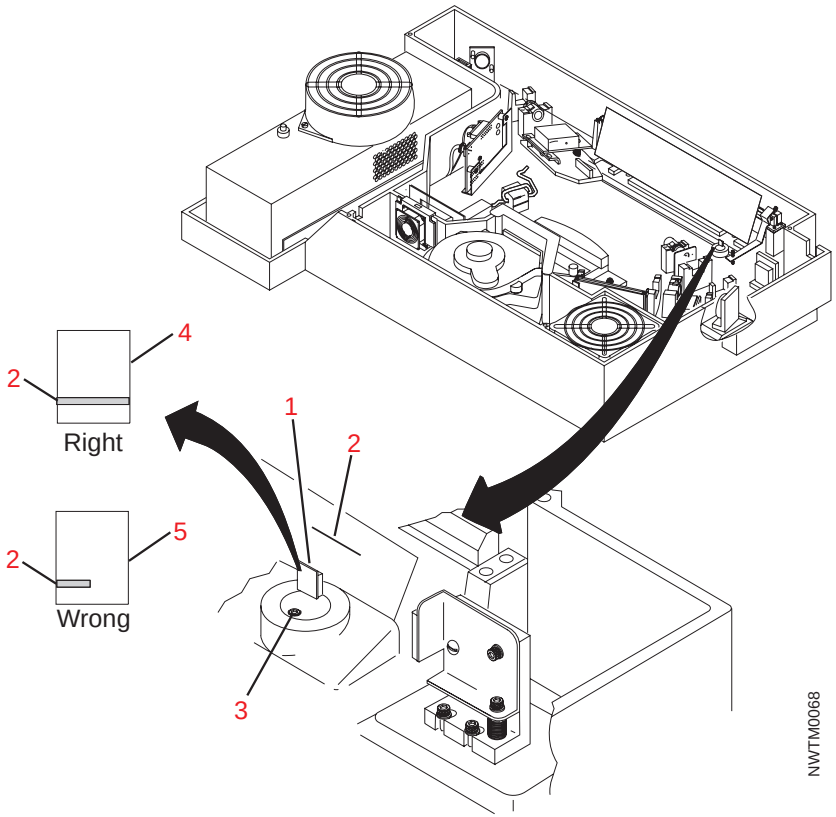
Table 743. Interrupt Mirror



1. Run Driver Routine C0 to switch on the scanning primary beam.
2. Use a piece of paper to locate the position of the scanning beam on the interrupt mirror **(1)**.
3. Ensure the scanning beam **(2)** is completely, or nearly completely, across the face of the interrupt mirror **(1)** as shown by **(4)**.
4. Perform one of the following:
   - If the mirror position is correct, go to Beam Detect Mirror Check in Printhead Checks and Adjustments.
   - If the beam appears as shown by **(5)**, go to Interrupt Mirror Adjustment.

Interrupt Mirror Adjustment:

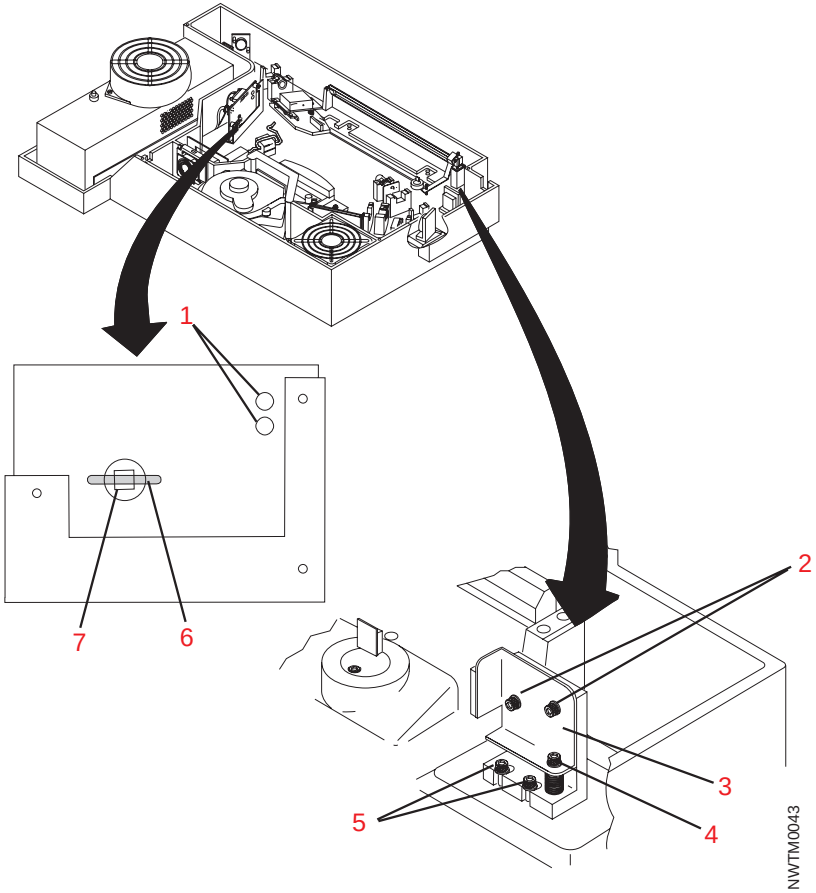
Table 744. Interrupt Mirror Adjustment



1. Ensure the laser beam is properly aligned throughout the printhead using steps 1 to 4 under preparation.
2. Loosen screw **(3)**.
3. Rotate the interrupt clockwise and counterclockwise, and position it in the middle of its adjust range.
4. Perform Interrupt Mirror Check and rotate the mirror slightly if necessary.
5. Tighten screw **(3)**.
6. Go to Beam Detect Mirror Check in Printhead Checks and Adjustments.

Beam Detect Mirror Check

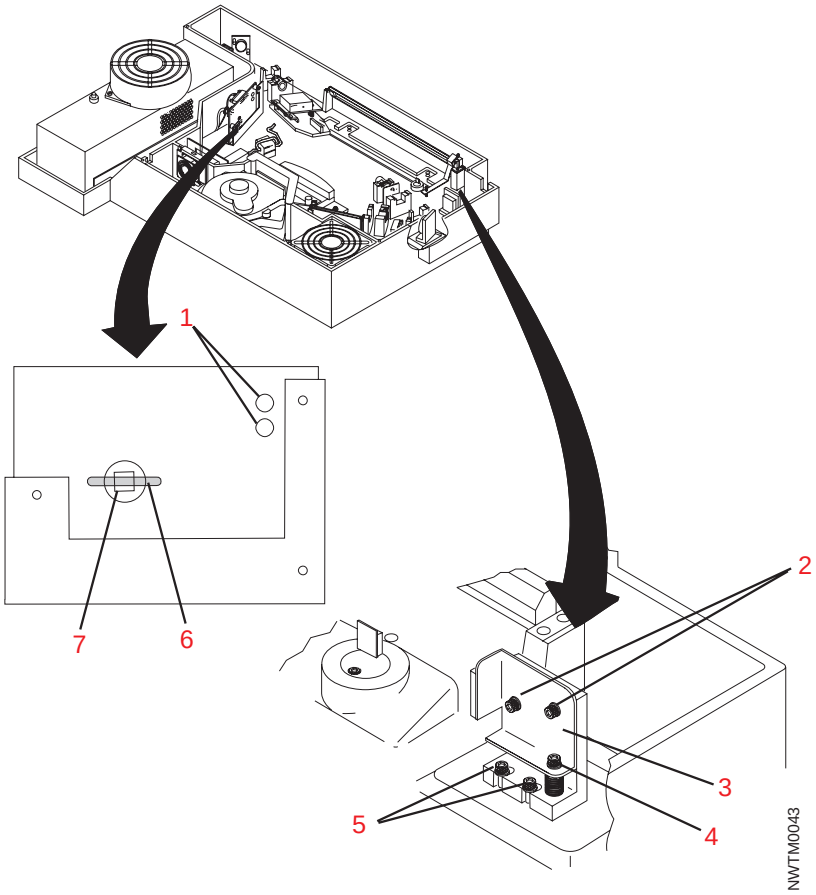
Table 745. Beam Detect Mirror



1. Run Adjustment Routine C0. If the scanning mirror is not running, press **Enter** on the maintenance panel to switch on the mirror motor.
2. Observe the vertical beam vertical alignment **(6)**. The beam should be centered vertically on the sensor **(7)**. Ensure that both LEDs **(1)** on the beam detect card are on.
   - If the beam alignment is good, go to step 3.
   - If the beam alignment is not good, go to Beam Detect Mirror Adjustment.
3. If you are not confident that the beam patterns were correct (as shown in the figure on page 2696), go to Beam Power Check in Printhead Checks and Adjustments.
4. Remove the paper from the return mirror.
5. To complete the procedure, go to Registration.
6. Check the PQE Stroke Width Adjustment.

Beam Detect Mirror Adjustment:

Table 746. Beam Detect Mirror Adjustment



1. Loosen the two clamping screws **(2)** on the beam detect mirror assembly **(3)**.
2. Adjust screw **(4)** until the beam **(6)** is centered on the beam detect sensor **(7)**.
3. Ensure that both LEDs on the beam detect card are on.
4. Tighten screws **(2)**. Ensure that the beam does not move as the screws are tightened.
5. If both LEDs do not switch on, there may not be enough beam power. If you are not confident that the beam patterns were correct as shown in the figure on page 2696, go to Beam Power Check of Printhead Checks and Adjustments.
6. Remove the paper from the return mirror.
7. To complete the procedure, go to Registration.
8. Check the PQE Stroke Width Adjustment.

Print Sample Adjustments

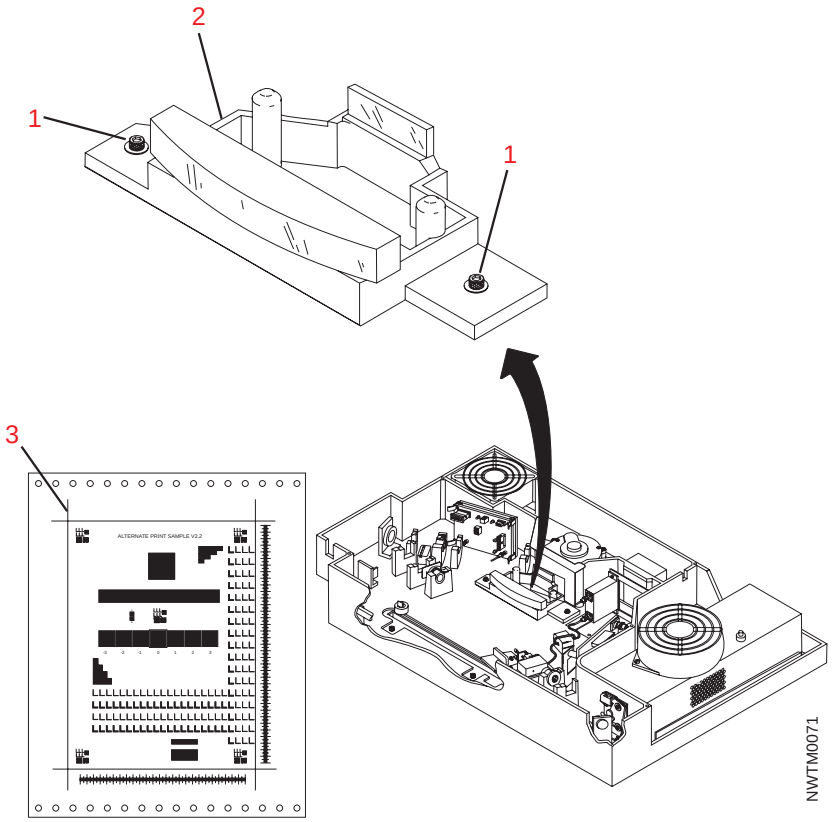
These procedures assume that the printhead is correctly aligned. (See Printhead Checks and Adjustments.)

Attention: The Print Sample Adjustments are all related and must **all** be performed in the sequence listed.

1. Print Width
2. Print Skew
3. Registration
4. PQE Stroke Width

Print Width

Table 747. Print Width



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

DANGER

<22> You will need a wrench and a screwdriver to do this procedure. These tools can reflect the laser beam. Whenever these tools are used in the printhead, ensure that the printer is powered off.

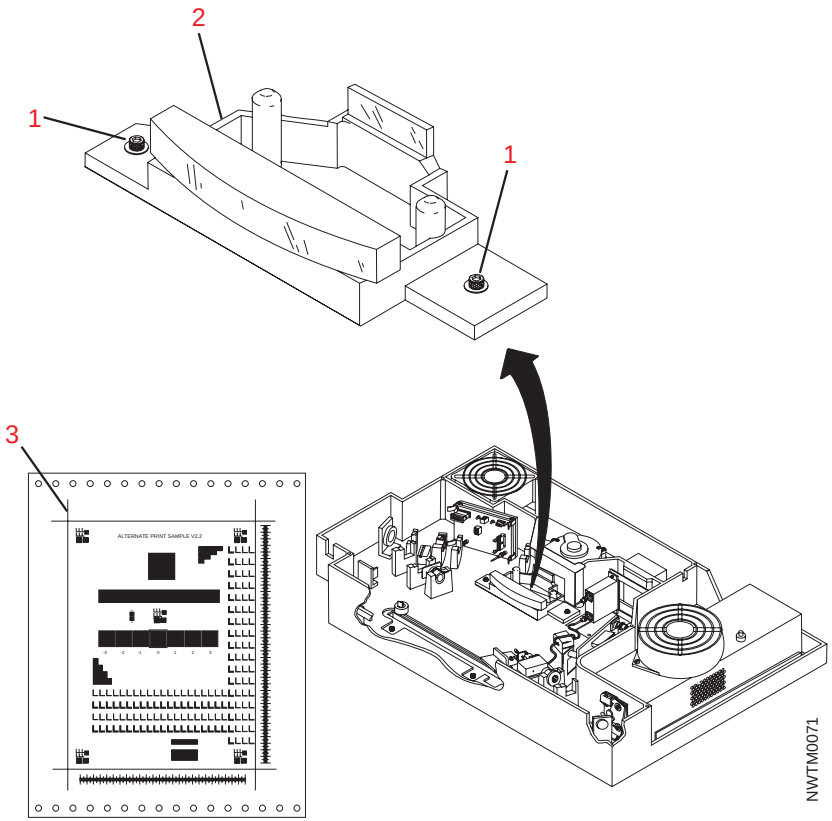
These procedures assume that the printhead is correctly aligned. See Printhead Checks and Adjustments.

Check

1. Ensure that forms 12 inches or wider are loaded.
2. Print an Alternate Print Sample.
3. Measure the line in the scan direction **(3)**. If the line is not exactly 11.0 inches on the unfused image, perform the adjustment.

(continued on next page)

Table 747. Print Width (continued)



Adjustment

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Remove the printhead cover.
3. Scribe the position of the F-Theta lens for reference.
4. Loosen the two screws **(1)**.
5. Adjust the F-Theta lens assembly **(2)** to change the line length as follows:
   - Hold the F-Theta lens against the machined surface of the printhead base to ensure that the F-Theta lens does not rotate.
   - To shorten the line, move the F-Theta lens toward the return mirror (to the right from the front of the machine).
   - To lengthen the line, move the F-Theta lens away the return mirror (to the left from the front of the machine).

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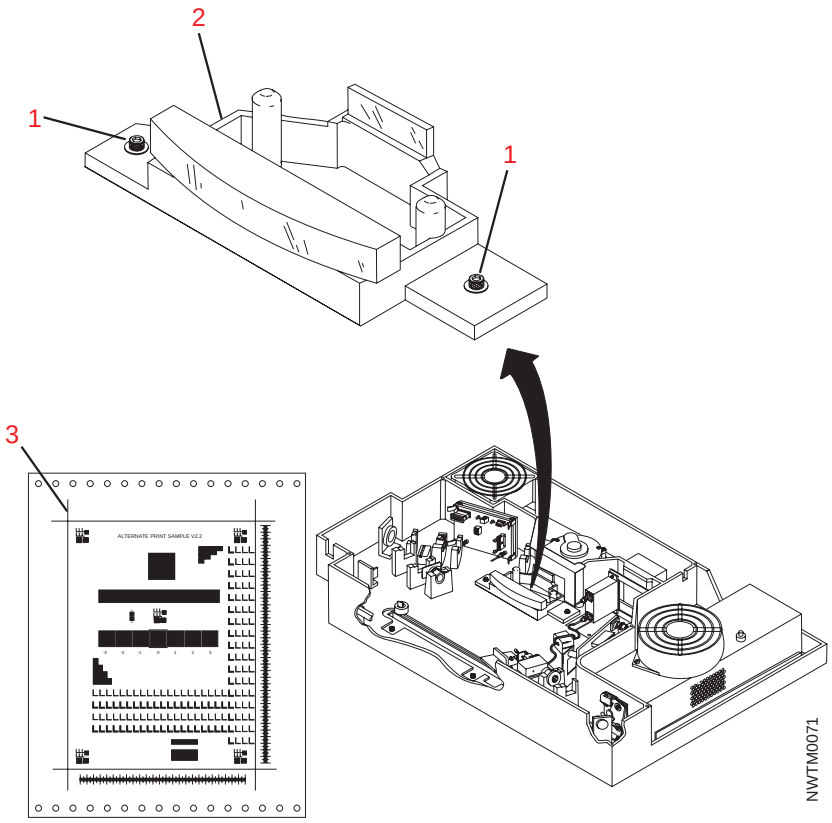
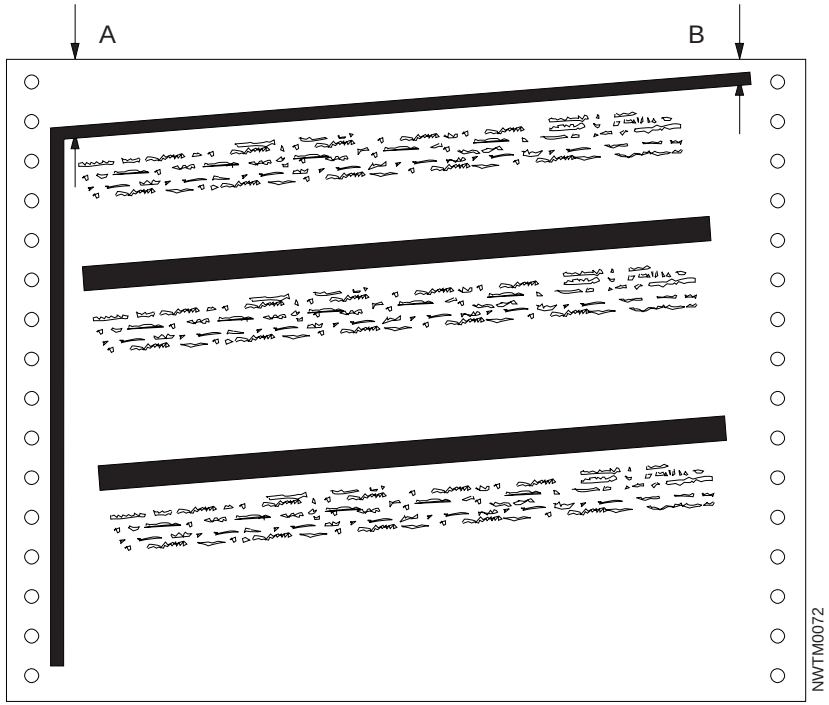
Table 747. Print Width (continued)



6. Tighten screws **(1)**.
7. Return the printhead cover to the operating position. **Do not fasten it** with screws at this time.
8. Print an Alternate Print Sample again and check the line length.
9. Run Text 1 print sample and verify that the three copy marks are printed at the perforation.
10. Repeat this procedure until the line length is exactly 11.0 inches.
11. If you cannot get 11.0 inches, replace the mechanism interface card (MIC) and try again.
12. Perform the PQE Stroke Width Adjustment.

Print Skew

Table 748. Print Skew



The scanned lines are not parallel with the perforations on the form.

Call your next level of support before making this adjustment.

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

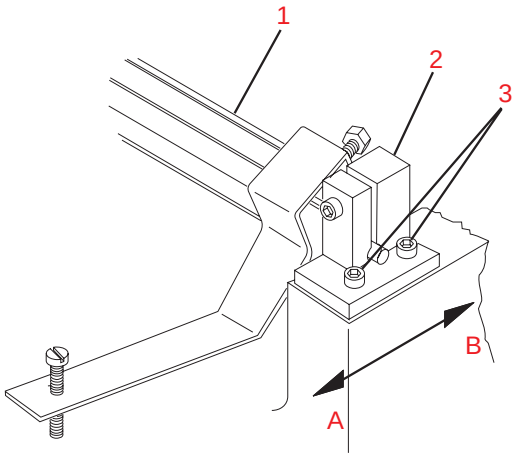
Do not push the laser filter slide while the printer is powered-on.

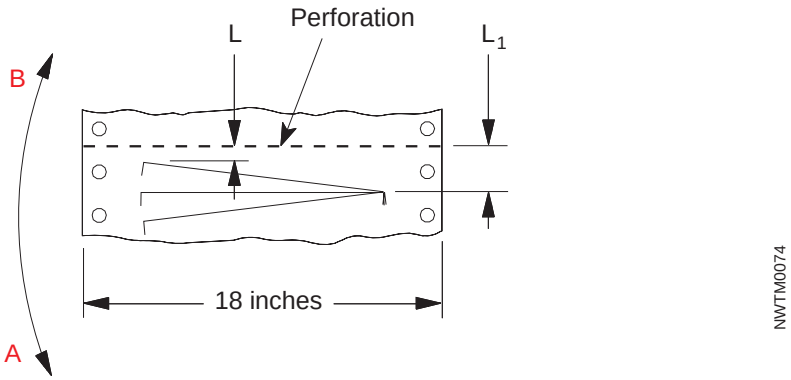
This procedure assumes that the printhead is correctly aligned. See Printhead Checks and Adjustments.

1. Run Primary Print Sample to print on the widest available form.
2. Measure the distance from the folding perforation to the leading edge of the wide black bar that runs the width of the print. Measure the distance at the front and rear of the printer. See points **A** and **B**.
3. If the difference between the two measurements is greater than 0.2 mm over 14 inches, go to Return Mirror Adjustment.

Return Mirror Adjustment:

Table 749. Return Mirror Adjustment

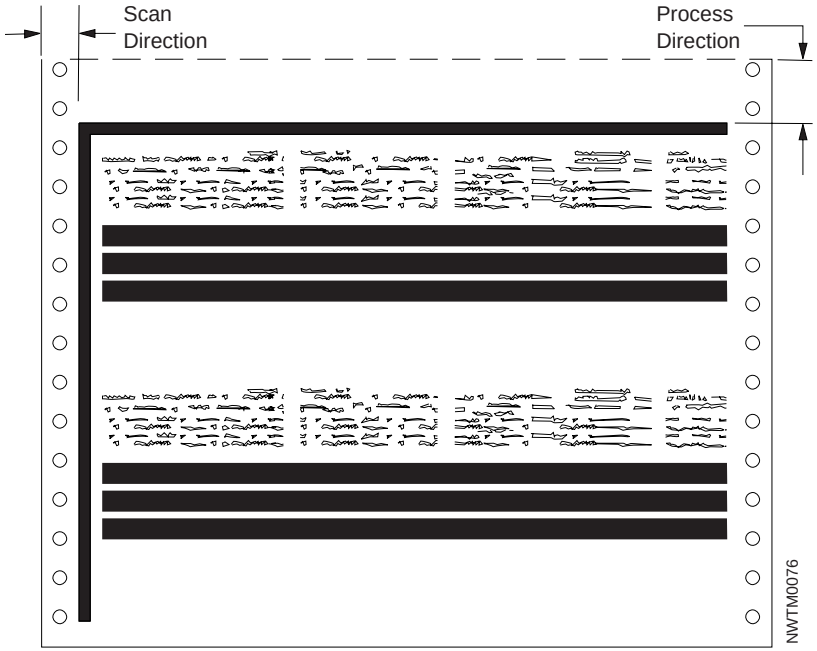




1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the printhead cover.
3. Loosen the two screws **(3)**.
4. Move the return mirror **(1)** as follows:
   - To rotate the print in the **CCW** direction, move the front end of the return mirror **(2)** to the left (**A** direction).
   - To rotate the print in the **CW** direction, move the front end of the return mirror **(2)** to the right (**B** direction).
5. Place the printhead cover on the printhead; **do not fasten it** with screws at this time.
6. Power-on the printer.
7. Run the Primary Print Sample again and check the print skew.
8. Repeat this procedure as necessary.
9. Run the Alternate Print Sample and check the Print Width .
10. Repeat this procedure as necessary.
11. Ensure that the two screws **(3)** are tightened.
12. Recheck the Print Skew, Print Width, and Registration.
13. Go to Registration.

Registration

Table 750. Registration



The printed image is not in registration in either, or both, the horizontal (scan direction) or the vertical (process direction) direction.

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

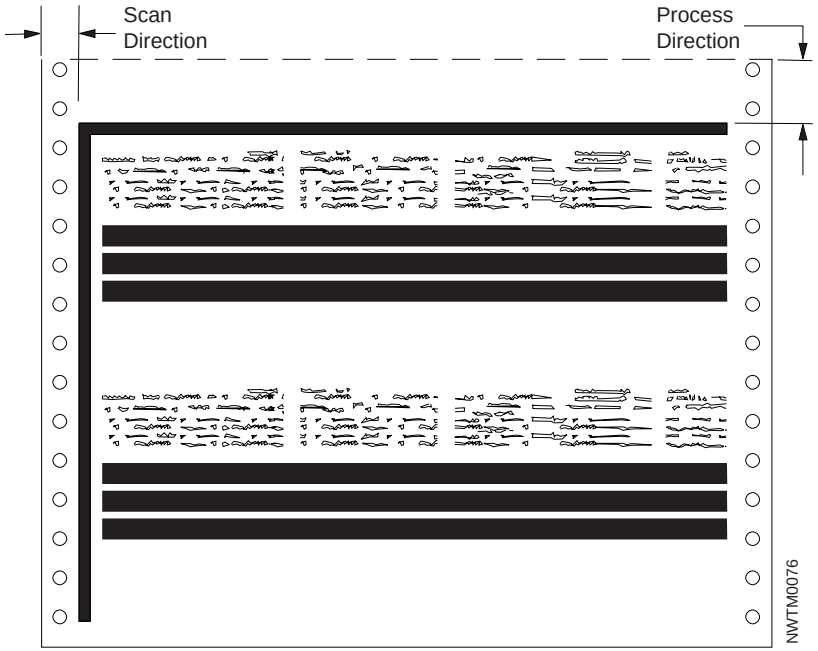
Do not push the laser filter slide while the printer is powered-on.

Factors Affecting Registration

- Operator adjustment (**Adjust Print**) values
- Upper tractor timing
- Return mirror position
- Variation in the forms dimensions
- Image skew
- Print width
- Acceleration and deceleration of the forms
- Registration of a preprinted image on forms.

(continued on next page)

Table 750. Registration (continued)



Special Instructions

This section addresses only the return mirror position. Use MAP 1011: Registration Or Skew to eliminate other registration problems.

Special Tools

Registration template (if available)

Check

1. Load the customer's most critical form.
2. Use the **Adjust Print** key on the operator panel to ensure that both the horizontal adjustment and the vertical adjustment are set to **0** for the form that you are using for registration adjustment. See "Adjusting Print" in the *Operator's Guide*.
3. If you have not performed the Print Width check, do so now.
4. Run Text 1 Print Sample and verify that the three copy marks at the perforation are printed.
5. Run Primary Print Sample.
6. Select a fused print sample and perform the registration checks.
   - If you are using a registration template to make this check, go to Checking Registration Using the Template.
   - If a template is not available, go to Checking Registration Using a Scale.

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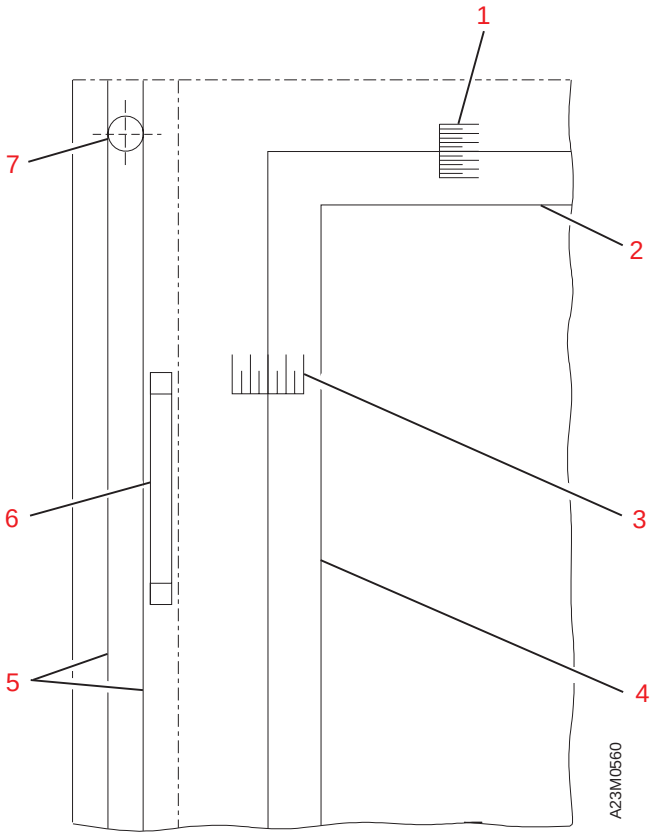
Table 750. Registration (continued)



Checking Registration Using The Template

7. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
8. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
9. If the horizontal bar on the print sample does not align with the horizontal bar **(2)** on the template, a process direction adjustment is required. Go to Process Direction (Vertical) Adjustment.
10. If the vertical bar on the print sample does not align with the vertical bar **(4)** on the template, a scan direction adjustment is required. Go to Scan Direction (Horizontal) Adjustment.

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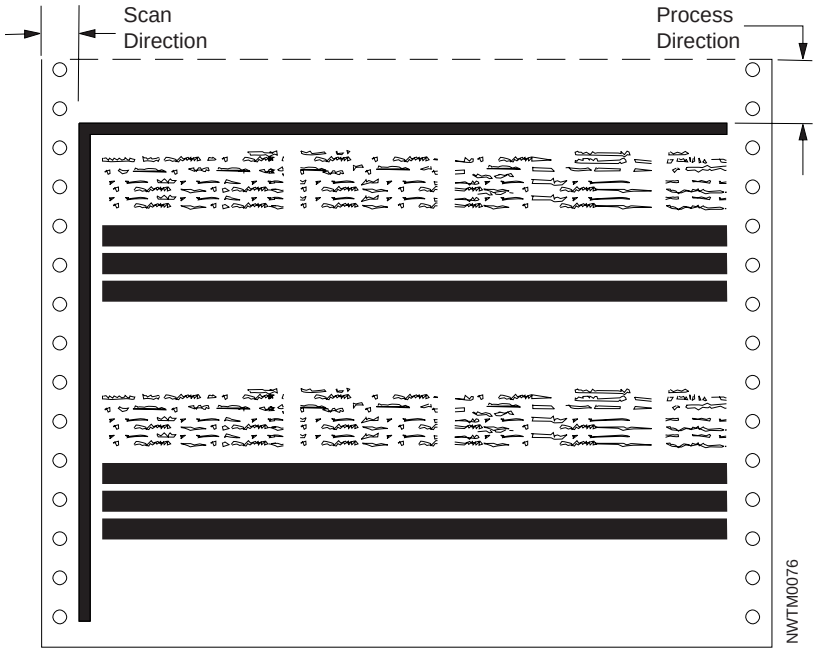
Table 750. Registration (continued)



Checking Registration Using a Scale

11. Measure to the same point each time you print Primary Print Samples.
    - The scan (horizontal) print-start position, is measured from the edge of the paper.
    - The process (vertical) print-start position, is measured from the perforation at the top of the form.

Check the Scan (Horizontal) Print-Start Position

12. Measure from the vertical bar to the edge of the paper for 23.3 ±1.2 mm (0.92 ±0.050 in.).

    If a scan (horizontal) direction adjustment is required, go to Scan Direction (Horizontal) Adjustment.

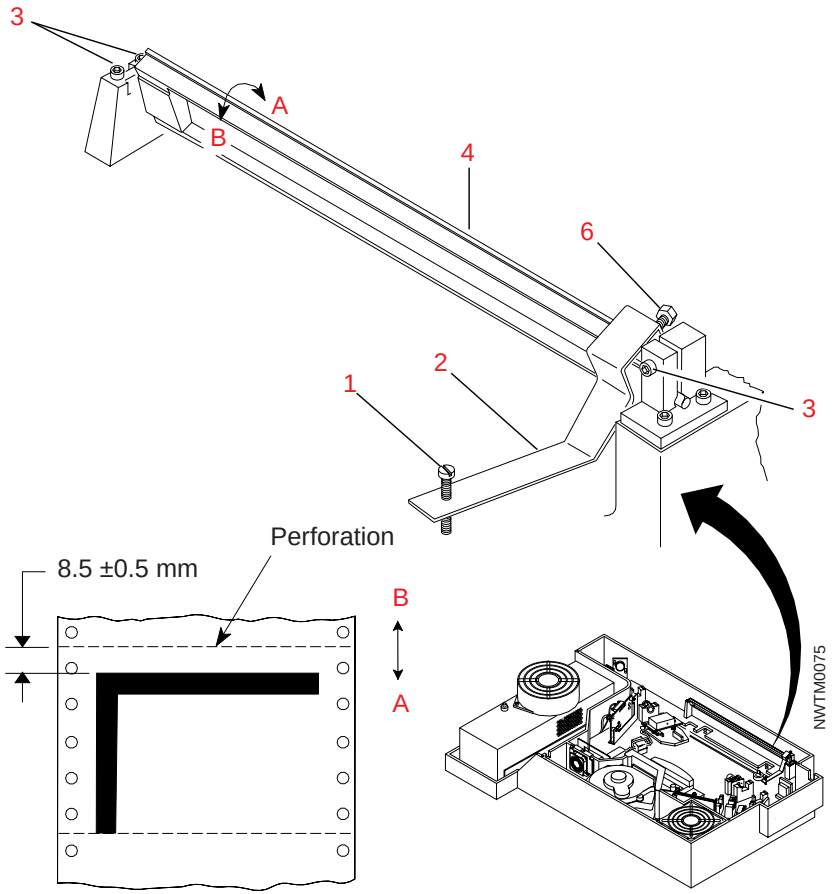
Check the Process (Vertical) Print-Start Position

13. Measurement from the horizontal bar on the print sample to the perforation at the top of the form for 8.5 ±1.2 mm (0.34 ±0.050 in.).

    If a process (vertical) direction adjustment is required, go to Process Direction (Vertical) Adjustment.

Process Direction (Vertical) Adjustment:

Table 751. Process Direction (Vertical) Adjustment



1. Log on in the Service mode.
2. Load the customer's most critical form.
3. Record the existing **Process Factory Adjust** values.

   From the **Configuration** pull-down menu, select **Configure Printer** and scroll down to **Process Factory Adjust**.
4. Try to correct the process (vertical) registration by altering the **Process Factory Adjust** value.

   The valid range of values is **0** to **60**. Reference the table on page 2727. Each change of the value by 1 adjusts the image position by 1 pel.

   - Increasing the value moves the image in the **A** direction.
   - Decreasing the value moves the image in the **B** direction.
5. If a template is available, go to Determining the Amount of Adjustment Using the Template.
6. If a template is not available, go to Determining the Amount of Adjustment Using a Scale.

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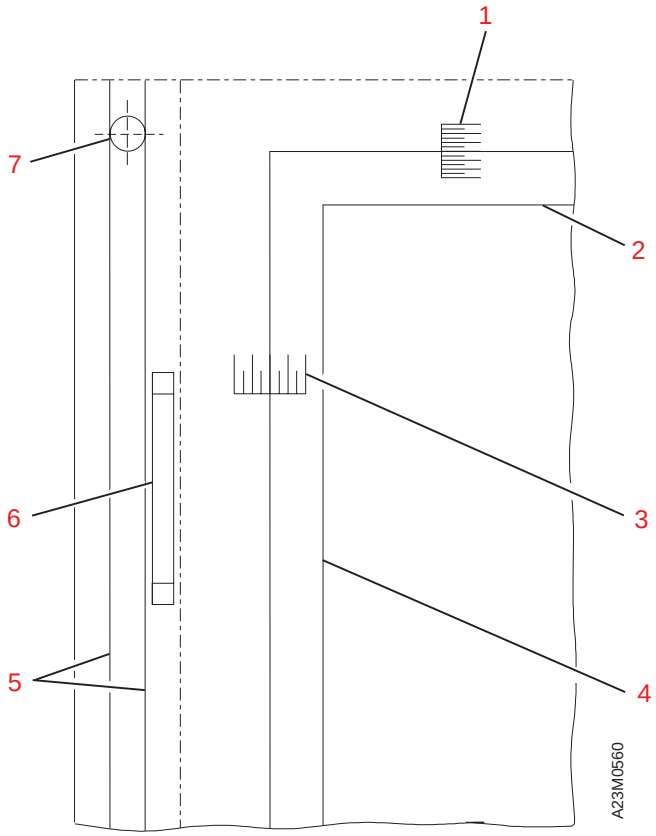


Determining the Amount of Adjustment Using the Template

7. To determine the amount of adjustment required, use the scale **(1)** on the template. Each increment on the scale is equal to 5 print adjust units. Keep the template and print aligned as follows:
   a. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
   b. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
8. Count the number of increments that the printed bar is off from the correct registration and multiply this value by 5.
   - If the printed bar is too close to the perforation, add the value to the existing **Process Factory Adjust** value and enter this total as the new value.
   - If the printed bar is too far from the perforation, subtract the value from the existing **Process Factory Adjust** value and enter this total as the new value.
   - Go to step 11.

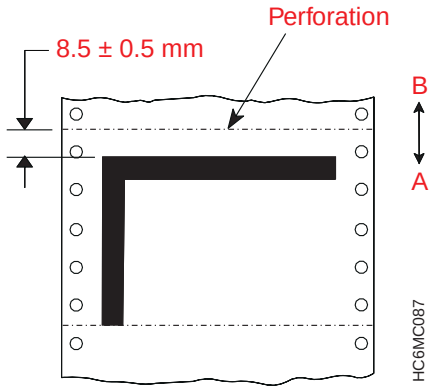
(continued on next page)

Table 751. Process Direction (Vertical) Adjustment (continued)

PFA Value	Pels	mm
0	−15	−1.6
5	−10	−1.0
10	−5	−0.5
15(Default)	**0**	**0**
20	5	0.5
25	10	1.0
30	15	1.6
35	20	2.1
40	25	2.6
45	30	3.1
50	35	3.7
55	40	4.2
60	45	4.7

Determining the Amount of Adjustment Using a Scale.

9. Determine the **Process Factory Adjust** (PFA) value required by measuring the amount and direction that the image must be moved to obtain the correct process (vertical) print-start position of 8.5 ±0.5 mm (0.340 ±0.020 in.) from the perforation at the top of the form.



10. The table shows the relationship between **Process Factory Adjust** values and the distance the image is moved from the default position.
    - Negative **Pels** and **mm** values indicate how much closer to the leading edge of the form the image is moved.
    - Add or subtract the number of pels that the image must move from the existing value.
    - Enter this new value using the **Configure Printer** operation.

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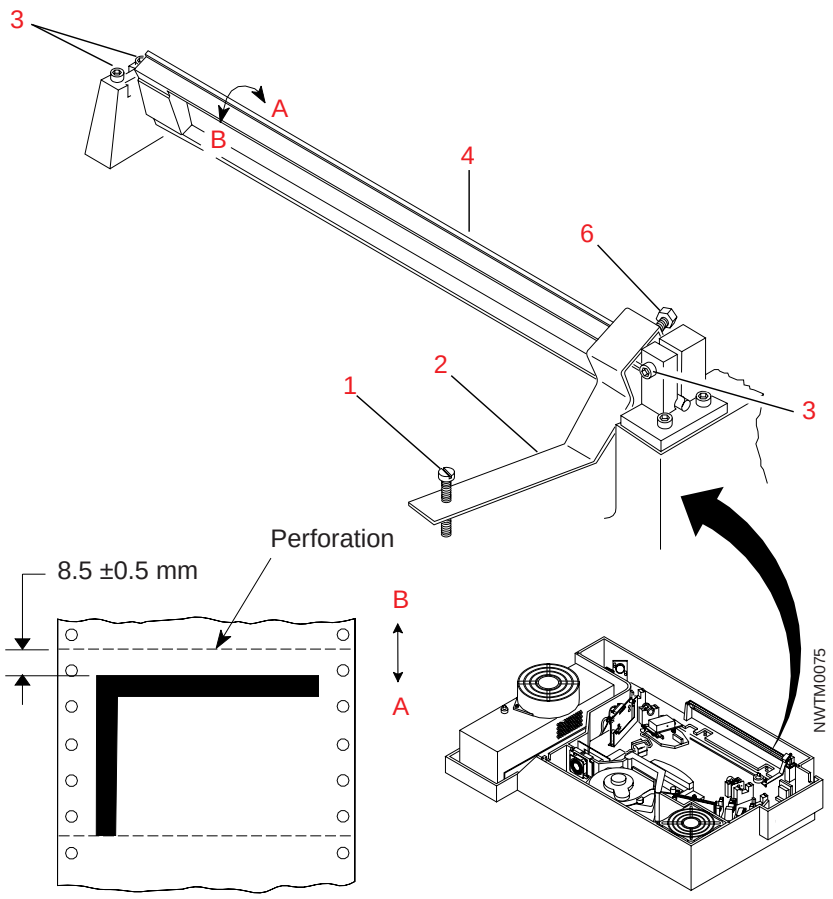
Table 751. Process Direction (Vertical) Adjustment (continued)



11. If necessary, review the instructions under “Configuring the System” in the *Operator’s Guide*.

Note: A Restart is not required for the new **Process Factory Adjust** to take effect.

12. If you cannot obtain the correct adjustment, set the **Process Factory Adjust** configuration value to **15**, and continue with this procedure.
13. Perform the Upper Tractor Timing adjustment.
14. Request the system operator to stop activity on the printer. Disable all host attachments.
15. Remove the printhead cover.
16. Turn the adjusting screw **(1) CW** until it is finger-tight against the bottom of the printhead.
17. Loosen the screws **(3)** so that the return mirror can be moved with some resistance.
18. Gently press on the end near the adjusting screw **(1)** to hold the screw against the base of the printhead.

    This procedure works best when you always turn the screw in the **CW** direction (move the print down the page). If you go past the desired point, turn the screw **CCW** slightly and try again.
19. Turn screw **(1) CW** to move the print in the **A** direction, down the page.
20. Turn screw **(1) CCW** to move the print in the **B** direction, up the page.
21. Gently press on the lever near the adjusting screw **(1)** and tighten screws **(3)**.

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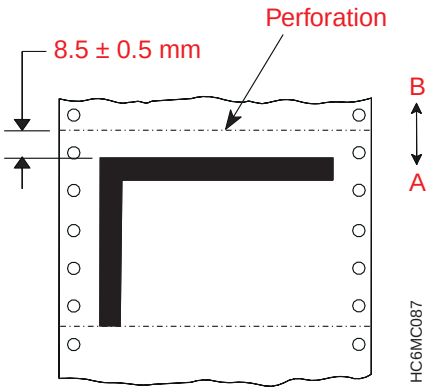
Table 751. Process Direction (Vertical) Adjustment (continued)



22. Return the printhead cover to its operating position. It is not necessary to reinstall all the fastening screws.
23. Run Primary Print Sample and recheck the vertical registration. Adjust for a process (vertical) print-start position of 8.5 ±0.5 mm (0.340 ±0.020 in.) from the perforation at the top of the form.
24. Repeat steps 17 through 23 as necessary.
25. Return the printhead to the operating condition.

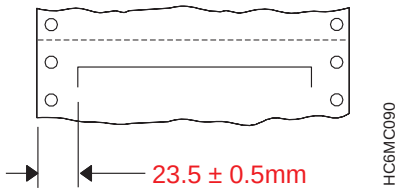
Scan Direction (Horizontal) Adjustment:

Table 752. Scan Direction (Horizontal) Adjustment

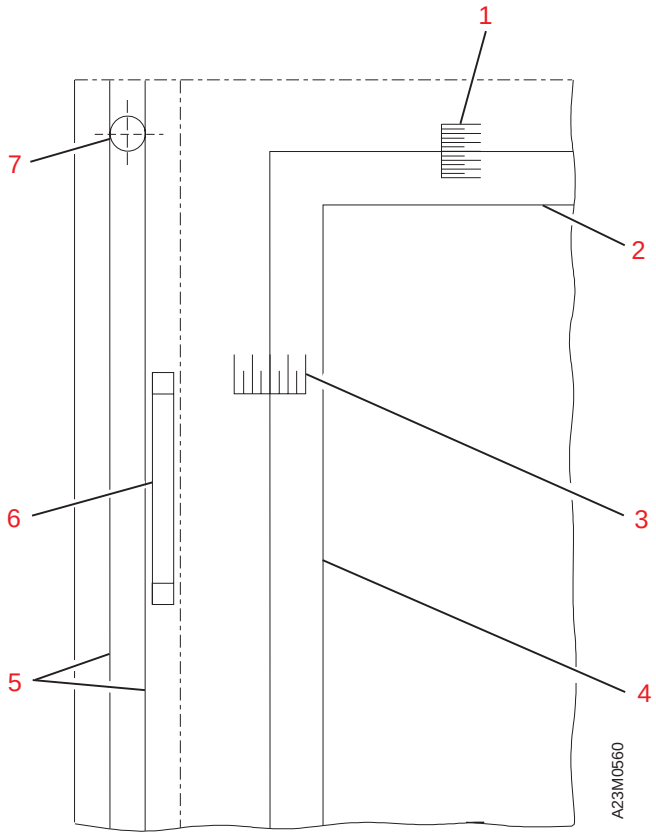
1. Log on as the **Customer Engineer** in Service Mode.
2. Load the customer's most critical form.
3. Record the existing **Scan Factory Adjust** values.

   From the **Configuration** pull-down menu, select **Configure Printer** and scroll down to **Scan Factory Adjust**.
4. Try to correct the scan (horizontal) registration by altering the **Scan Factory Adjust** value .

   The valid range of values is **0** to **100**. Each change of the value by 1 adjusts the image position by 2 pels. (Reference the table on page 2732.)
   - Increasing the value moves the image closer to the rear of the printer.
   - Decreasing the value moves the image closer to the front of the printer.
5. Adjust for a scan (horizontal) print start position of 23.3 ±0.5 mm (0.920 ±0.020 in.).



6. If a template is available, go to step 8.
7. If a template is not available, go to Determining the Amount of Adjustment Using a Scale .



Determining the Amout of Adjustment Using the Template

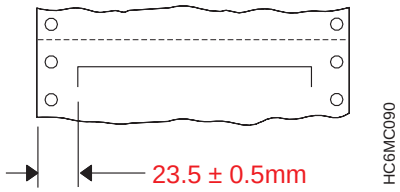
8. To determine the amount of adjustment required, use the scale **(1)** on the template. Each increment on the scale is equal to 5 print adjust units. Keep the template and print aligned as follows:
   a. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
   b. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
9. Count the number of increments that the printed bar is off from the correct registration and multiply this value by 5.
   - If the printed bar was too close to the perforation, add the value to the existing **Scan Factory Adjust** value and enter this total as the new value.
   - If the printed bar was too far from the perforation, subtract the value from the existing **Scan Factory Adjust** value and enter this total as the new value.
   - Go to step 12.

Table 752. Scan Direction (Horizontal) Adjustment (continued)

SFA Value	Pels	mm
0	−80	−8.4
5	−70	−7.4
10	−60	−6.3
15	−50	−5.3
20	−40	−4.2
25	−30	−3.1
30	−20	−2.1
35	−10	−1.0
40(Default)	**0**	**0**
45	10	1.0
50	20	2.1
55	30	3.1
60	40	4.2
65	50	5.3
70	60	6.3
75	70	7.4
80	80	8.4
85	90	9.5
90	100	10.6
95	110	11.6
100	120	12.7

Determining the Amount of Adjustment Using a Scale.

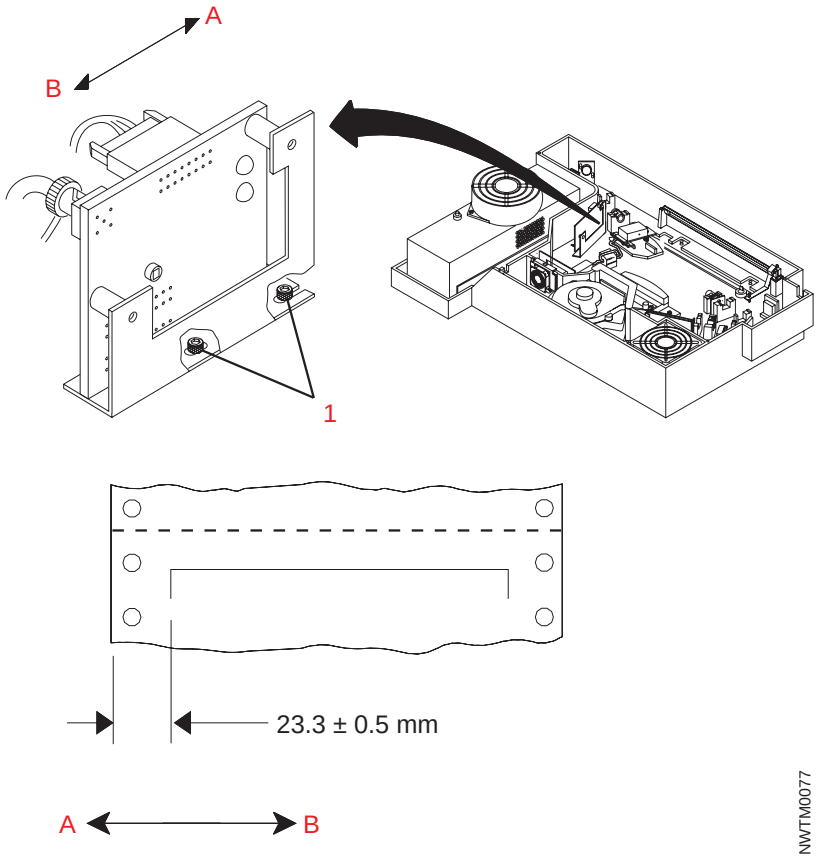
10. Determine the **Scan Factory Adjust** (SFA) value required by measuring the amount and direction that the image must be moved to obtain the correct scan (horizontal) print-start position of 23.3 ±0.5 mm (0.920 ±0.02 in.) from the edge of the form.



11. The table shows the relationship between **Scan Factory Adjust** values and the distance the image is moved from the default position.
    - Negative **Pels** and **mm** values indicate how much closer to the left edge of the form the image is moved.
    - Add or subtract the number of pels that the image must move from the existing **Scan Factory Adjust** value.
    - Enter this new value using the **Configure Printer** operation.

(continued on next page)

Table 752. Scan Direction (Horizontal) Adjustment (continued)



12. If necessary, review the instructions under “Configuring the System” in the *Operator’s Guide*.

Note: A Restart is not required for the new **Scan Factory Adjust** to take effect.

13. If you cannot obtain the correct adjustment, set the **Scan Factory Adjust** configuration value to **40**, and continue with this procedure.
14. Remove the printhead cover.
15. Loosen, but do not remove, the two socket head screws **(1)** on the BD121 mounting base.
16. To move the print in the **A** or the **B** directions, move the BD121 an equal amount in the direction shown.
17. If the scan is not centered on the beam detect sensor, adjust the Beam Detect Mirror Adjustment.
18. Return the printhead cover to its operating position. It is not necessary to reinstall the fastening screws yet.
19. Run Primary Print Samples and check the horizontal registration again.
20. Repeat this procedure from step 1 as necessary.
21. When complete tighten the two screws **(1)**.
22. Return the printhead to the operating condition.
23. Perform PQE Stroke Width Adjustment.

PQE Stroke Width Adjustment

Horizontal High and Low Adjustment:

Table 753. PQE Stroke Width

This procedure assumes that the printhead is correctly aligned. See Printhead Checks and Adjustments.

Controller microcode level 2.0 or higher must be installed.

1. Power-on the printer.
2. Load 8½ inch wide paper into the printer. This makes it easier to observe the boldness extremes test prints in the printer.
3. Set **Contrast** on the printer control panel to **7**.
4. Select **Analyze** on the Display/Touch Screen.
5. Select **Service Actions** on the menu that appears.
6. If you have not already entered your password as a customer engineer, the **Password** window appears.

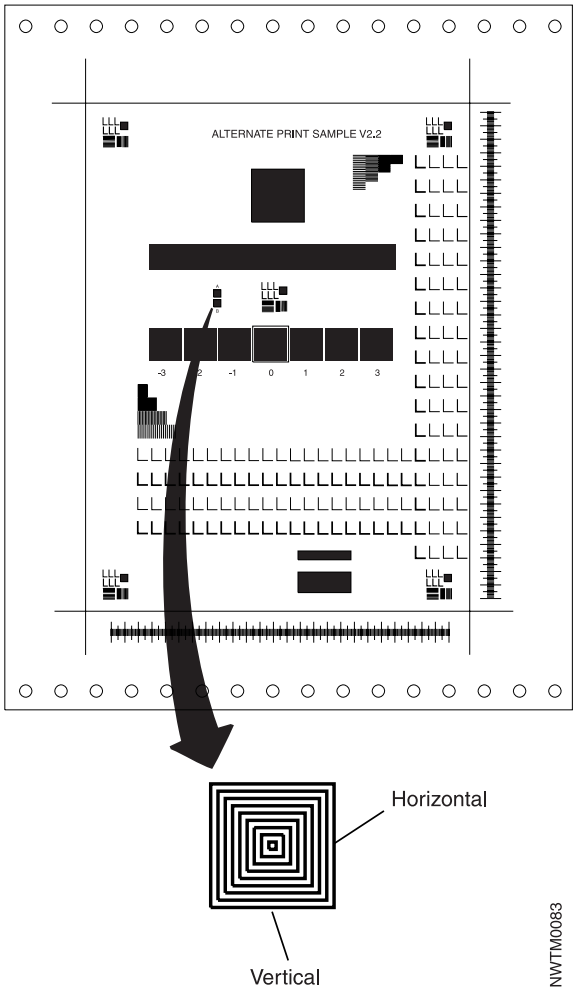
   Select **Customer Engineer** in the **Password** window. Use the keyboard that appears to select your password, and then select the **OK** key. When your password is accepted, the **Service Actions** window reappears.
7. If this is a duplex printer, select **Configure Printer** and put the printer into Dual Simplex Mode.
8. Select **Diagnostics** on the **Service Actions** menu.

Note: If a preventive maintenance (PM) item is due, the **PM** window appears. Temporarily bypass the maintenance item and close the **PM** window to complete the stroke width adjustment. After this adjustment, perform the appropriate PM procedures.

9. Select **Print Quality Enhancement** (PQE) on the menu that appears. The **Print Quality Enhancement** window appears.
10. Verify that the **Current vector** is **1**.
11. Set the **PQE boldness** to **50%**.
12. Set the **horizontal high** value to **63**.
13. Using the zero beam, set the **horizontal low** and **vertical low** values to **15**.

(continued on next page)

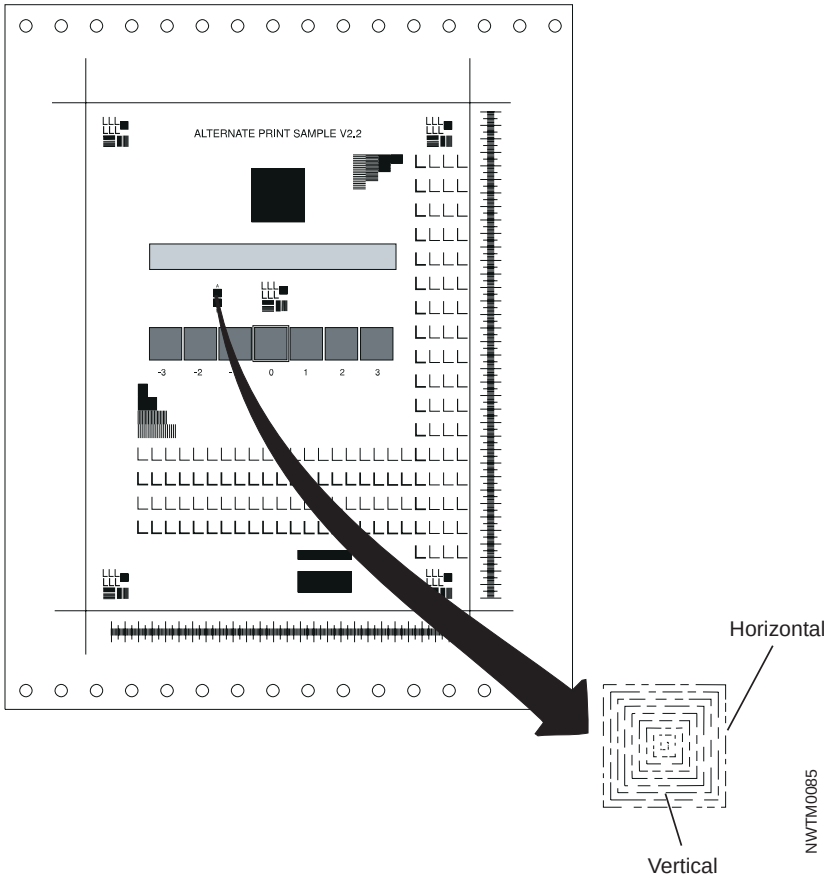
Table 753. PQE Stroke Width (continued)



14. Print the **Boldness extremes** test pages (100% boldness and 0% boldness) by selecting **Print** and **Boldness extremes** from the PQE Adjust screen.
15. NPRO this print sample through the machine and save the 100% boldness sample (the first page printed). This will be the horizontal high reference sample.
16. Set the **horizontal high** and **vertical high** values to **45**.
17. Reduce the horizontal high value entered, by two units. Print the boldness extreme samples again. At the tension arm, compare the 100% boldness sample to the horizontal high reference sample.
18. Reduce the horizontal high value entered, by two units and print the boldness extreme samples again. Continue reducing and printing the samples until the horizontal lines of the concentric squares on the 100% boldness sample just start to lighten in appearance compared to those on the horizontal high reference sample.
19. Increase the horizontal high value by two units.

(continued on next page)

Table 753. PQE Stroke Width (continued)

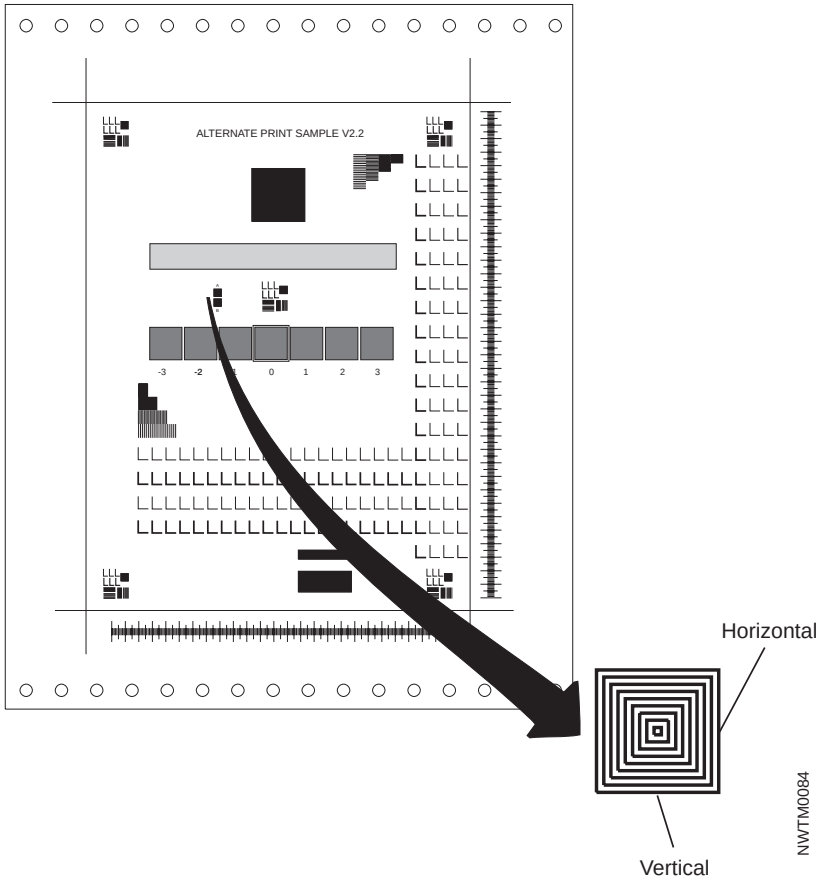


20. Adjust the horizontal low value until the horizontal lines on the concentric square pattern of the 0% boldness sample (second boldness extremes page) just disappear.
21. When the point where the horizontal lines in the concentric square pattern just disappears is found, enter a value one unit larger for the horizontal low value.

(continued on next page)

Stroke Width Balancing:

Table 754. Stroke Width Balancing

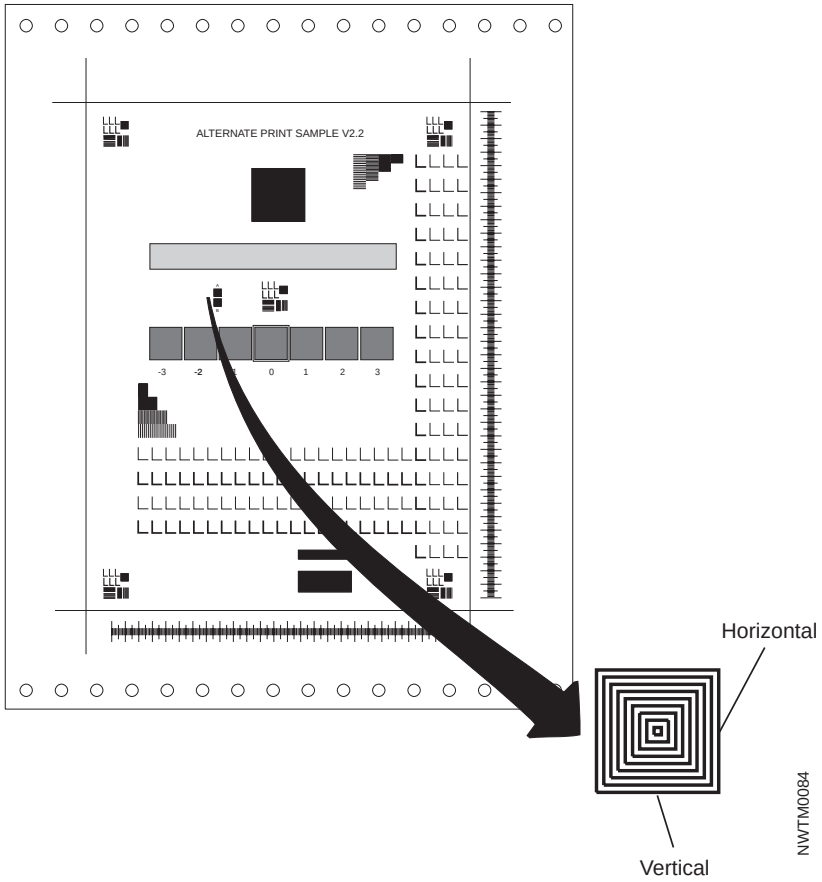


The stroke width between vertical and horizontal printing must match.

1. Using the 0% boldness page, adjust the vertical low values until the vertical lines on the concentric squares pattern just disappear.
2. Print the Alternate Print Sample at 50% boldness for the remaining part of this procedure.
3. Change the vertical high values so that the appearance of the vertical lines on the concentric square pattern match the horizontal lines.

Engine Boldness Balancing:

Table 755. Engine Boldness Balancing



The printing appearances between the two printers in a duplex system must match.

1. Use the Alternate Print Samples at 50% boldness printed in step 2 under Stroke Width Balancing for this procedure.
2. Adjust the lighter engine print to match the boldness of the darker engine print by change the PQE boldness until the appearance of the concentric square patterns from the two engines match.
3. Select **Save** to save the PQE values.
4. Exit the **Service** screens.

Two Beam 240 Printhead

Laser Safety 2741
Laser Interlock 2742
Laser Safety Filter Check 2743
Laser Shutter 2744
Two Beam 240 Printhead Components 2745
Two Beam 240 Printhead Path 2747
What You Should and Should Not Do 2748
Special Tools 2749
Printhead Access 2750
Printhead Cleaning Procedure 2751
Acusto-Optic (AO) Modulator AM201 2753
Acusto-Optic (AO) Modulator Drivers AM202/AM203 2755
AOM Driver Power Peaking and Matching Adjustment 2757
Beam Detect Card (BD132) 2759
Cylinder Lens (CYL1) 2761
F-Theta Lens Assembly 2763
Front Printhead Fan (B201) 2765
Laser 2767
Simplified Laser Adjustment Procedure 2771
Laser Power Supply and Laser Current Meter (L102) 2776
L1 Lens 2777
L2 Lens 2779
Mirror Motor (M201) 2781
Mirror Motor Driver Board (MD141) 2782
Printhead Interface Card (VI141) 2783
Printhead Pressurizing Fan (B202) and Filter 2784
Wollaston Prism 2785
Printhead Checks and Adjustments 2787
Zero Beam Alignment Check 2789

Beam Pattern Check 2796
Aperture Adjustment 2799
M2 Mirror Check 2800
Beam Power Check 2803
Beam Detect Mirror Check 2812
Completing the Primary Printhead Checks and Adjustments 2814
Print Sample Adjustments 2815
Print Width 2816
Print Skew 2819
Registration 2821
AOM Skew Adjustment 2834
PQE Stroke Width 2840

Laser Safety

Perform Laser Safety Filter Check to ensure that the laser filter correctly operates.

DANGER

<8> Laser radiation is present. Always power-off the printer before removing the printhead cover. After the cover has been removed, ensure that the laser-filter slide is operating correctly before powering-on the printer.

DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

DANGER

<2> Laser radiation is present when the printer is powered-on.

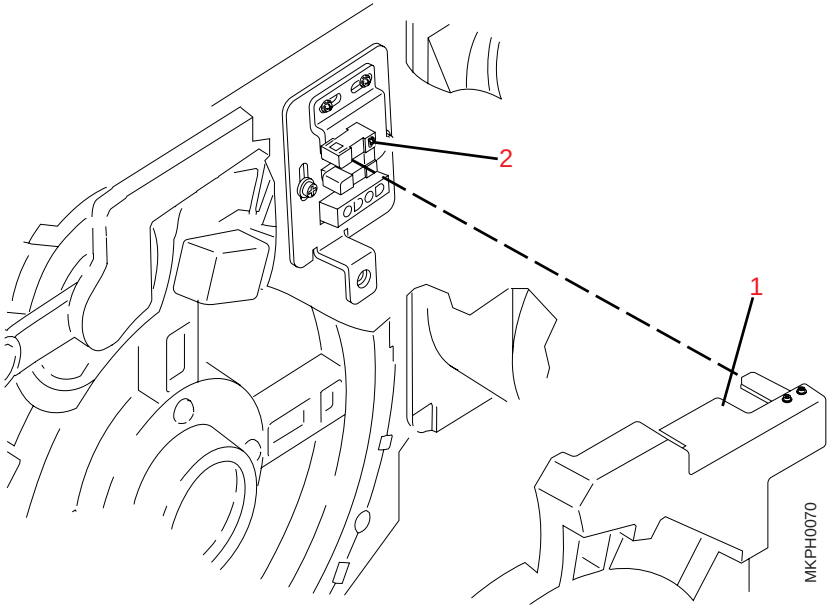
Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Laser Interlock

Table 756. Laser Interlock



A switch **(2)** is provided to remove power from the laser when you remove the PC drum cover **(1)**. This prevents accidental exposure to the laser beam when working in the PC drum cavity with power on.

Disconnecting switch S122, disables this safety feature. Do not disconnect the switch. If you must disconnect the switch, check for pushed pins and good contact when the connector is reconnected.

When it is necessary to work in the PC drum cavity with power on:

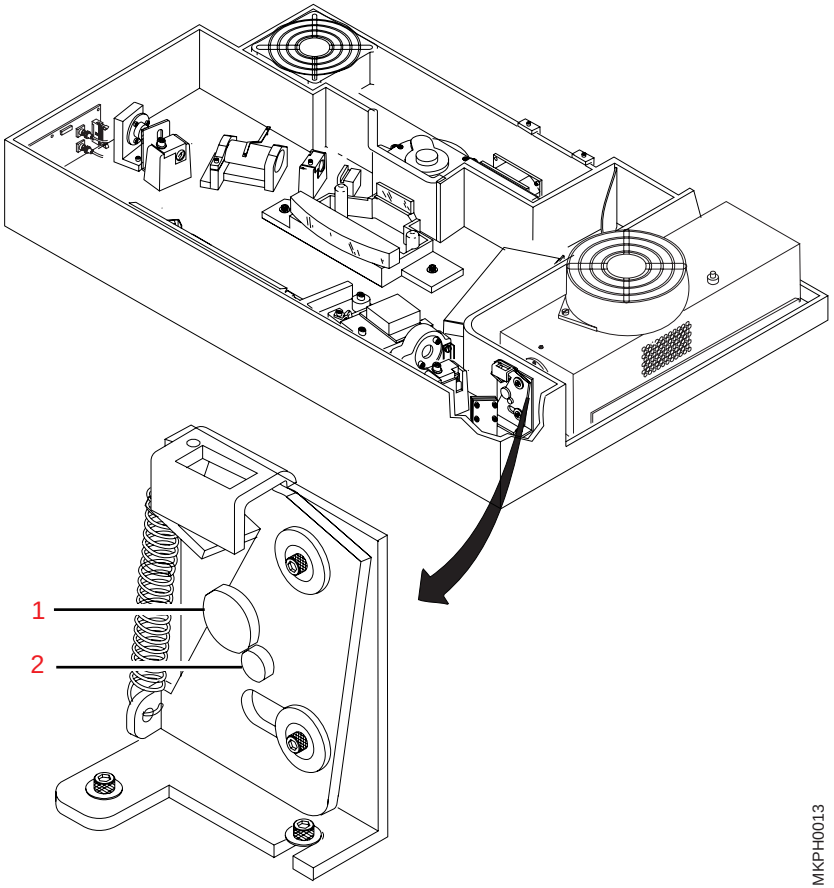
1. Use only the routines available with the diagnostic function switch in position **3**.
2. Open the printhead internal cover so that the safety filter will reduce beam power. (See Printhead Access procedure.)

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser Safety Filter Check

Table 757. Laser Safety Filter



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

The operating power of the laser can damage the eyes.

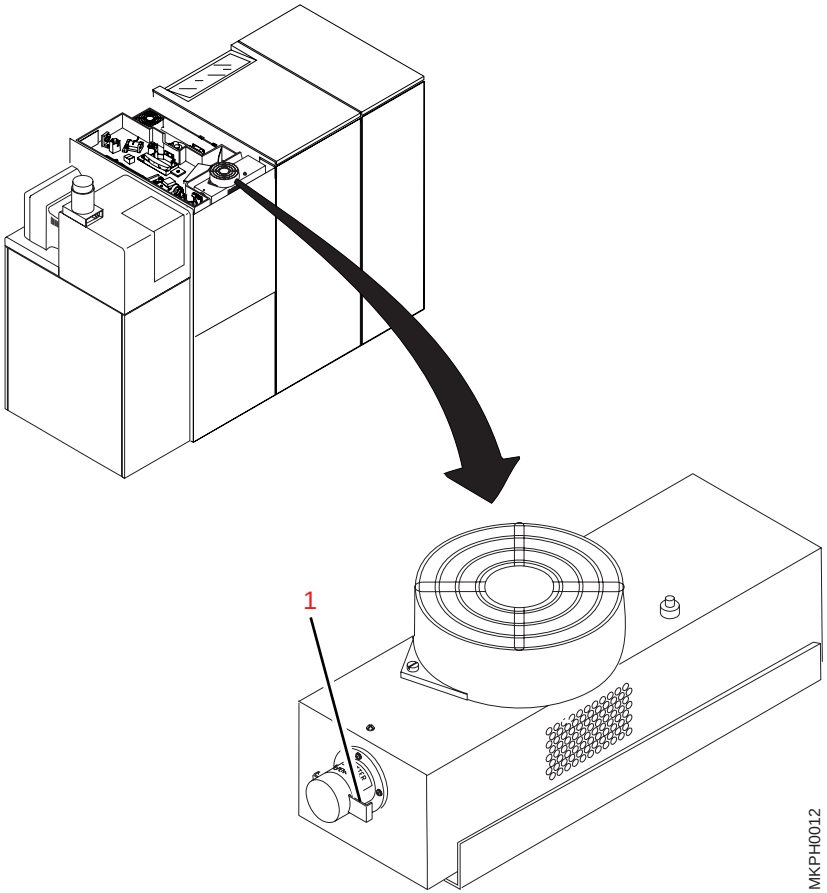
For maintenance purposes, a spring loaded filter, held out of the beam path by the printhead cover, is positioned between the laser and the printhead. Removing the printhead cover releases the filter into the beam path. This reduces the beam power to less than 1 milliwatt for servicing.

Perform the following safety check before servicing the printhead to ensure that the laser filter operates correctly :

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Ensure that the glass safety filter **(2)** is in place.
3. Ensure that the safety filter mechanism correctly operates with no binds.

Laser Shutter

Table 758. Laser Shutter



To close the laser shutter **(1)**, push the slide toward the rear of the printer

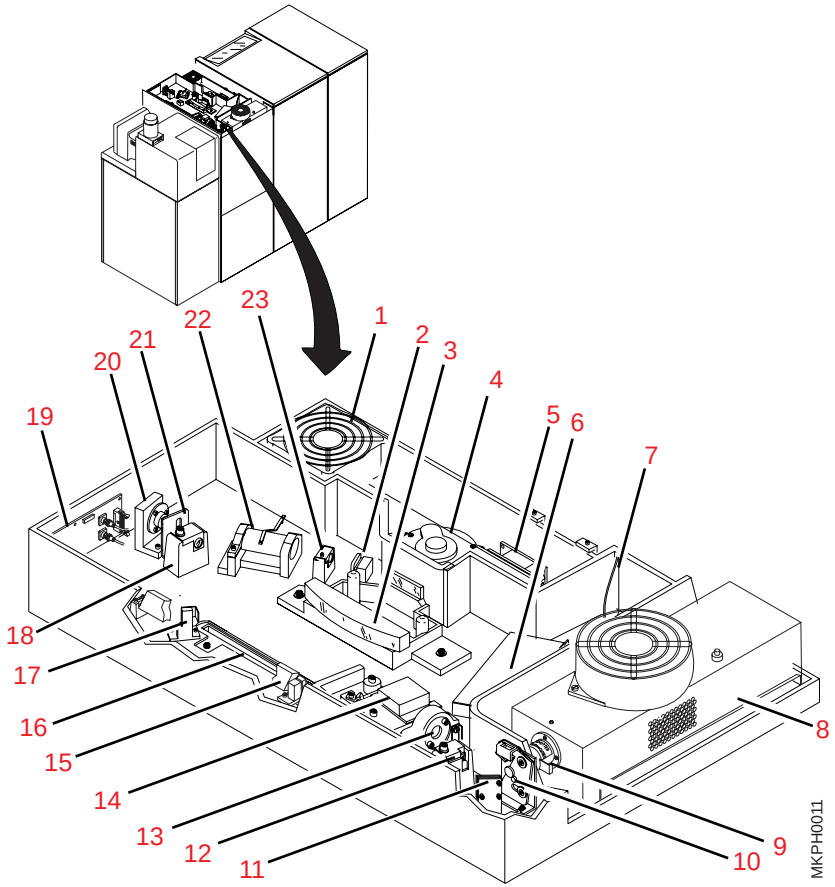
If the laser shutter is left in the closed position, a D706 error displays when you attempt to print.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Two Beam 240 Printhead Components

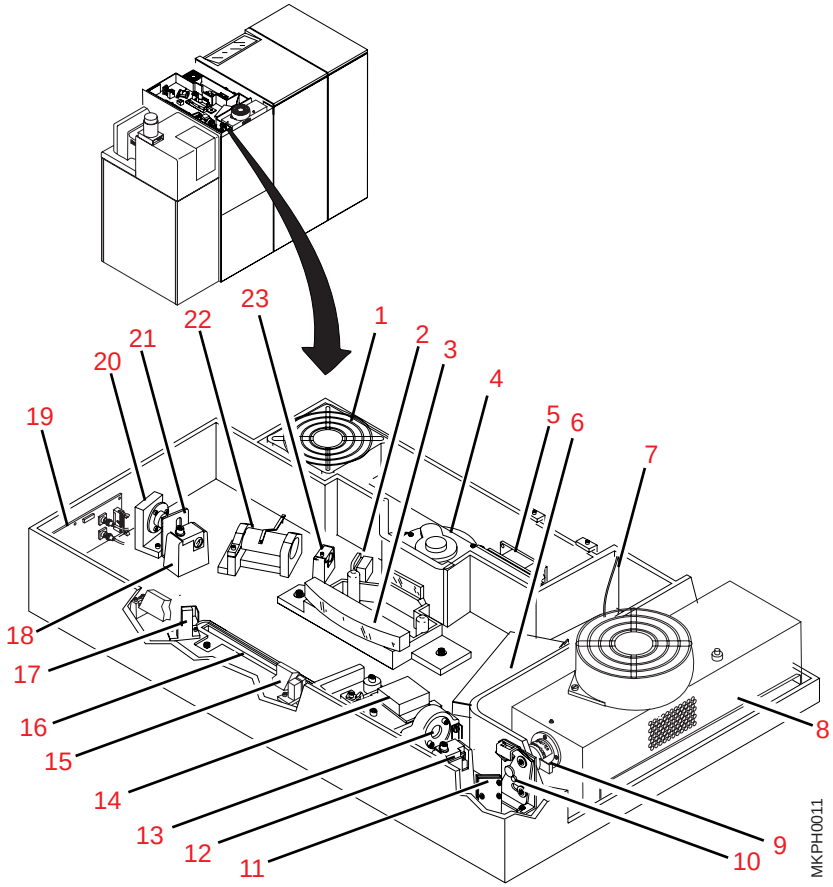
Table 759. Two-Beam Printhead Components (Rear View)



(continued on next page)

(1) Front printhead fan (B201)
(2) Power tool pedestal
(3) F-Theta lens
(4) Mirror motor (M201)
(5) Printhead pressurizing fan (B202)
(6) AOM drivers (AM202 and AM203)
(7) Beam detect card (BD132)
(8) Laser
(9) Laser shutter
(10) Laser safety filter
(11) M1 mirror
(12) Wollaston prism
(13) L2 lens
(14) AO modulator (AM 201)

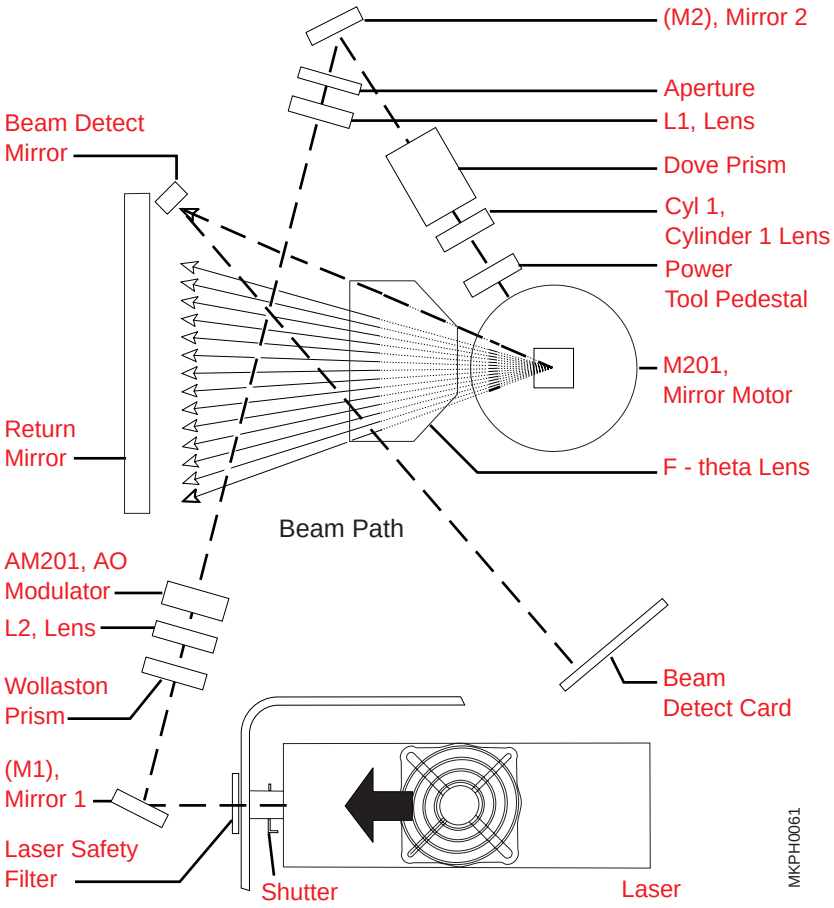
Table 759. Two-Beam Printhead Components (Rear View) (continued)



(15) Return mirror
(16) Exit window
(17) Beam detect mirror
(18) L1 lens
(19) Printhead interface card (VI141)
(20) M2 mirror
(21) Aperture
(22) Dove prism
(23) CYL1 lens

Two Beam 240 Printhead Path

Table 760. Two-Beam Path



What You Should and Should Not Do

Before working in the area of the printhead, review the following:

- Laser Safety.
- Two Beam 240 Printhead Components.

Adjust only the following:

- Laser
- AO modulator
- Aperture
- M1 mirror
- M2 mirror
- Beam detect card
- Printhead interface card (VI141)
- Mirror motor driver board (MD141)
- AOM driver
- Return mirror
- Beam detect mirror.

Do not perform any of the following, unless directed by your next level of support:

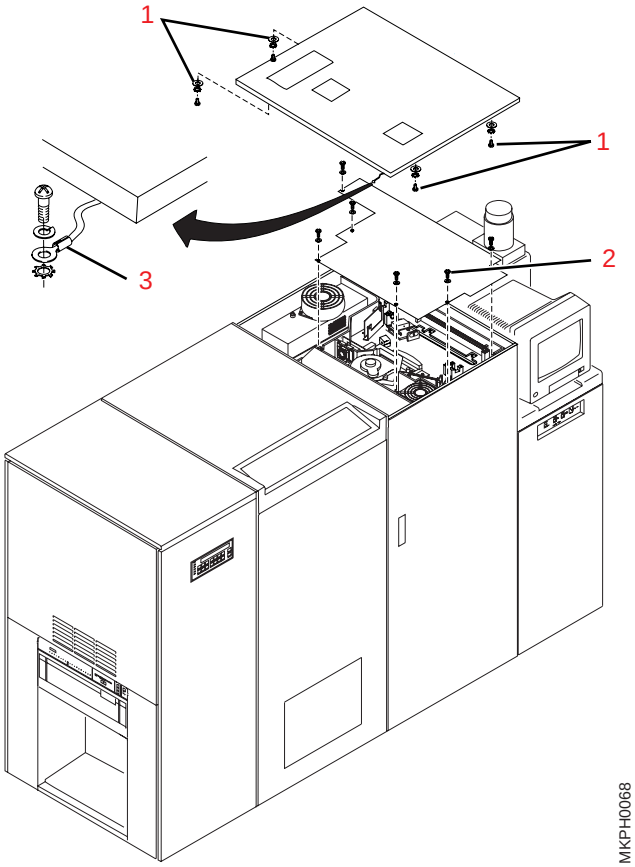
- The printhead is very sensitive. Do not randomly replace parts or loosen screws as this could cause more problems.
- **Do not** adjust the following, unless directed by your next level of support:
  - CYL1 lens
  - F-Theta lens
  - L1 lens
  - Wollaston prism
- Do not disable, remove, or press down the laser safety filter.
- Do not look directly into the laser beam. If the beam seems uncomfortably bright, close your eyes, and turn your head. Use a darker or less shiny piece of paper (a piece of cardboard from the top of a box of forms). Look at the target and not into the source.
- Do not use shiny tools when the laser beam is present. If necessary, wrap black tape around the tools that you are using.
- Do not connect or disconnect any cables between the AO modulator and any AOM driver while any beam is switched on.

Special Tools

- Laser alignment tool (PN 30H2978)
- Laser alignment tool stand (PN 57G6641)
- Registration template (PN 04H0739)
- Stool (PN 2497185)

Printhead Access

Table 761. Printhead Access



DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Open the printer right front cover.
3. Open the printer left rear cover.
4. Remove the four screws **(1)**.
5. Disconnect the ground strap **(3)** from the printer frame.
6. Remove the printer right top cover.
7. Remove the six screws from the printhead top cover **(2)** and lift off the printhead cover.
8. Perform the Laser Safety Filter Check.

Installation

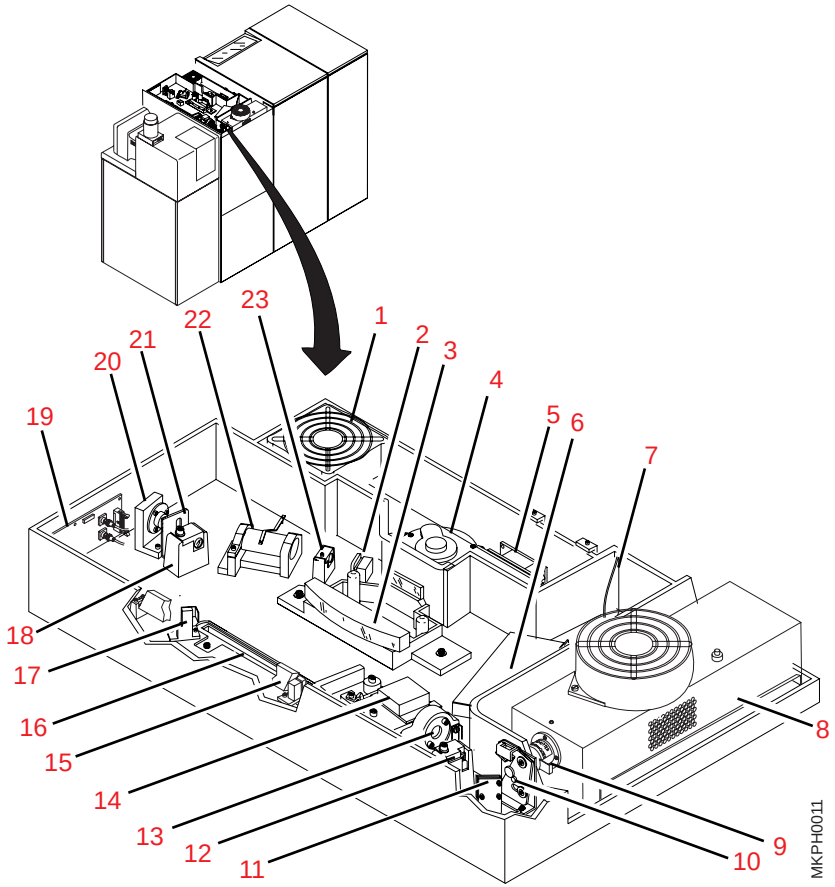
Reverse the removal procedure. Ensure that you install the star washer between the ground strap and the printer frame.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Cleaning Procedure

Table 762. Printhead Cleaning Procedure



(continued on next page)

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Attention: Use this procedure to clean contamination from the printhead lenses and mirrors only if you find a contamination problem.

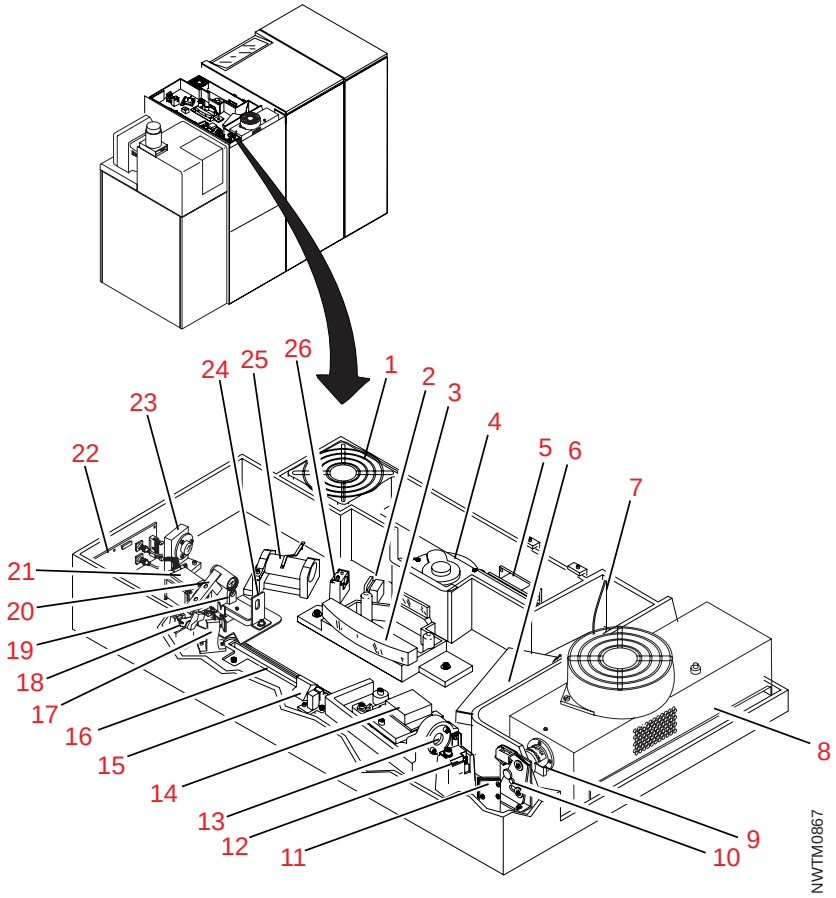
The printhead fan provides a positive pressure inside the printhead to keep out contamination. If the fan fails, check the lenses and mirrors carefully for toner and paper dust.

Review What You Should and Should Not Do.

Procedure

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.

Table 762. Printhead Cleaning Procedure (continued)



Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

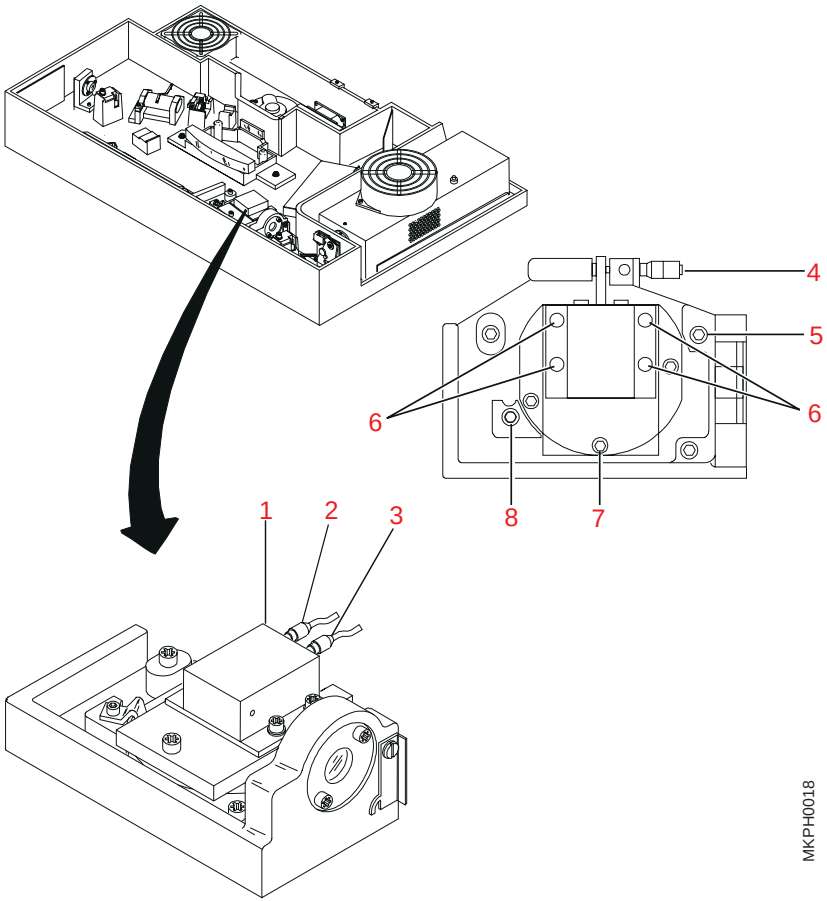
3. Inspect the lenses and the mirrors for toner, paper dust, and fingerprints.
4. Clean as necessary.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Acusto-Optic (AO) Modulator AM201

Table 763. Acusto-Optic (AO) Modulator



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect connectors PJ215 **(2)** and PJ240 **(3)** from the AO modulator **(1)**.
4. Scribe the position of the AO modulator so that it can be reinstalled in that exact position.

Attention: Do not loosen the screws in the AO modulator base mount.

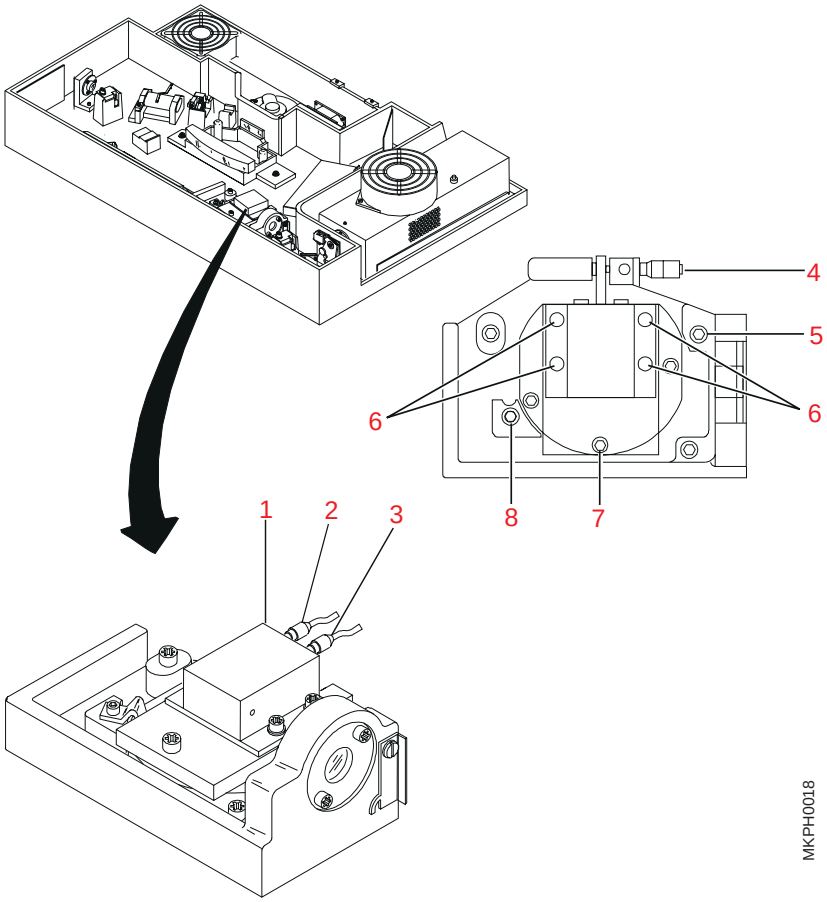
5. Remove the four Allen screws **(6)** and remove the AO modulator **(1)**.

Installation

1. Reverse the removal procedure.
2. Ensure that the AO modulator is positioned exactly as before.

(continued on next page)

Table 763. Acusto-Optic (AO) Modulator (continued)



Check

1. Verify that the beam is not being clipped by either edge of the entrance or the exit windows as follows:
   a. Using the straight edge of a white piece of paper, hold it up to the right edge, and then up to the left edge of the modulator window facing the rear of the printer (laser beam entrance window).
   b. Check the other modulator window facing the front of the printer (laser beam exit window) also.
   c. If the beam is being clipped, perform the Adjustment procedure.

Adjustment

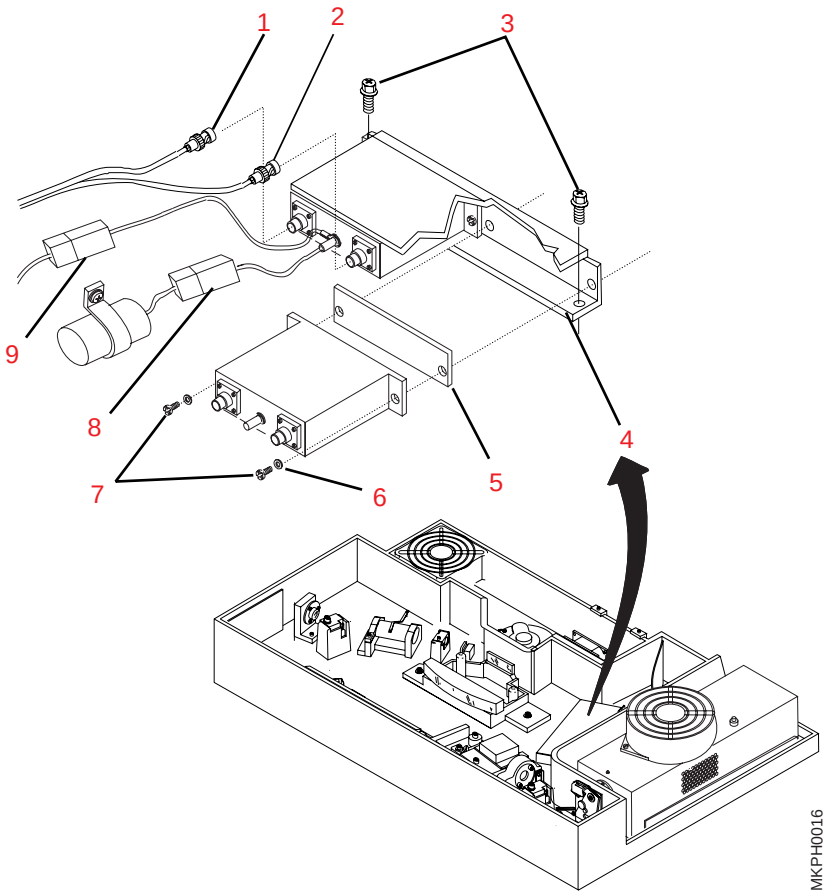
1. If the beam is being clipped, adjust the window facing the rear of the printer first (laser beam entrance window), and then adjust the window facing the front of the printer (laser beam exit window).
2. Loosen the four Allen screws **(6)**.
3. Move the AO modulator so that it is not clipping the beam, and then tighten the four screws.
4. Perform AO Modulator Adjustments.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Acusto-Optic (AO) Modulator Drivers AM202/AM203

Table 764. Acusto-Optic (AO) Modulator Drivers



Removal

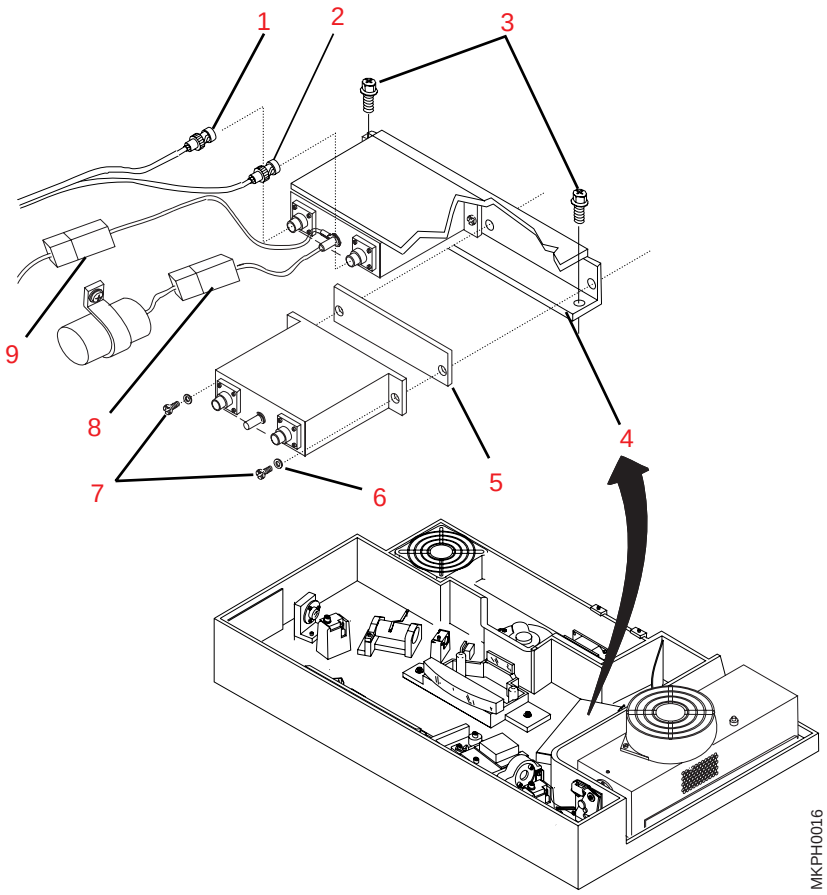
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect connectors PJ213 **(1)**, PJ214 **(2)**, PJ216 **(8)**, and PJ220 **(9)** from the AOM driver AM202 (top).
4. Disconnect connectors PJ238, PJ239, PJ241, and PJ242 from the AOM driver AM203 (bottom).
5. Remove all necessary cable clamps.
6. Remove the two screws **(3)** and the AOM driver mounting bracket **(4)**.

Attention: In the next step, use care not to loose the insulating washers **(6)** that insulate the AOM driver assembly from the printhead casting. These insulating washers must be reinstalled for correct AOM driver operation.

7. Remove the two screws **(7)**, and the insulating washers **(6)** to remove the AOM driver from the mounting bracket.
8. Do not discard the insulating sheet **(5)**; this is **not provided** with the new driver.

(continued on next page)

Table 764. Acusto-Optic (AO) Modulator Drivers (continued)



Installation

1. Perform the AOM Driver Power Peaking and Matching Adjustment before installing the new AOM driver.
2. Reverse the removal procedure ensuring the following:
   - The insulating sheet **(5)** is correctly installed between the AOM driver and the mounting bracket **(4)**
   - The insulating washers **(6)** are correctly installed on the two screws **(7)**
3. Connect connectors PJ213 **(1)**, PJ214 **(2)**, PJ216 **(8)**, and PJ220 **(9)** to the AOM driver AM202 (top).
4. Connect connectors PJ238, PJ239, PJ241, and PJ242 to the AOM driver AM203 (bottom).
5. Ensure that all cables are lying flat against the bottom of the printhead casting to avoid blocking the beam path.
6. Install the AOM driver assembly using the two screws **(3)**.

Check

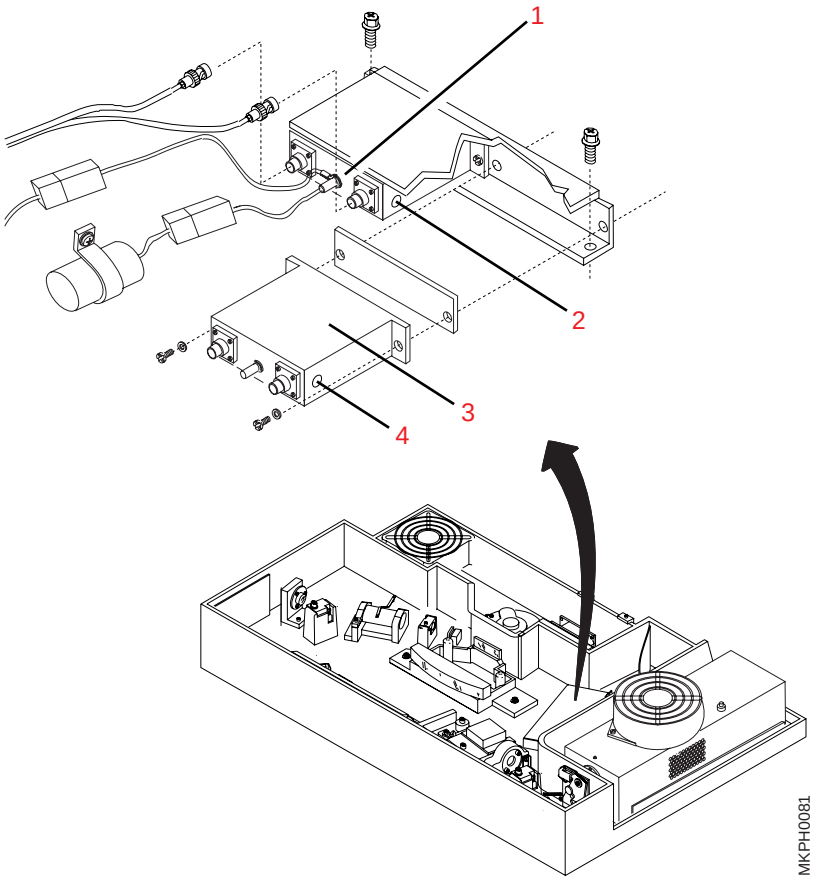
1. Cover the return mirror with paper.
2. Run Adjustment Routine C0 to switch on the primary beams without switching on the scanning mirror motor.
3. Perform the AO Modulator Adjustments.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

AOM Driver Power Peaking and Matching Adjustment

Table 765. AOM Driver Power Peaking and Matching Check

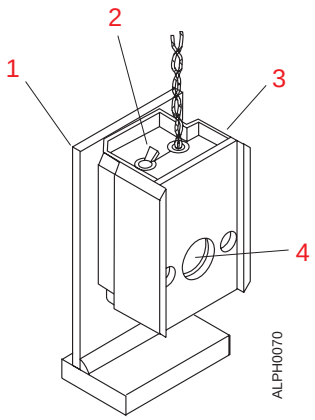


Attention: If the AO driver output is too high, it can overdrive the AO modulator. This reduces the AO modulator output and the efficiency of the beam.

1. Ensure that all cables are connected to the AO drivers AM202 (upper) and AM203 (lower), and that the adjusting potentiometers are accessible. If necessary, remove the AOM driver from the mounting bracket, but do not disconnect it.
2. Perform the Printhead Access procedure.
3. Power-on the printer in the diagnostic mode.
4. Cover the return mirror with paper.
5. Run Adjustment Routine C8 for AM202 **(3)** (top beam) without scanning the beam. To prevent the mirror motor from running, do not press **Enter**.

(continued on next page)

Table 765. AOM Driver Power Peaking and Matching Check (continued)



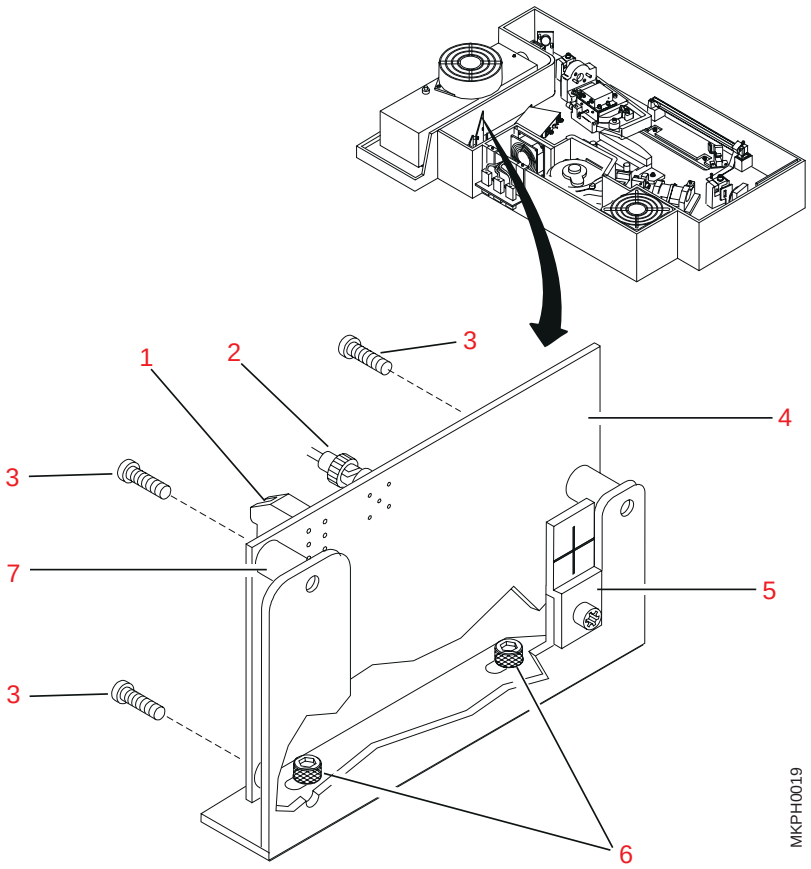
6. Set switch **(2)** on the laser power tool **(3)** to **High**.

Attention: In the following step, slightly move the power tool to ensure that the beam is centered on the sensor **(4)** of the laser power tool.

7. Place the power tool **(3)** on the power tool stand **(1)**, and position it at **C**. (See the figure on page 2803.).
8. Adjust the potentiometer on the AOM driver so that the power reading is 2–4 mV. (The manufacturing level of the AOM driver determines in which direction to adjust the potentiometer for a power increase or decrease.)
9. Adjust the potentiometer on the AOM driver for a maximum reading. If the potentiometer is fully rotated, and the power is still rising, the adjustment is complete.
10. If the power starts to decrease before the potentiometer is fully rotated, slowly adjust the potentiometer in the opposite direction, back to the point of peak power.
11. When the beam power is at its peak, slowly adjust the potentiometer in the direction of decreasing power to the point where power **just begins** to decrease. This ensures that the AOM driver is tuned to peak efficiency for the AO modulator.
12. Record the value for later use.
13. Run Adjustment Routine C9 for AM203 (lower beam).
14. Repeat steps 7 through 12 for AM203 (lower beam).
15. Reduce the power of the AOM driver with the highest output to match that of the driver with the lowest.

Beam Detect Card (BD132)

Table 766. Beam Detect Card (BD132)



Removal

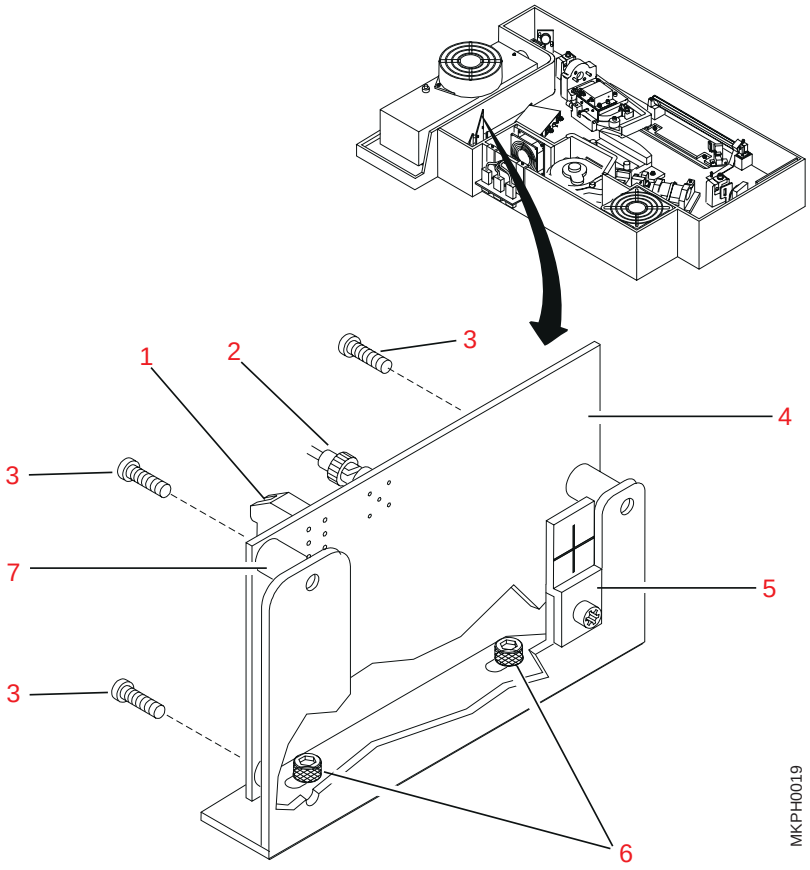
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ211 **(1)**.
4. Disconnect PJ212 **(2)**.
5. Remove the two Allen screws **(6)**.
6. Lift out the card and bracket.
7. Remove the sensor cover.
8. Remove the three screws **(3)** and the standoffs **(7)**.
9. Remove the card.

Installation

1. Reverse the removal procedure leaving screws **(6)** loose so that the card can be adjusted.
2. Perform the Check procedure.

(continued on next page)

Table 766. Beam Detect Card (BD132) (continued)



Check

1. Check for correct operation of the beam detect card as follows:
   a. Cover the return mirror with paper.
   b. Run Adjustment Routine C0 to switch on the laser and the mirror motor.
   c. Move the card horizontally until the scanning beam is horizontally centered on the sensor cover **(5)** and then tighten screws **(6)**.
   d. Ensure that the beam is vertically centered on the white line of the sensor cover.
   e. If the beam is not vertically centered on the white line, perform the adjustment procedure below.
   f. Stop the diagnostics and remove the paper from the return mirror.
2. Check the Scan Direction (Horizontal) Adjustment to set the final position of the beam detect card.

Adjustment

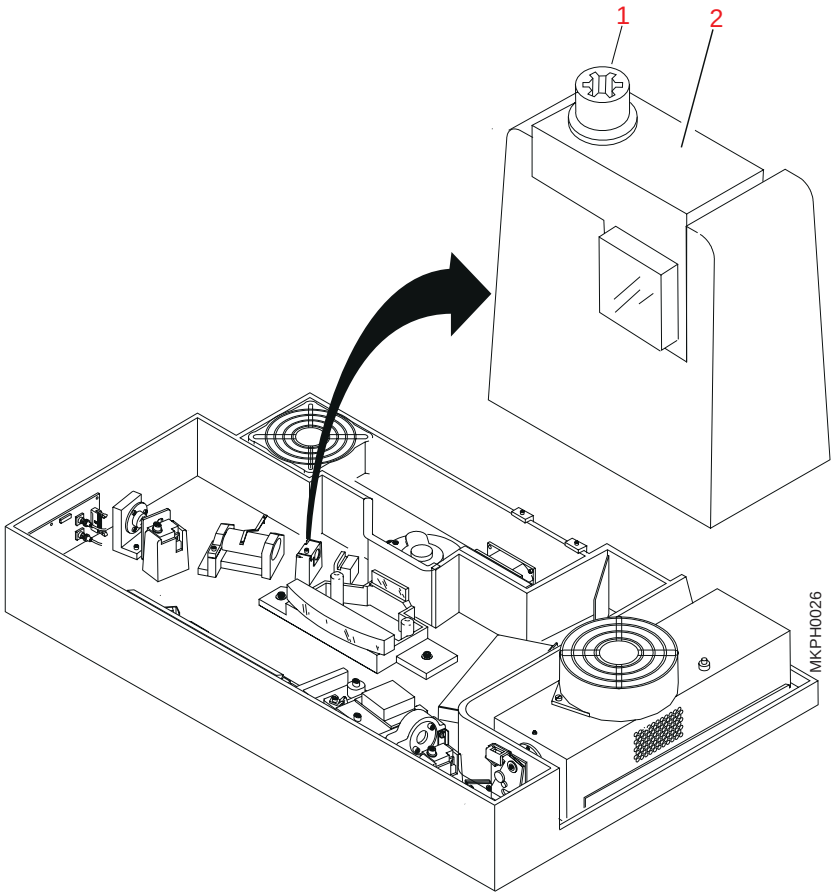
1. Perform Printhead Checks and Adjustments Beam Detect Mirror Check and the associated adjustment, if necessary.
2. Perform Registration check and Scan Direction (Horizontal) Adjustment.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Cylinder Lens (CYL1)

Table 767. Cylinder Lens (CYL1)



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

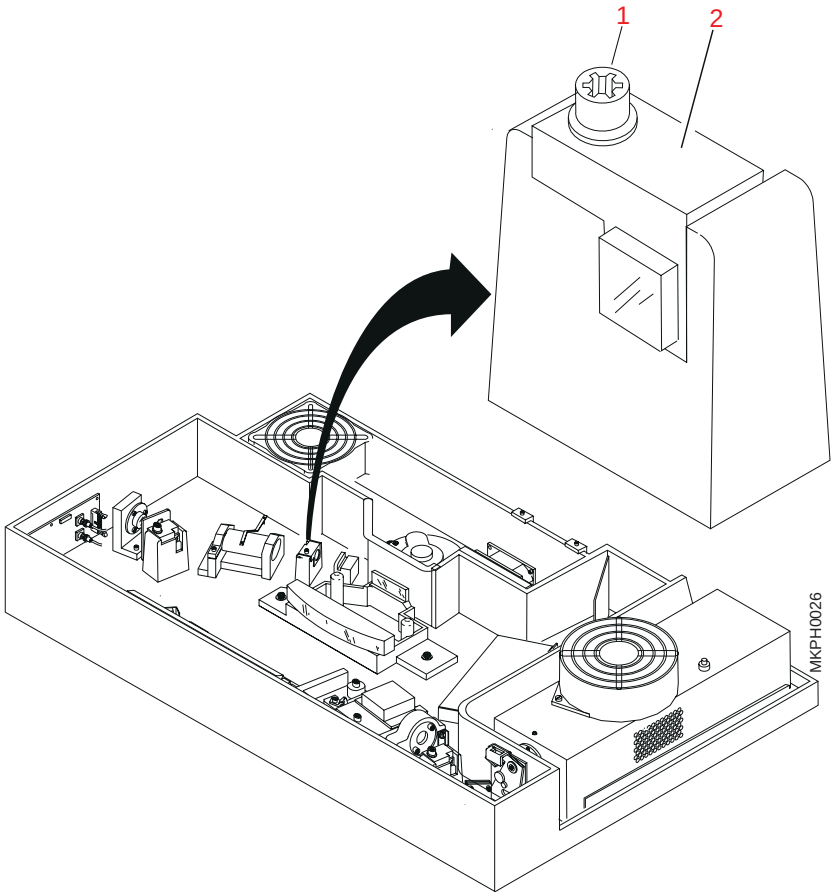
Attention: Call your next level of support before performing this procedure. Exact positioning of the cylinder lens (CYL1) requires a beam scanner.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Scribe the position of the cylinder lens pedestal at the reference surface so that it can be reinstalled in that exact position.
4. Remove screw **(1)**.

(continued on next page)

Table 767. Cylinder Lens (CYL1) (continued)



Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

5. Carefully, lift out the CYL1 lens **(2)**.

Installation

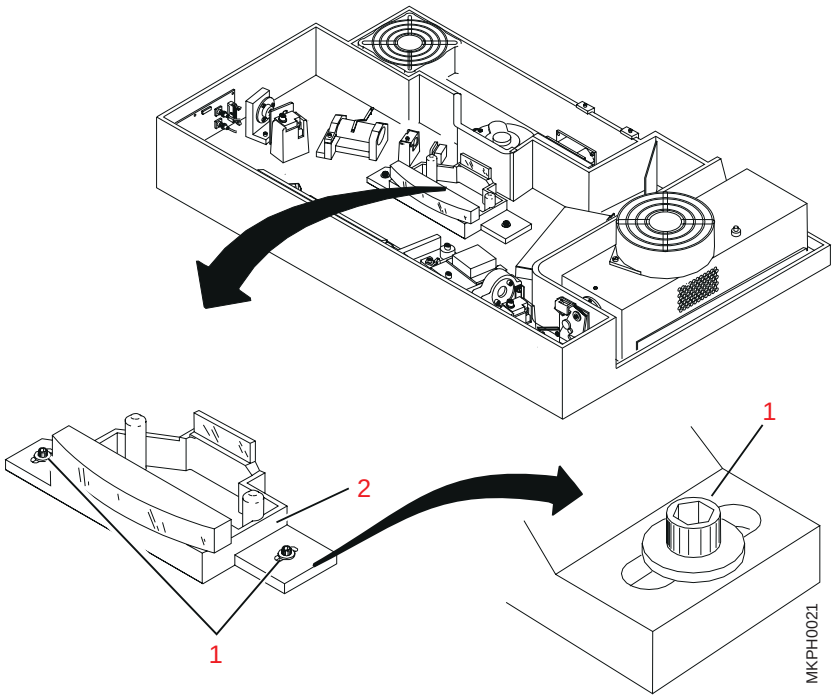
1. Reverse the removal procedure.
2. Ensure that the CYL1 lens is positioned exactly as before.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

F-Theta Lens Assembly

Table 768. F-Theta Lens Assembly



DANGER

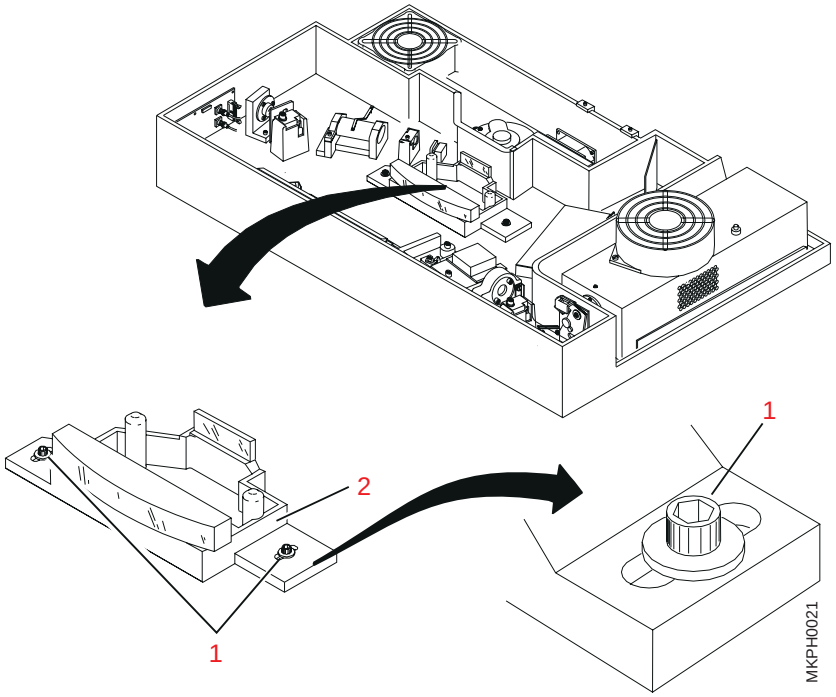
<22> You will need a wrench and a screwdriver to do this procedure. These tools can reflect the laser beam. Whenever these tools are used in the printhead, ensure that the printer is powered off.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Scribe the position of the F-Theta lens so that it can be reinstalled in that exact position.
4. Remove the two screws **(1)** and washers.
5. Remove the F-Theta lens **(2)** assembly.

(continued on next page)

Table 768. F-Theta Lens Assembly (continued)



Installation

1. Reverse the removal procedure.
2. Ensure that the F-Theta lens is positioned exactly as before.

Adjustment

Perform the following procedures and adjust if necessary:

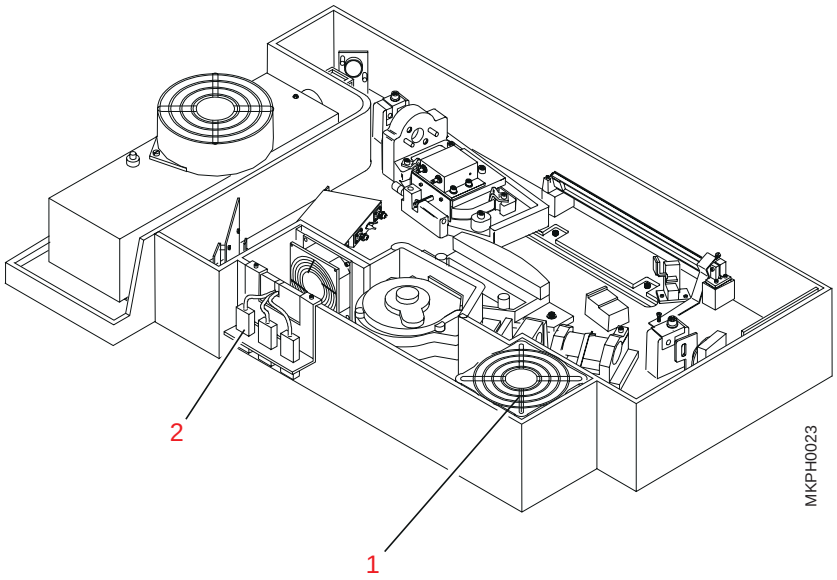
1. Print Skew
2. Print Width

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Front Printhead Fan (B201)

Table 769. Front Printhead Fan (B201)



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

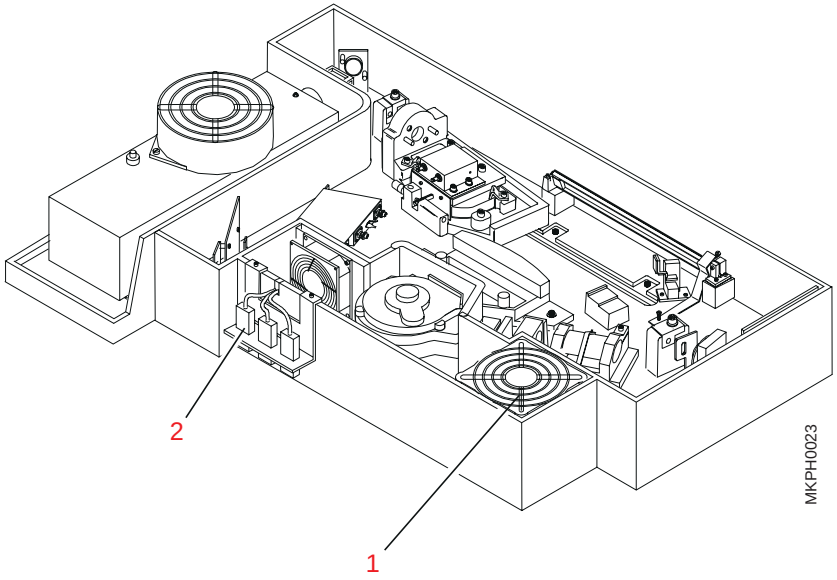
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ217 **(2)**.
4. Remove the cable clamp(s).
5. Lift and remove the fan **(1)**.

Installation

Reverse the removal procedure.

(continued on next page)

Table 769. Front Printhead Fan (B201) (continued)



Check

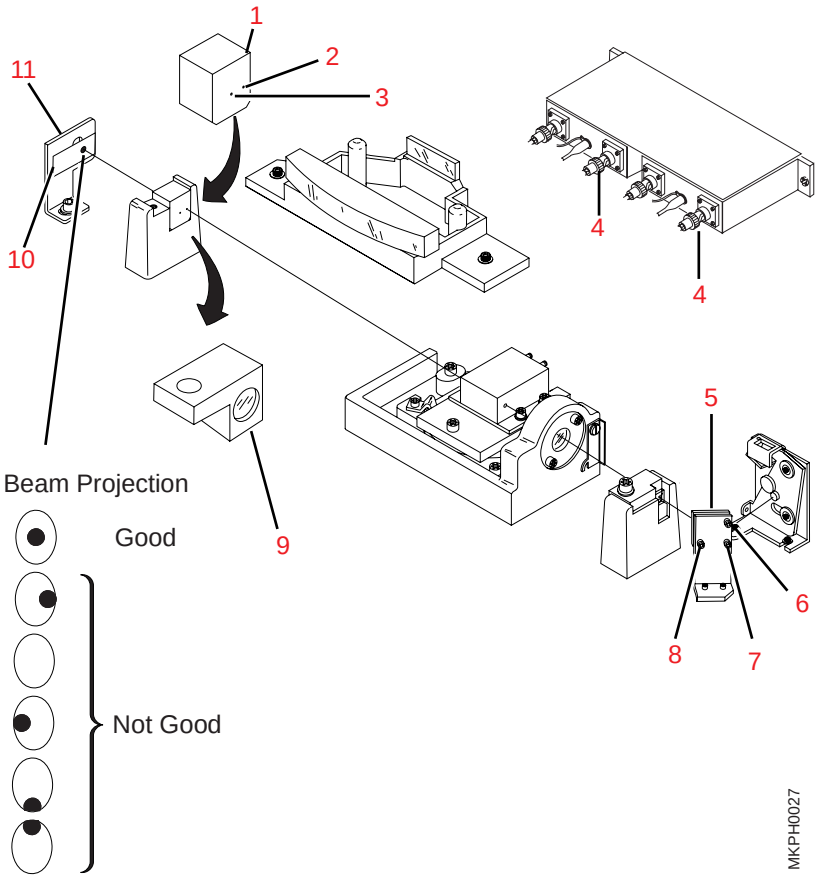
Ensure that the front printhead fan is moving air in the correct direction.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser

Table 770. Laser



DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

Check

1. If the laser current meter indicates 12.0 Amps or more, replace the Laser.
2. Perform the Zero Beam Alignment Verification .

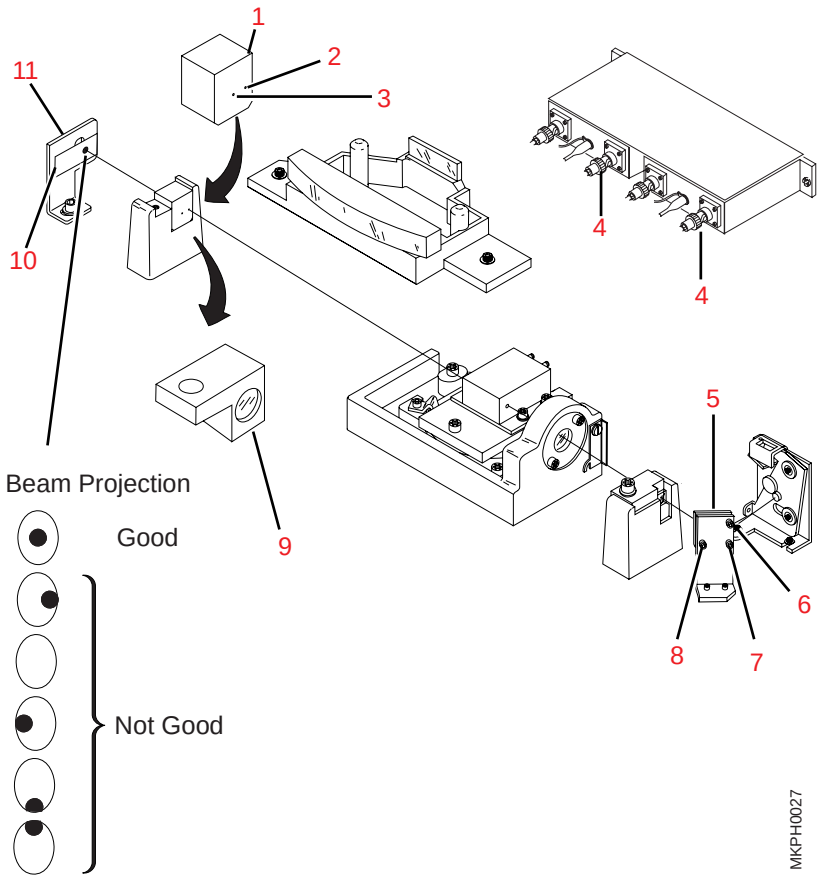
   If the old laser is correctly aligned, you can use the Simplified Laser Adjustment Procedure after you install the new laser. This procedure adjusts only the new laser to put it in the same position as the old laser.

Zero Beam Alignment Verification

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Cover the return mirror with paper.

(continued on next page)

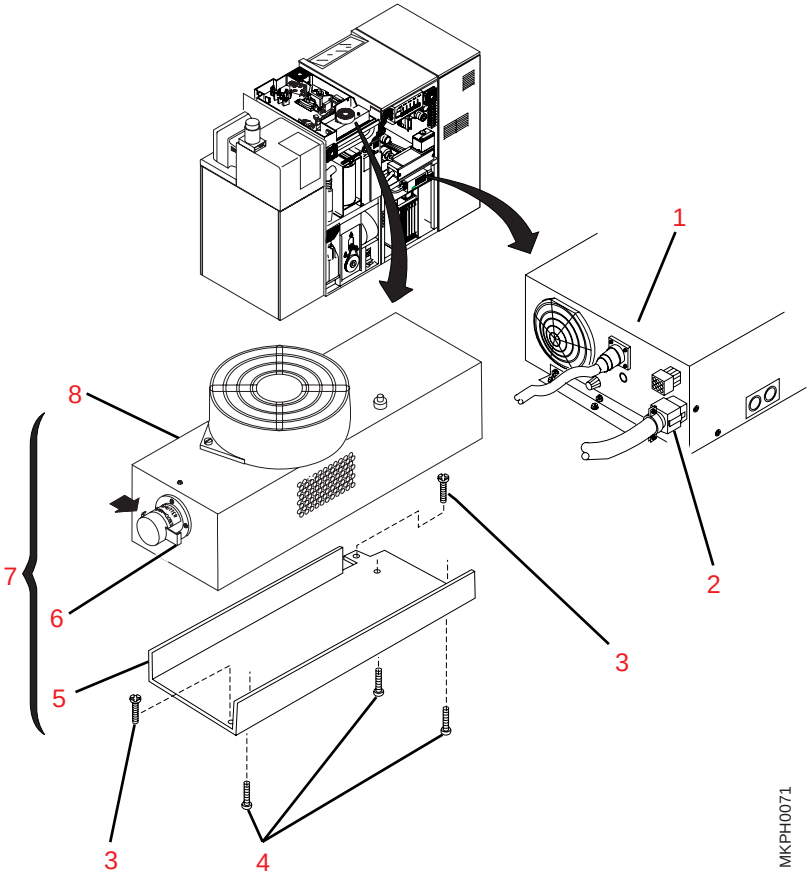
Table 770. Laser (continued)



3. Scribe the position of the L1 lens **(9)** so that it can be reinstalled in that exact position.
4. Remove the L1 lens **(9)**.
5. Install the laser alignment tool **(1)** in the L1 lens position as shown.
6. Place one of the white magnetic strips **(10)** that came with the laser power tool stand on the aperture **(11)**
7. Run Adjustment Routine C1, and set it to switch on only the zero beam. The zero beam should be centered on the white magnetic strip.
8. If the zero beam projection is centered on the spot **(2)** on the right side of the alignment tool as viewed from the rear of the printer, you can use the Simplified Laser Adjustment Procedure to adjust the new laser.
9. If the zero beam projection is not centered on the spot **(2)** on the right side of the alignment tool as viewed from the rear of the printer, use the Printhead Checks and Adjustments to adjust the new laser.
10. Leave the laser alignment tool in place.

(continued on next page)

Table 770. Laser (continued)

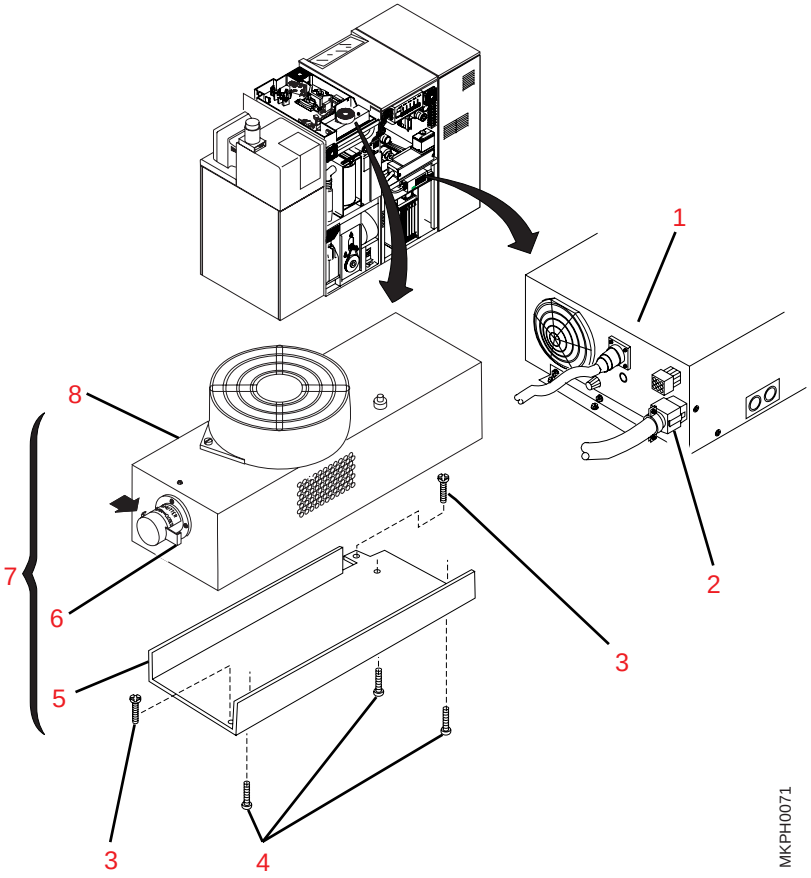


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the B1 board cover.
3. Remove the rear process cover.
4. Disconnect PJ596 **(2)** from the laser power supply **(1)**.
5. Note the path of the laser power cable through the printer
   a. Disconnect the laser power cable.
   b. Feed the laser power cable back to the laser so that it can be removed with the laser.
6. Close the laser shutter **(6)** to the **closed** position.
7. Remove the three screws **(3)**.
8. Remove the laser assembly **(7)**.
9. Remove the three screws **(4)** and remove the laser **(8)** from the laser mounting plate **(5)**.

(continued on next page)

Table 770. Laser (continued)



Installation

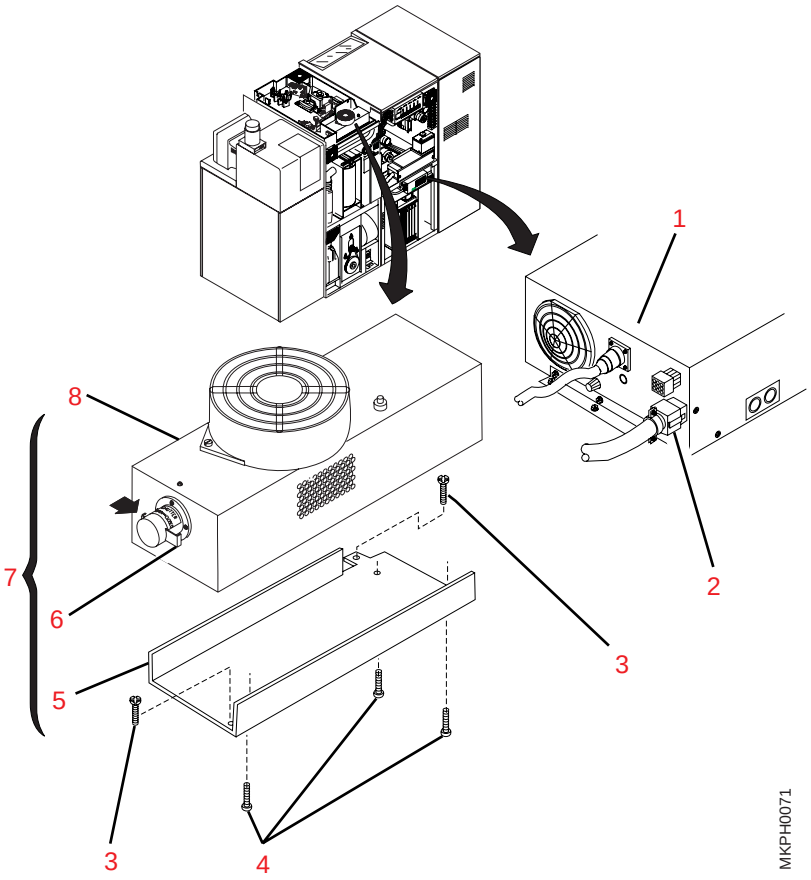
Attention: Use care if you place the laser on the printer covers. The corners of the laser can scratch the cover paint.

1. Attach the new laser to the laser mounting plate **(5)** with the three screws **(4)**.
2. Feed the laser power cable down and behind the laser support shelf.
3. Set the new laser in place and loosely install the two screws **(3)** into the laser mounting plate **(5)**.
4. Connect PJ596 **(2)** to the laser power supply **(1)**.
5. Slide the laser shutter **(6)** to the **open** position.
6. Install the printhead cover. (See Printhead Access).
7. Power-on the printer.
8. Run Adjustment Routine C0. Press **Enter**; wait for 5 seconds and press **Enter** again.
9. Wait for approximately 30 seconds, and then read the laser current meter. If the reading is less than 5 Amps, the laser is not switched on. Press **Enter** again.
10. If the current meter reading is 12 Amps (indicator fully to the right), the laser is bad.

    Perform the necessary steps in the Laser Removal and Installation procedures to install a new laser.
11. If the new laser is OK, and the old laser was correctly adjusted, go to the Simplified Laser Adjustment Procedure.
12. If the old laser was not correctly aligned, go to Printhead Checks and Adjustments.

Simplified Laser Adjustment Procedure

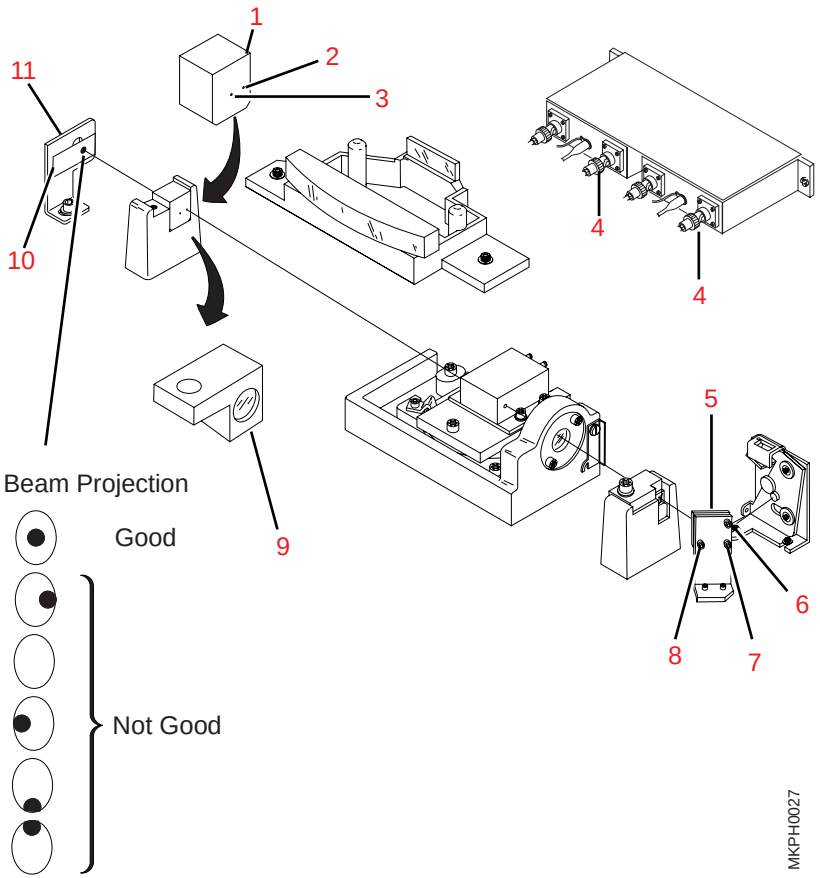
Table 771. Simplified Laser Adjustment Procedure



1. Install the screws **(3)** into the laser. Leave them loose so that the laser can be horizontally adjusted.
2. Cover the return mirror with paper.
3. Run Adjustment Routine C1, and set it to switch on only the zero beam.

(continued on next page)

Table 771. Simplified Laser Adjustment Procedure (continued)

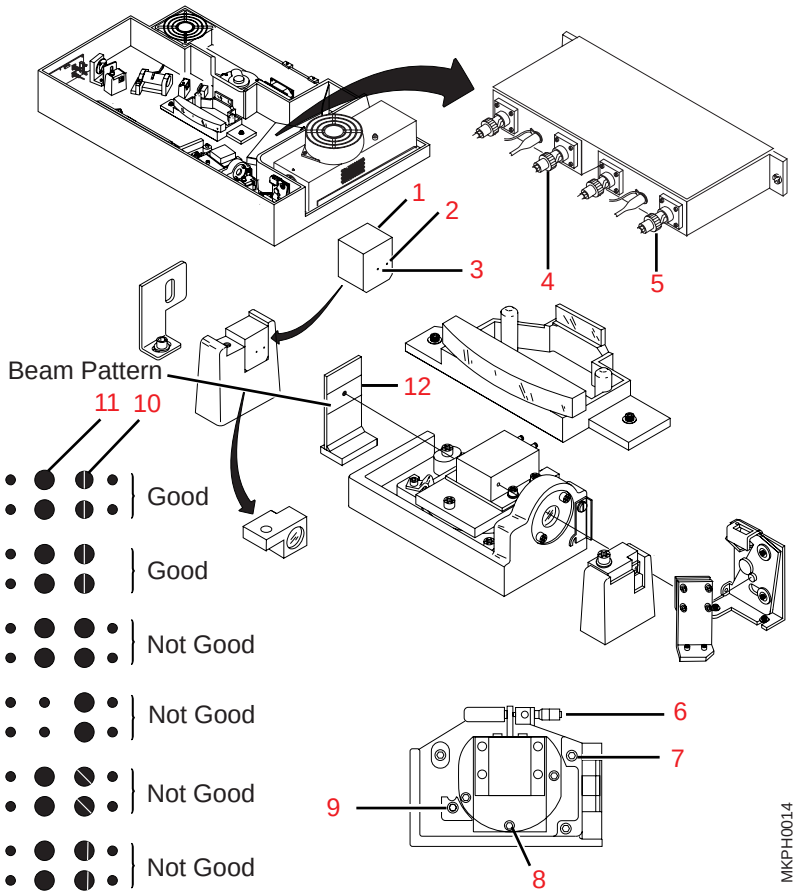


4. Place a magnetic strip **(10)** on the aperture **(11)**.
5. Adjust the laser so that the zero beam projection is centered on the spot **(2)** on the right side of the alignment tool, and the beam projection matches the “Good” pattern shown here.

   The beam may be a little high until the laser screws are tightened.
6. If necessary, adjust the vertical position of the beam with adjusting screw **(6)**

(continued on next page)

Table 771. Simplified Laser Adjustment Procedure (continued)

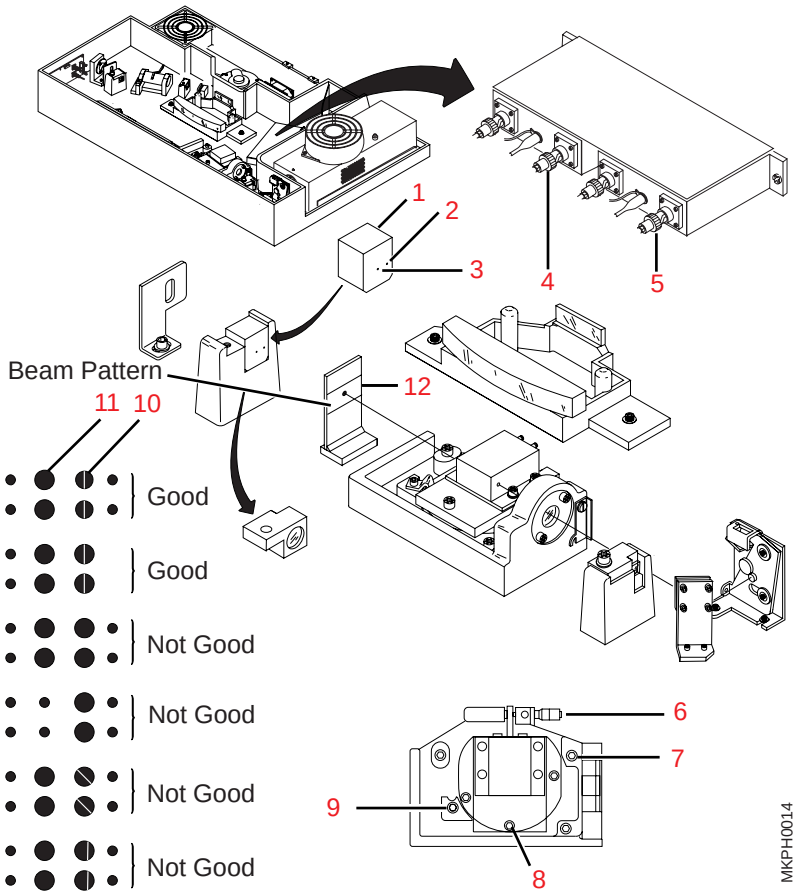


7. Attach one of the white magnetic strips to the laser power tool support **(12)**.
8. Place the laser power tool support between the L1 lens and the AO modulator.
9. Press **Enter** on the maintenance panel to switch on the primary beam **(11)**. You should see multiple beams.

   If you place the support within an inch of the AO modulator, two rows of beams are visible. As you slide the stand toward the L1 lens, the two rows of beams increase in size, and merge into one, out of focus, beam. Position the stand to the position for best viewing.
10. Gently move the laser until the zero beams **(10)** are split into equal size spots by a vertical line.
11. Remove the laser power tool support from the beam path to see if the split zero beam **(10)** is still centered on the spot **(2)** on the right side of the alignment tool.
12. Two conditions must be present:
    - The zero beam must be split into two smaller, equal size, spots.
    - The zero beam must be centered on the spot **(2)** on the right side of the alignment tool.

(continued on next page)

Table 771. Simplified Laser Adjustment Procedure (continued)

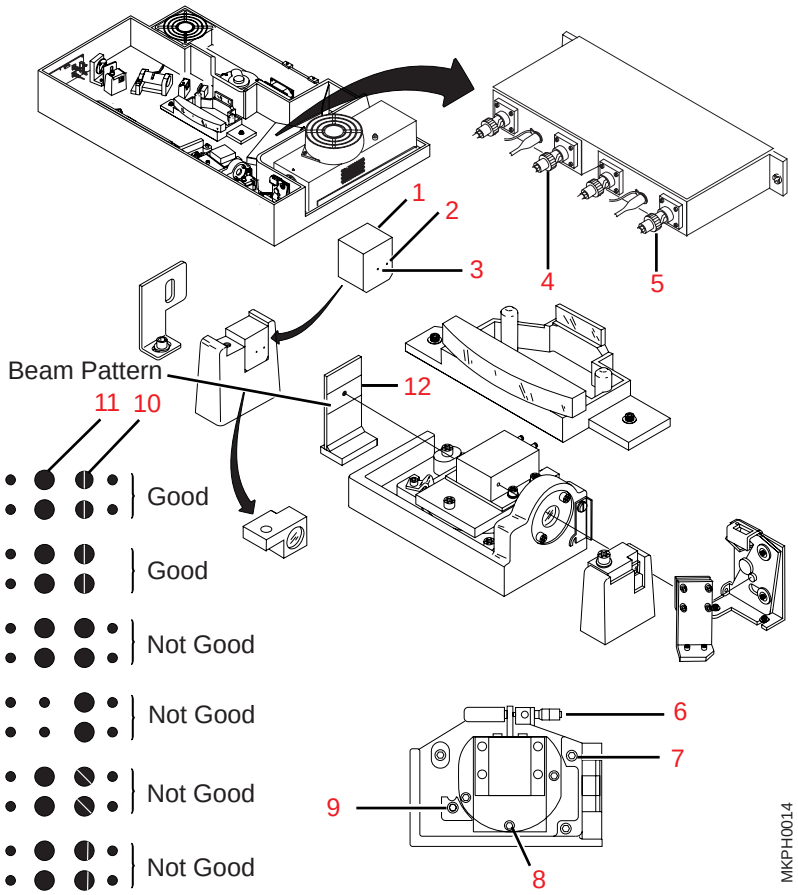


13. If it is not possible to create the correct beam pattern with the zero beam centered on the spot **(2)** on the right side of the alignment tool, as would happen when you replace an old laser with a new one, align the zero beam on the spot **(2)** on the right side of the alignment tool; then, adjust for the correct beam pattern using Beam Pattern Check.
14. Gently tighten the laser screws in an alternating fashion. Try to maintain the beam pattern. If the beam changes as the screws are tightened, perfom the M1 Mirror Adjustment to obtain the correct the beam pattern.
15. Perform a final tightening of the screws.
16. Remove the laser alignment tool **(1)**.
17. Remove the magnetic strip from the aperture.
18. Reinstall the L1 lens exactly as before.
19. Check the power at point **C** with the printhead cover installed. See Beam Power Check for details about measuring the power at point **C**.

    If the power at point **C** is less than 58 mV, go to AO Modulator Adjustments.

(continued on next page)

Table 771. Simplified Laser Adjustment Procedure (continued)



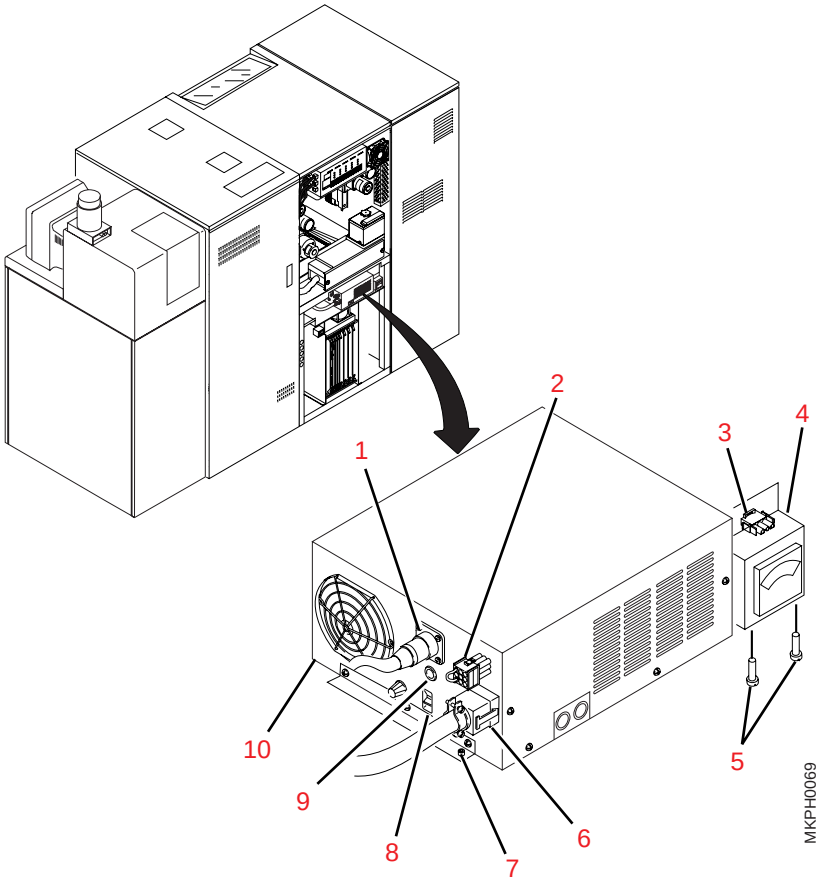
20. If the power is good, check the vertical beam position at the beam detect sensor while you run adjustment routine C0 so that the beam is scanning. If the beam is not passing through the center of the white line on the sensor cover, perform the following Printhead Checks and Adjustments:
    a. M2 Mirror Check
    b. Beam Detect Mirror Check
21. If the old laser was not correctly adjusted, or if you are having difficulty with this procedure, perform Printhead Checks and Adjustments
22. Perform the Registration Check and adjust if necessary.
23. Perform PQE Stroke Width procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser Power Supply and Laser Current Meter (L102)

Table 772. Laser Power Supply and Laser Current Meter (L102)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the B1 board cover.
3. Disconnect PJ595 **(1)**, PJ596 **(6)**, and PJ597, which is located below and to the left of the usage meter.
4. Remove two screws **(5)**.
5. Disconnect PJ599 **(3)** and remove the laser current meter (L102) **(4)**.
6. Remove the two screws **(7)** to remove the laser power supply **(10)**. One screw is on the left side of the power supply, the other on the right side.

Installation

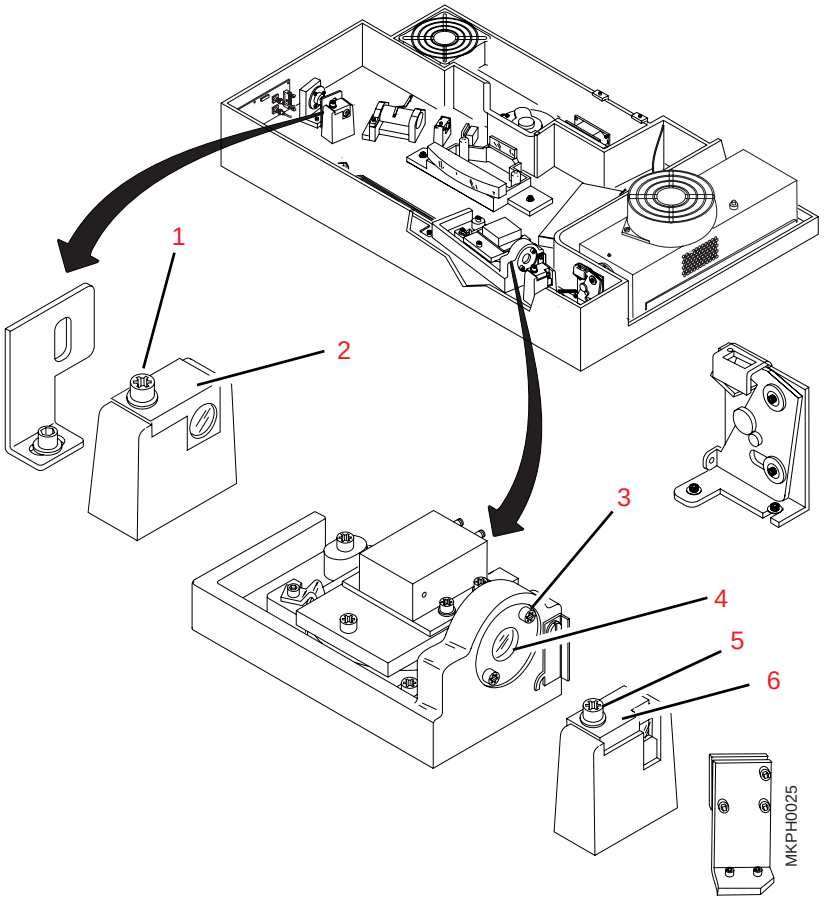
1. Ensure that the key **(9)** and the power switch **(8)** are in the **On** position, and the jumper plug PJ598 **(2)** is in place.
2. Reverse the removal procedure.

Check

1. Run Adjustment Routine C0 to ensure that the laser current meter is correctly operating when the laser is powered on.
2. Run Print Pack to verify print quality and that no system reference code is displayed.

L1 Lens

Table 773. L1 Lens



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

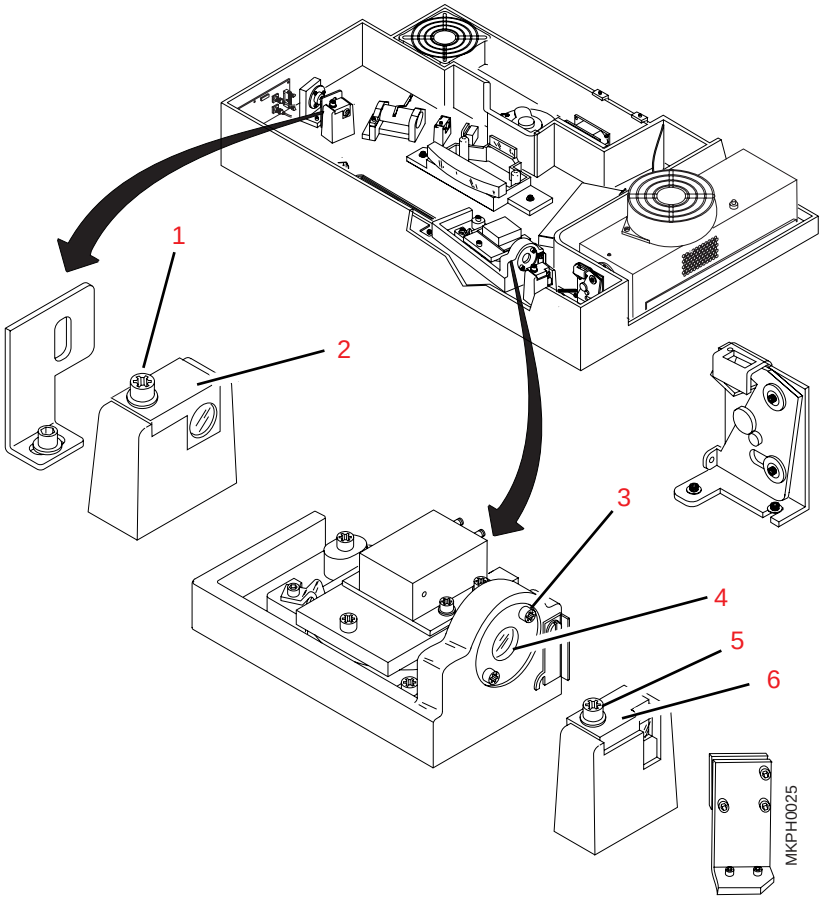
Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Scribe the position of the L1 lens pedestal **(2)** at the reference surface so that it can be reinstalled in that exact position.
4. Remove screw **(1)**.

(continued on next page)

Table 773. L1 Lens (continued)



Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

5. Remove the L1 lens **(2)**.

Installation

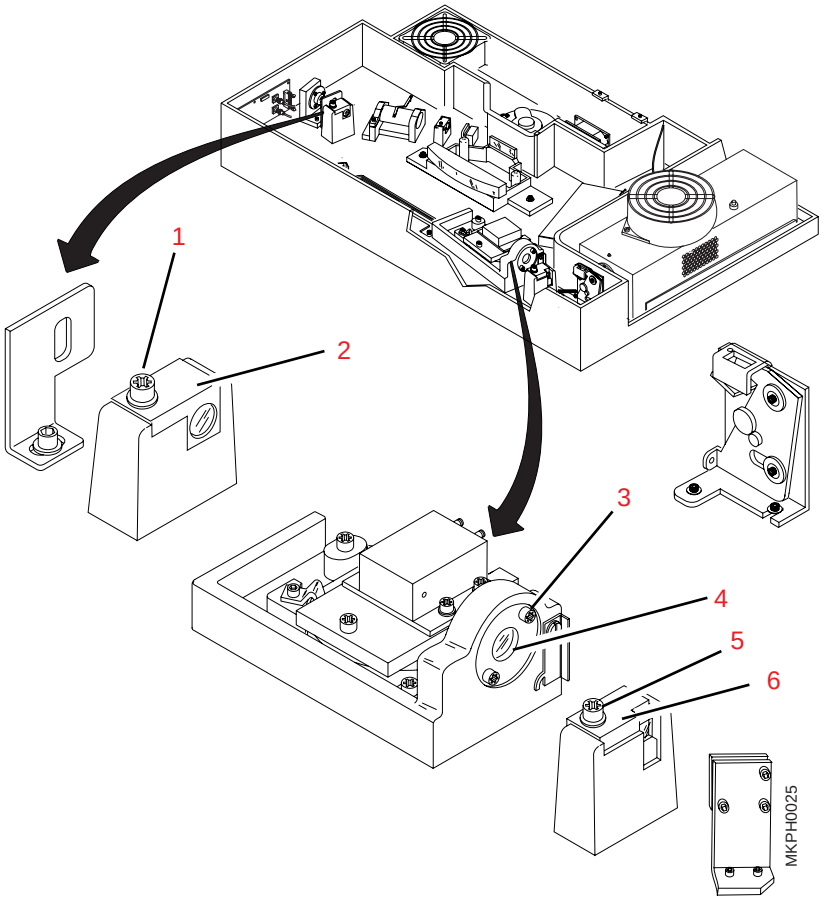
1. Reverse the removal procedure.
2. Ensure that the L1 lens is positioned exactly as before.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

L2 Lens

Table 774. L2 Lens



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

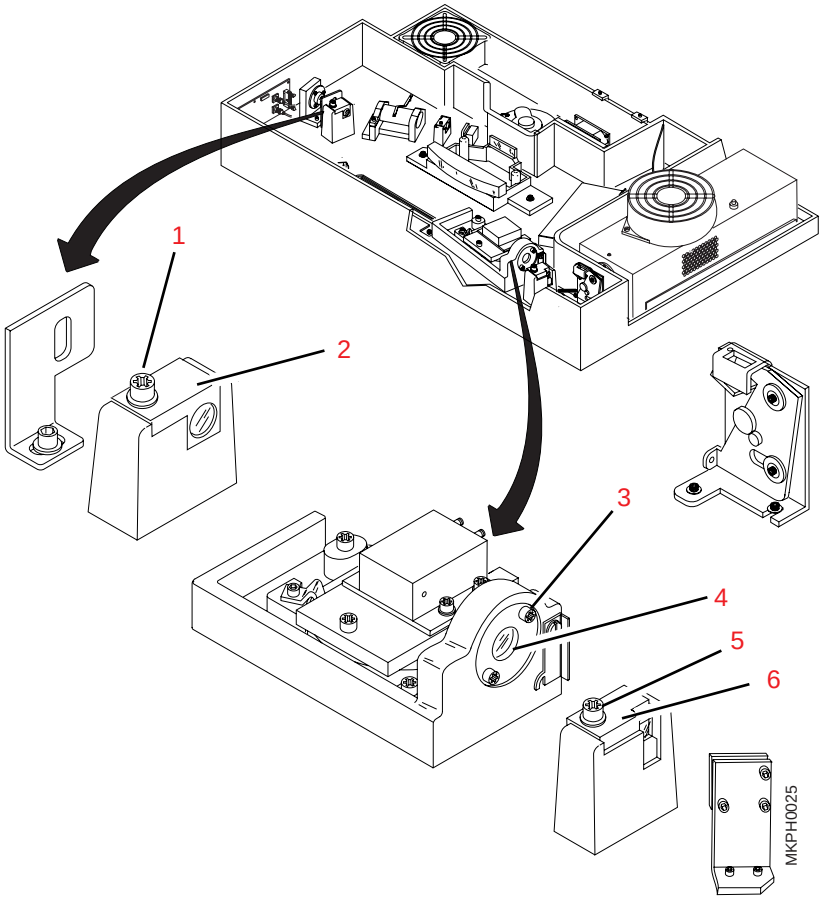
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Remove the two screws **(3)**.

Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

4. Remove the L2 lens **(4)**.

(continued on next page)

Table 774. L2 Lens (continued)



Installation

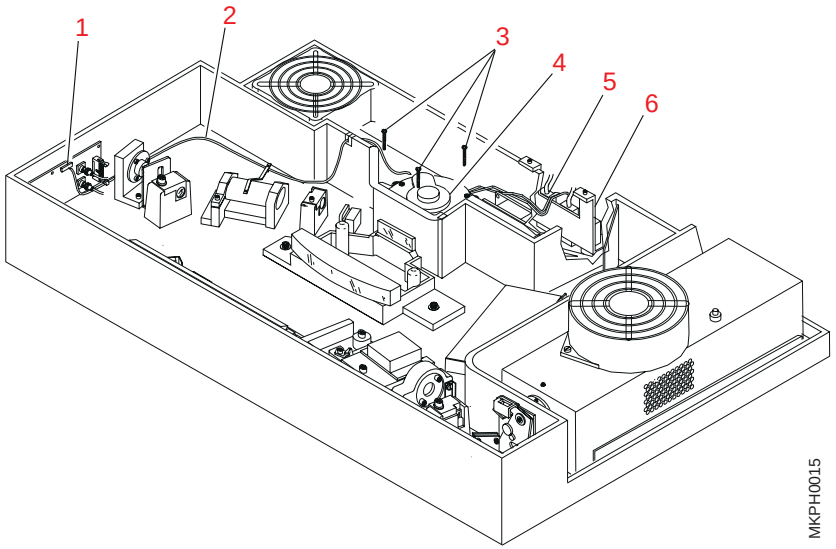
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Mirror Motor (M201)

Table 775. Mirror Motor (M201)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ208 **(1)** and PJ219 **(5)**.

Attention: Do not loosen or remove the three hex bolts on the mirror motor assembly.

4. Remove the three Phillips screws **(3)** from the mirror motor.
5. Remove the mirror motor **(4)**.

Installation

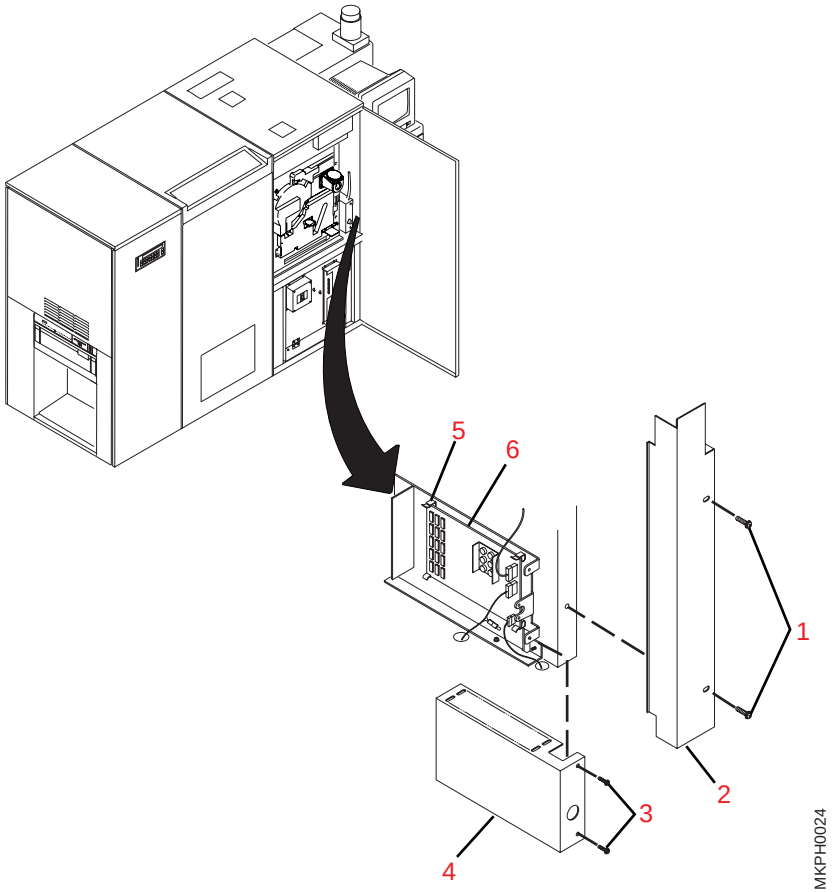
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Mirror Motor Driver Board (MD141)

Table 776. Mirror Motor Driver Board (MD141)



Attention: Use ESD procedures when working with the mirror motor driver board (MD141).

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Open the printer fight front cover.
3. Remove the two screws **(1)** and remove the cover **(2)**.
4. Remove the two screws **(3)** and remove the inner mirror motor driver board cover **(4)**.
5. Disconnect P224, P225, P226, and P231.
6. Release the board holders **(5)** and remove the mirror motor driver board (MD141) **(6)**.

Installation

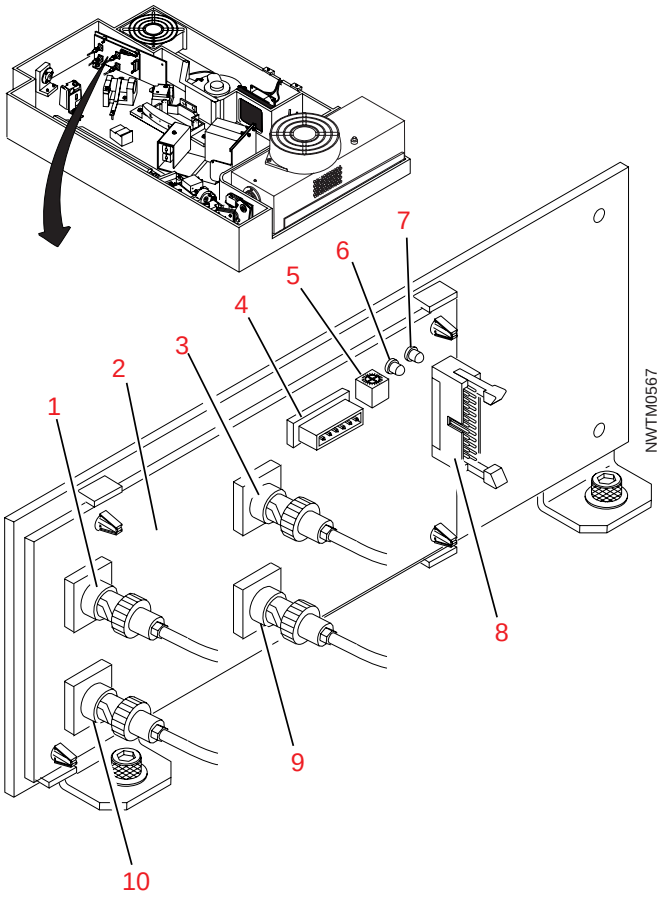
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Interface Card (VI141)

Table 777. Printhead Interface Card (VI141)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ208 **(4)**, PJ237 **(1)**, PJ207 **(10)**, PJ236 **(3)**, PJ206 **(9)**, and PJ210 **(8)**.
4. Release the card clips and remove the card **(2)**.

Installation

Reverse the removal procedure.

Adjustment

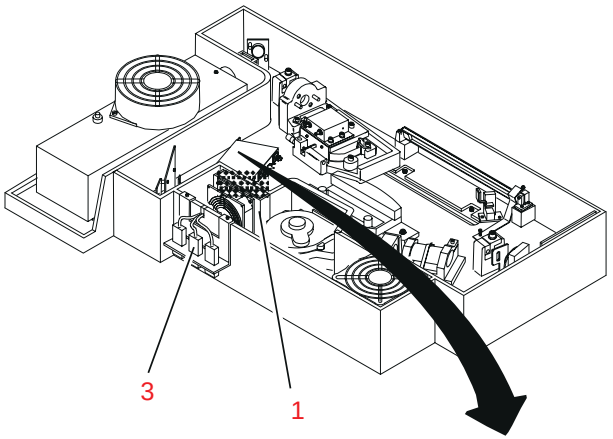
1. Cover the return mirror with paper.
2. Run Adjustment Routine C1.
3. Adjust potentiometer **(5)** **CCW** until LED **(6)** switches off. Note the position of the potentiometer.
4. Adjust potentiometer **(5)** **CW** until LED **(7)** switches off. Note the position of the potentiometer.
5. Adjust potentiometer **(5)** to a point that is centered between that of step 3 and step 4.
6. Stop the diagnostic and remove the paper from the return mirror.

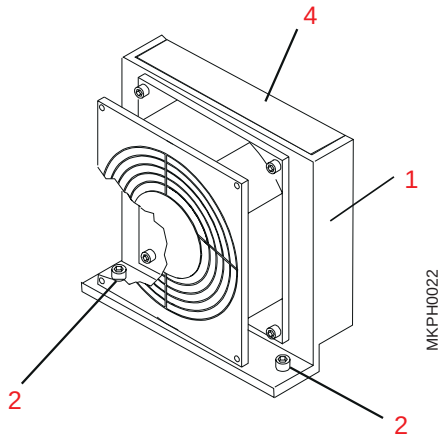
Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Pressurizing Fan (B202) and Filter

Table 778. Printhead Pressurizing Fan (B202) and Filter





DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Disconnect PJ223 **(3)**.
4. Remove the two screws **(2)** and remove the printhead pressurizing fan (B202) assembly **(1)** and the filter **(4)**.

Installation

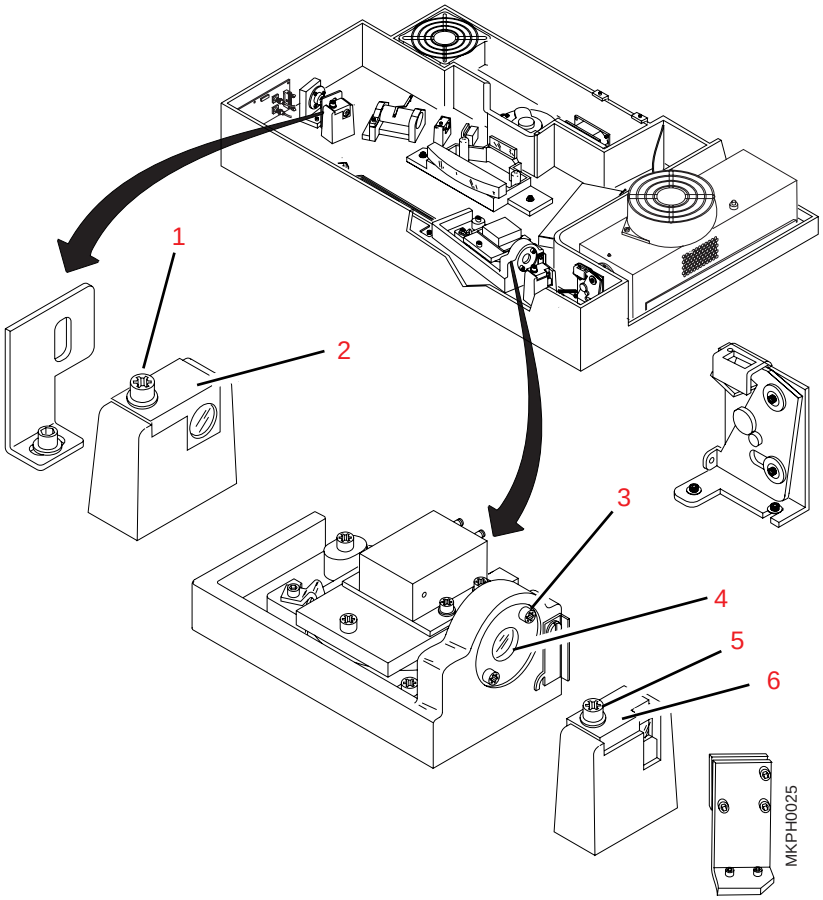
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Wollaston Prism

Table 779. Wollaston Prism



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Attention:

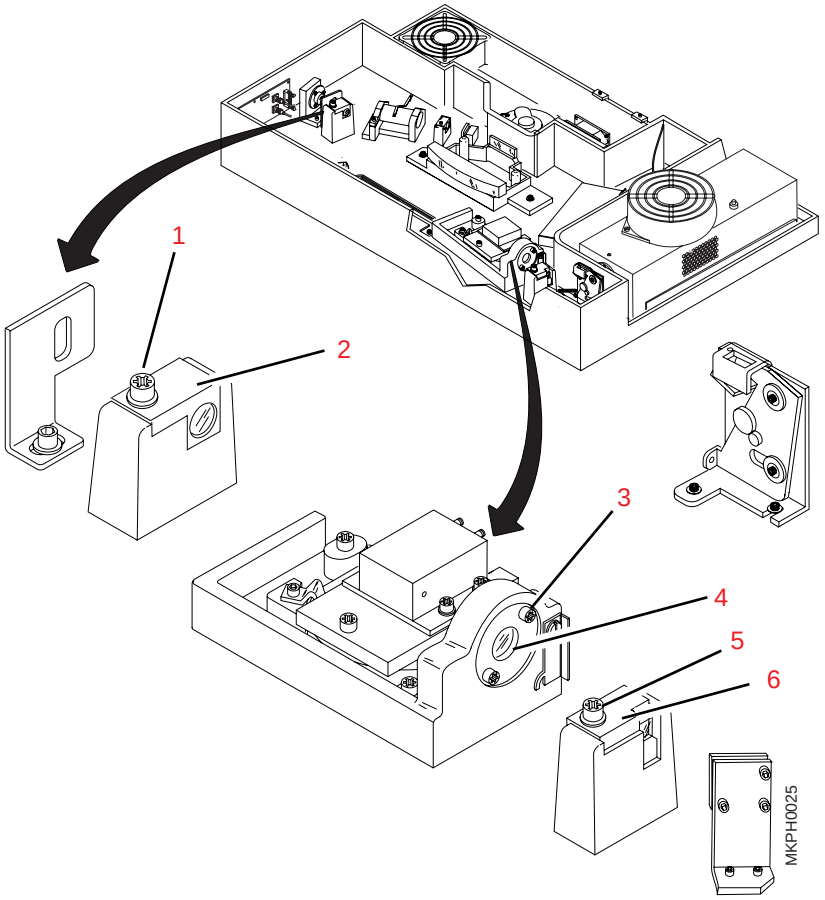
Do not touch the Wollaston prism glass surface with your fingers. Oils from your fingers will contaminate the prism, causing a reduction in beam power.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Perform the Printhead Access procedure.
3. Scribe the position of the Wollaston prism **(6)** so that it can be reinstalled in that exact position.
4. Remove screw **(5)**.
5. Remove Wollaston prism.

(continued on next page)

Table 779. Wollaston Prism (continued)



Installation

1. Reverse the removal procedure.
2. Ensure that the Wollaston prism is positioned exactly as before.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Checks and Adjustments

This section provides procedures for adjusting the printhead using the laser alignment target and laser power tool.

When You Should Use These Procedures

- You have just replaced a laser and are not able to complete the Simplified Laser Adjustment Procedure.
- You are having trouble with the printable area or beam alignment or low printing power
- You are having beam detect errors
- You are concerned about the beam positions at every point in the printhead.

Sequence

The printhead adjustments are all related and you must perform them in the correct sequence. Before you make any adjustments, you must make the checks in the following sequence to locate the source of the problem.

1. Printhead Checks and Adjustments
   a. Zero Beam Alignment
   b. Beam Pattern
   c. Aperture
   d. M2 Mirror
   e. Beam Power
   f. Beam Detect Mirror
2. Print Sample Adjsutments
   a. Print Width
   b. Print Skew
   c. Registration
   d. AOM Skew
   e. PQE Stroke Width

Table 780. Preparation for Printhead Checks and Adjustments

Preparation

To prepare for the printhead checks and adjustments follow the steps below.

- **Step 1** Disable all host attachments. See the *Operator's Guide.*
- **Step 2** Shutdown and power off the printer.
- **Step 3** Follow the Printhead Access procedure.
- **Step 4** Set the diagnostic function switch to **3**. See Exerciser Routines (Position 3).
- **Step 6** Cover the return mirror with paper.
- **Step 7** Power on the printer. See Power-On Procedures.

DANGER

<2> Laser radiation is present when the printer is powered-on.

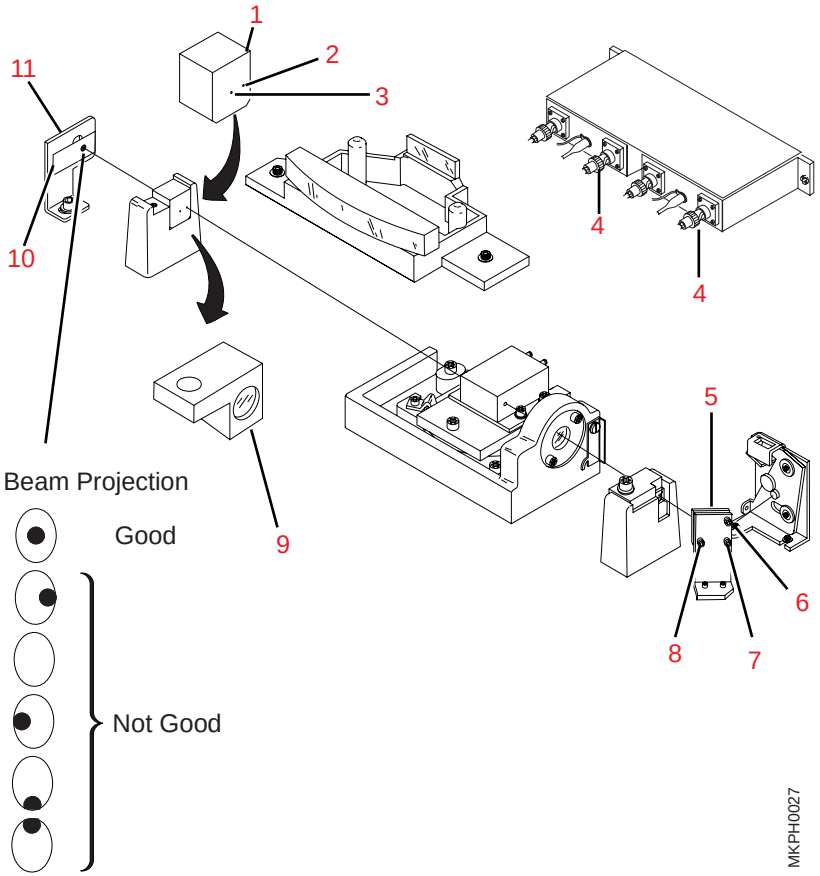
Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Zero Beam Alignment Check

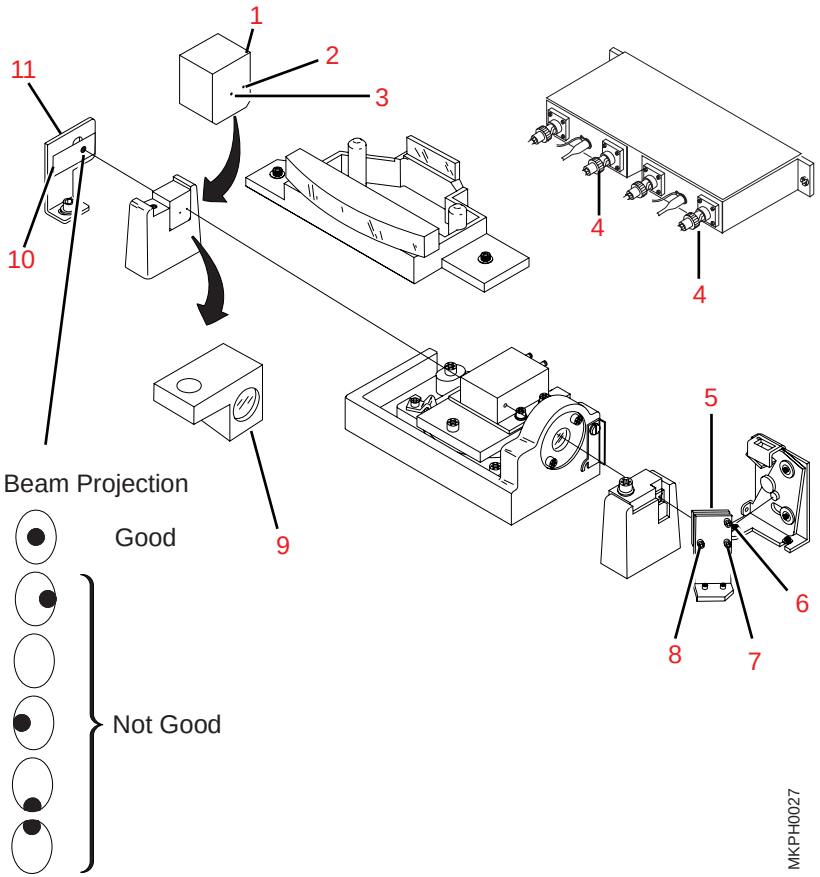
Table 781. Zero Beam Alignment



1. Perform all steps under preparation.
2. For ease of adjustment, attach the maintenance panel extension cable to the maintenance panel and place the maintenance panel on top of the printer.
3. Run Adjustment Routine C1.
4. Scribe the position of the L1 lens **(9)** so that it can be reinstalled in that exact position.
5. Remove the L1 lens.
6. Install the laser alignment tool **(1)** in the L1 lens position.
7. Place one of the white magnetic strips **(10)** (shipped with the laser power tool stand) on the aperture **(11)**.

(continued on next page)

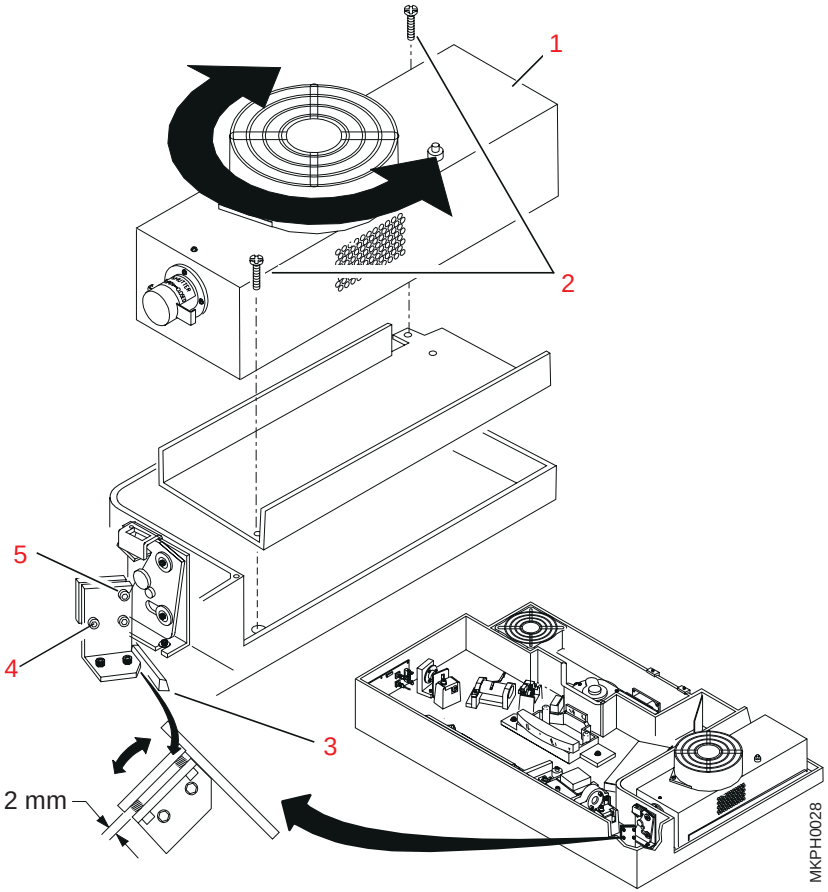
Table 781. Zero Beam Alignment (continued)



8. Compare the beam projection. The laser beam should be passing through the hole **(2)** on the right of the alignment tool, as viewed from the rear of the printer.
   - If the beam projection is good, go to Beam Pattern Check of Printhead Checks and Adjustments.
   - If the beam projection is slightly off center, go to M1 Mirror Adjustment.
   - If the beam projection is not centered on M1 mirror or the black cross hairs of the laser alignment tool, go to Laser Horizontal Adjustment.

Laser Horizontal Adjustment:

Table 782. Laser Horizontal Adjustment



The zero beam alignment is not correct because M1 mirror is not correctly positioned.

1. If the beam projection is close, go to M1 Mirror Adjustment to adjust both horizontal and vertical adjustment of the laser beam.
2. Ensure that M1 is 2 mm from the base plate. Measure with a 2 mm Allen wrench. If the distance is not close to 2 mm, go to M1 Mirror Adjustment and adjust the distance.
3. Loosen the two screws **(2)**.

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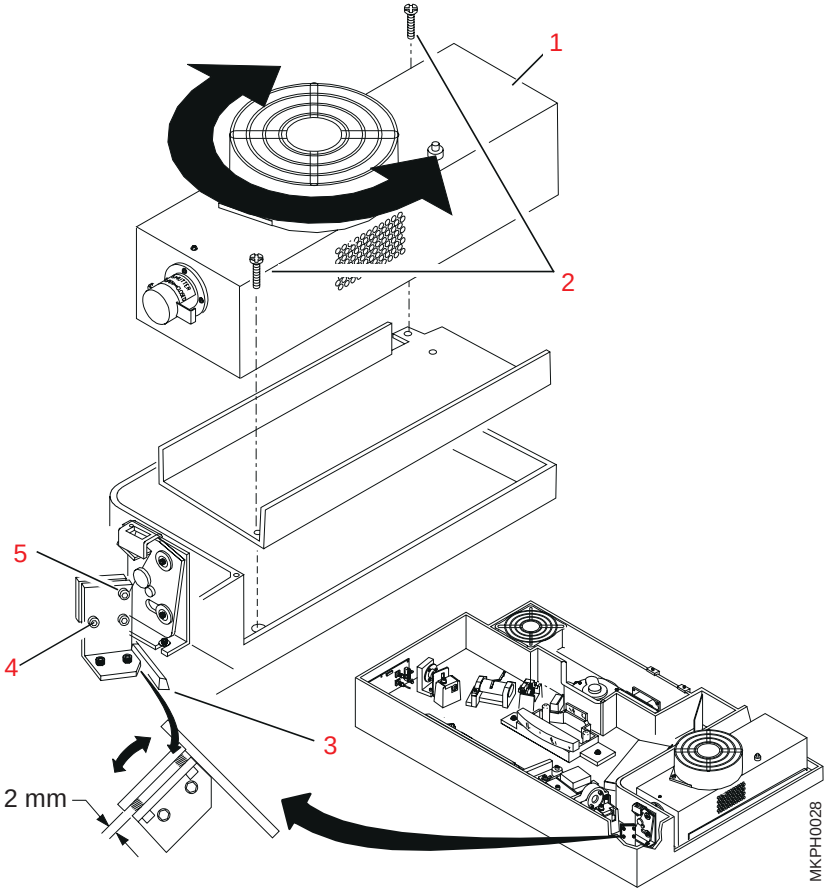
Table 782. Laser Horizontal Adjustment (continued)



Attention: Whenever you move the laser, ensure that the laser exit opening is firmly seated against the foam seal on the safety shutter housing, and that the seal does not block the beam.

4. Rotate the laser **(1)** as necessary so that the laser beam passes through the hole on the right of the alignment tool, as viewed from the rear of the printer. See step 8 of Zero Beam Alignment Check.

   There is no vertical adjustment on the laser. Adjust M1 for vertical beam adjustment.

5. Tighten the screws **(2)** to lock the laser into position. If the beam position changes when the screws are tightened, go to M1 Mirror Adjustment and adjust M1 to adjust the zero beam position.

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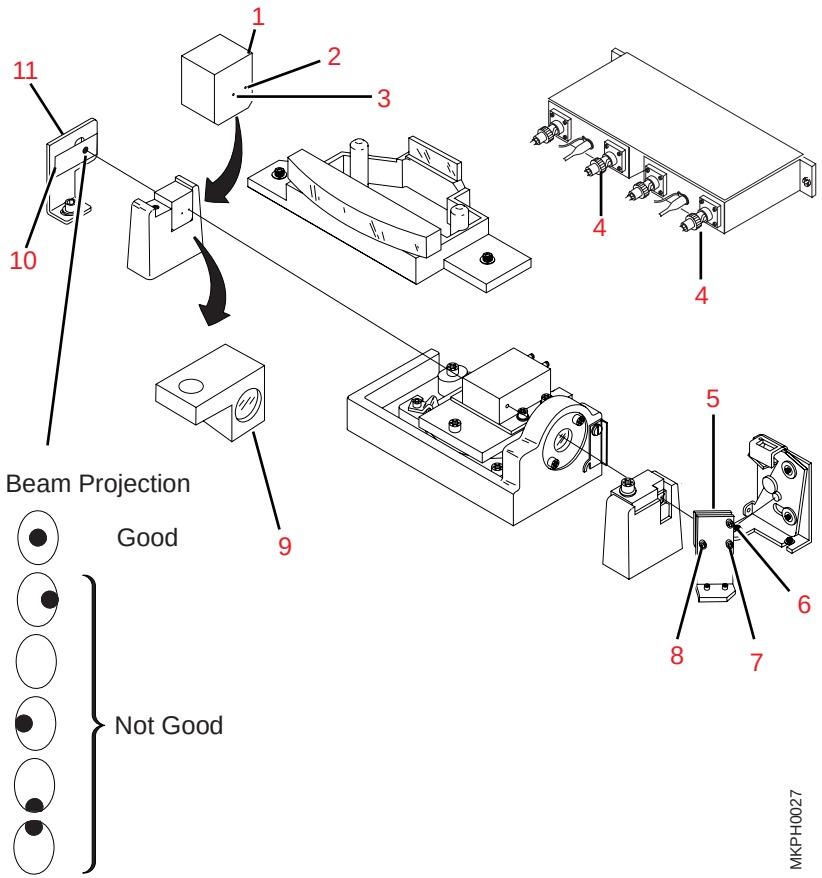
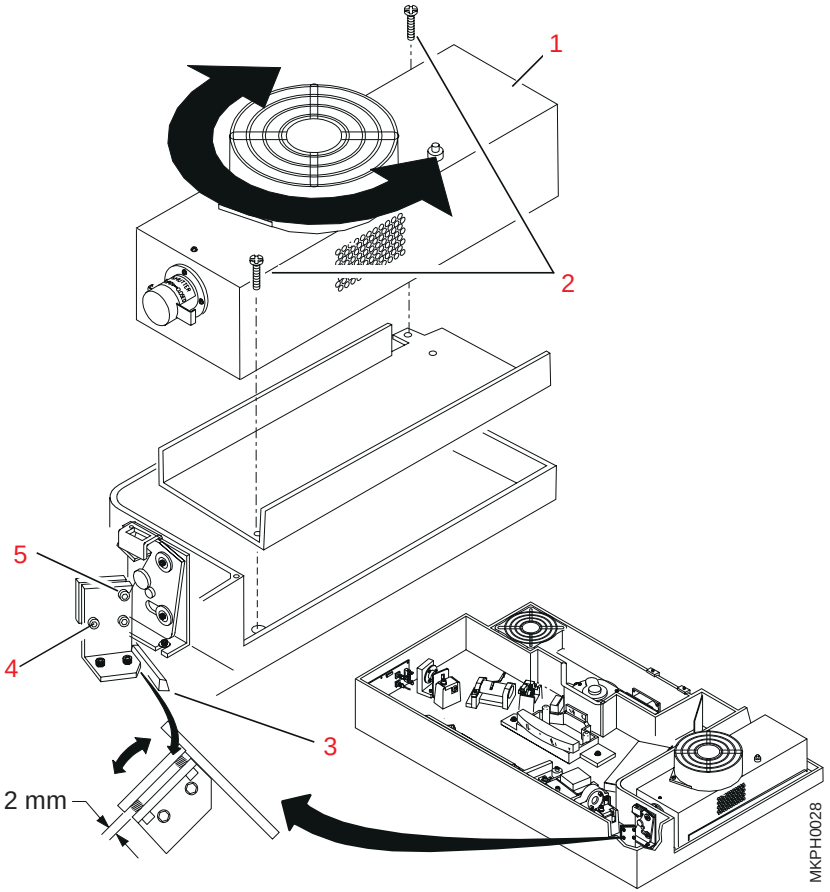
Table 782. Laser Horizontal Adjustment (continued)



6. Compare the beam projection. The laser beam should be passing through the hole **(2)** on the right of the alignment tool, as viewed from the rear of the printer.
   - If the beam projection is good, go to Beam Pattern Check of Printhead Checks and Adjustments.
   - If the beam projection is off center, go to M1 Mirror Adjustment.

M1 Mirror Adjustment:

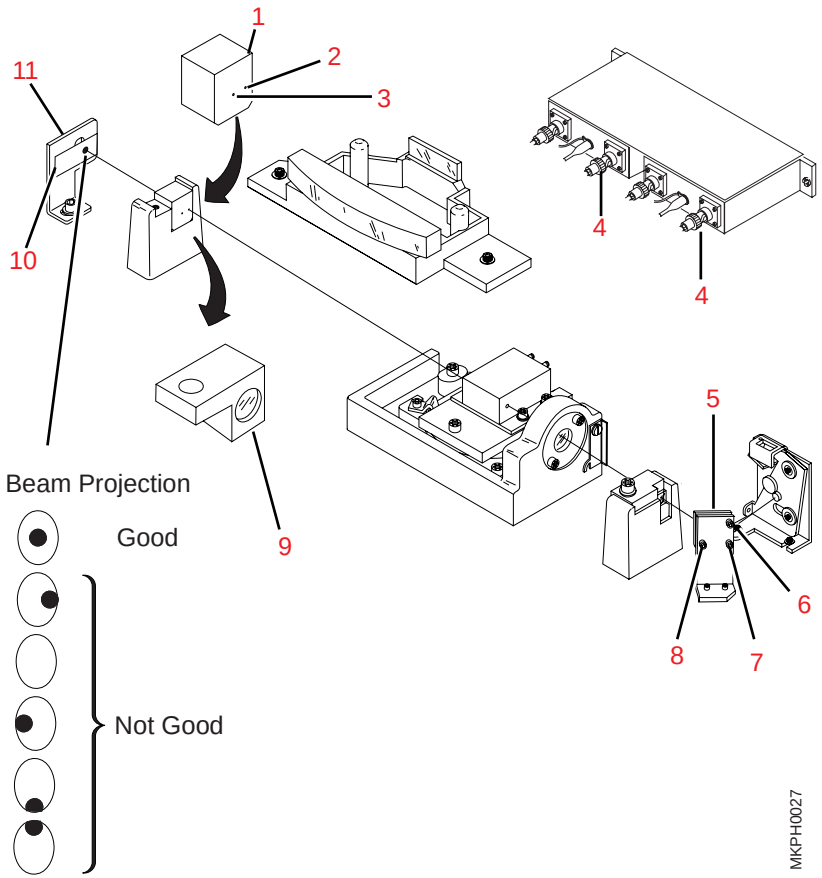
Table 783. M1 Mirror Adjustment



1. To move the beam **vertically**, slowly turn screw **(5)**
2. To move the beam **horizontally**, slowly turn screw **(4)**

(continued on next page)

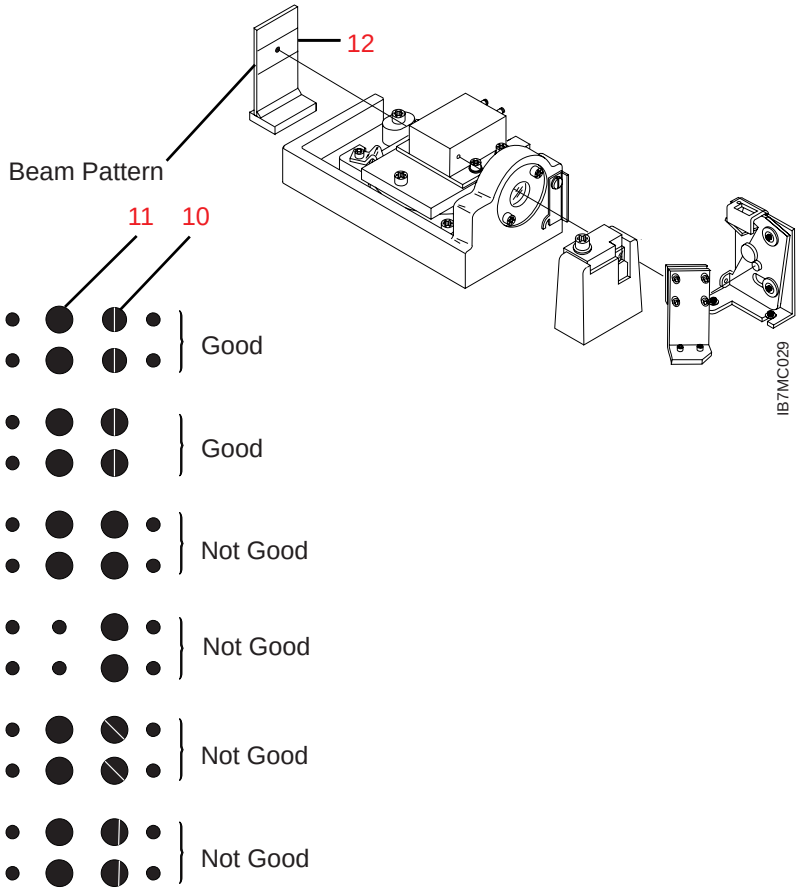
Table 783. M1 Mirror Adjustment (continued)



3. Compare the beam projection. The laser beam should be passing through the hole **(2)** on the right of the alignment tool, as viewed from the rear of the printer.
   - If the beam projection is good, go to Beam Pattern Check of Printhead Checks and Adjustments.
   - If the beam projection is slightly off center, repeat M1 Mirror Adjustment.

Beam Pattern Check

Table 784. Beam Pattern Check



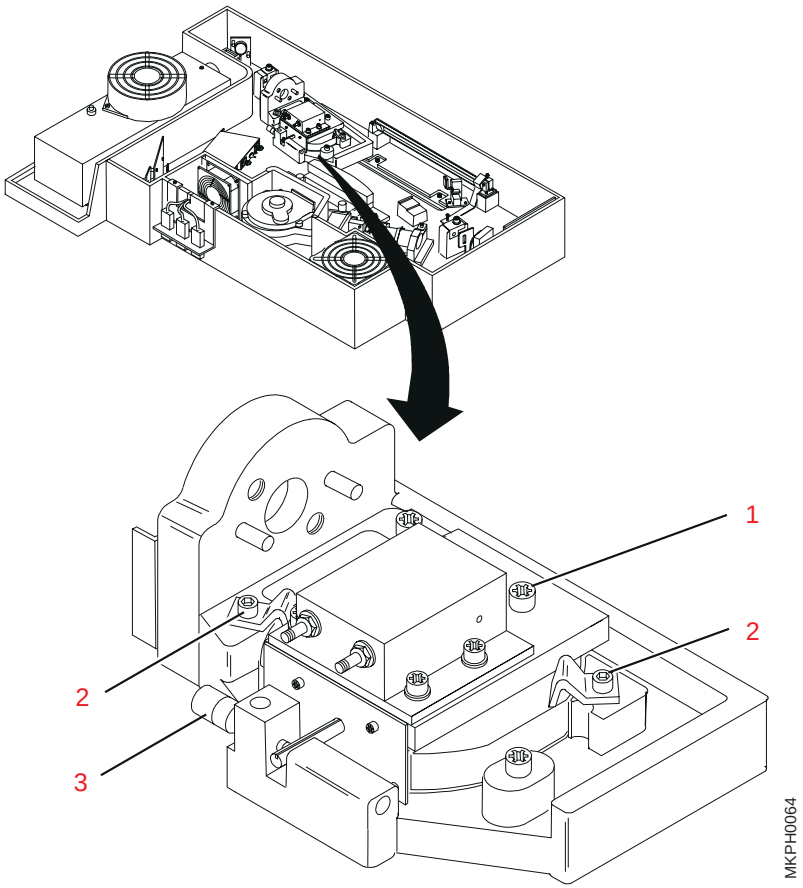
1. Perform all steps under preparation, if not already done.
2. For ease of adjustment, attach the maintenance panel extension cable to the maintenance panel and place the maintenance panel on top of the printer.
3. Remove the white magnetic strip from the aperture and place it on the laser power tool stand **(12)**, and then place the stand between L1 lens and the AO modulator, within an inch of the AO modulator.

   You should see two rows of beams.

   As you slide the stand toward the L1 lens, the two rows of beams increase in size, and merge into one, out of focus, beam. Position the stand to the position for best viewing.
4. Adjustment routine C1 should still be running. If only the zero beams are showing, press **Enter** on the maintenance panel to produce the primary beam as well.
5. Compare the beam pattern. The zero beam **(10)** should be split.
   - If the beam pattern is good, go to Aperture Adjustment of Printhead Checks and Adjustments.
   - If the beam pattern is not good, go to Beam Pattern Adjustment.

Beam Pattern Adjustment:

Table 785. Beam Pattern Adjustment



1. Turn the vertical adjustment screw **(1)** until the beams are as close as possible to the “Good” pattern shown in the figure on page 2796.

   If there are two screws at **(1)**, loosen the locking screw (screw with no spring under it) and then adjust the screw with the spring under it. Tighten the locking screw when the adjustment is complete.

   If it is not possible to make the beam pattern correct now, adjust for the brightest possible primary beam **(11)** in the figure on page 2796.
2. Loosen, but do not remove the two screws **(2)**.
3. Turn the horizontal adjustment micrometer **(3)** until the beams are as close as possible to the “Good” pattern shown in the figure on page 2796.
4. Adjust for the zero beam **(10)** to split into two spots of equal size. The separation between the spots should be a vertical line. The beam to the right of the zero beam **(10)** may or may not be visible. See the figure on page 2796.
5. Repeat steps 1 and 3, if necessary.

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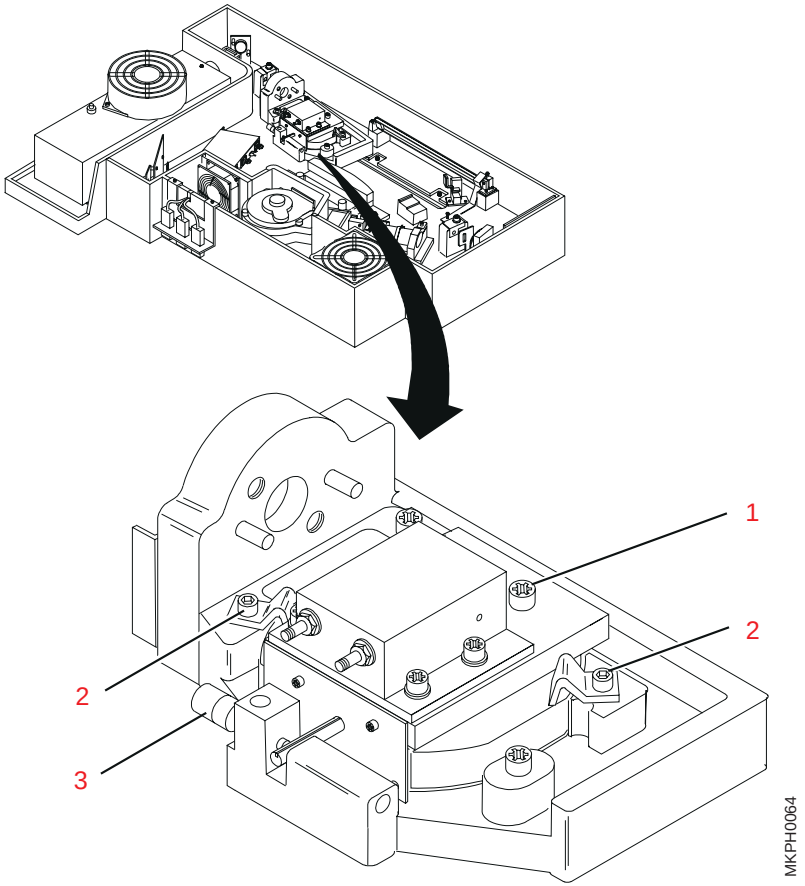
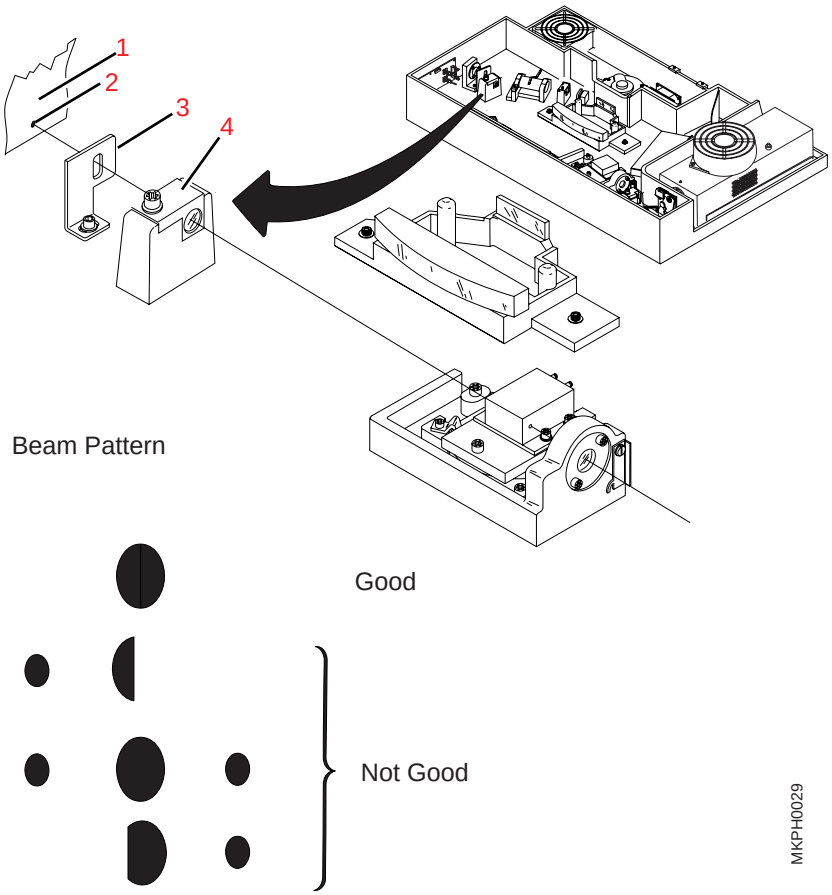
Table 785. Beam Pattern Adjustment (continued)



6. When the beam pattern is good, gently tighten the two screws **(2)**.
7. Ensure that the beam pattern did not change as the screws were tightened.
8. Press **Enter** on the maintenance panel, so that only the zero beam is present.
9. Remove the laser power tool stand and verify that the zero beam is still correctly aligned.
10. Go to Aperture Adjustment.

Aperture Adjustment

Table 786. Aperture Adjustment

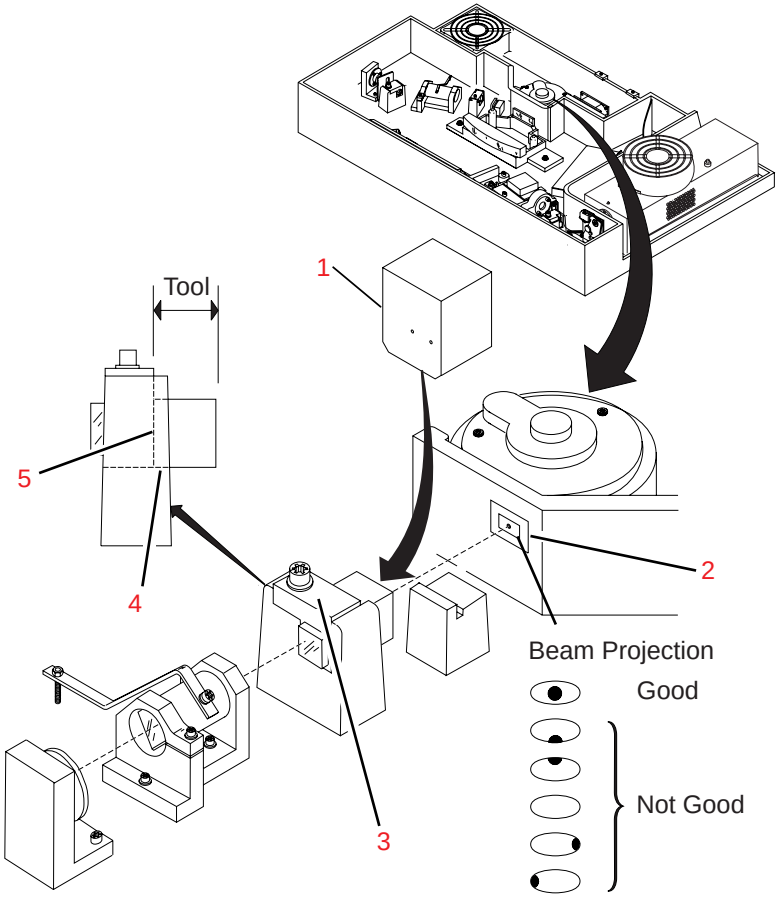


1. Perform all steps under preparation, if not already done.
2. Adjustment routine C1 should still be running with the primary beams visible.
3. Remove the laser alignment tool.
4. Reinstall the L1 lens **(4)** in the exact position from which you removed it.
5. Place a piece of white paper **(1)** behind the aperture **(3)** so that the beam pattern projects on to the paper **(2)**.
6. Adjust the aperture so that the beam pattern looks like the “Good” example shown here (for best results, position the aperture at an angle).

   The “Good” beam pattern is when the primary beam is centered on the aperture and all other beams are blocked by the aperture.
7. Remove the paper.
8. Go to M2 Mirror Check of Printhead Checks and Adjustments.

M2 Mirror Check

Table 787. M2 Mirror Check



1. Perform all steps under preparation, if not already done.
2. Adjustment routine C0 should still be running with the primary beams visible and scanning the return mirror.
3. On most printers it is possible to put the alignment tool **(1)** in the CYL1 lens mount without removing the CYL1 lens **(3)**.

   If you **can** put the alignment tool in the CYL1 lens mount without removing the lens, go to step 6. If you **can not** put the alignment tool in the CYL1 lens mount without removing the lens, continue with step 4.
4. Scribe the position of the CYL1 lens so that it can be reinstalled in that exact position.
5. Remove the CYL1 lens and put the alignment tool on the CYL1 lens mounting pedestal. Go to step 7.
6. Place the alignment tool flush against the back of the CYL1 lens. Use the inside edges **(4)** and **(5)** of the CYL1 lens pedestal to position the alignment tool. Hold the tool in place.
7. Place one of the white magnetic strips on the mirror motor wall **(2)** so that the beam projects on the strip.

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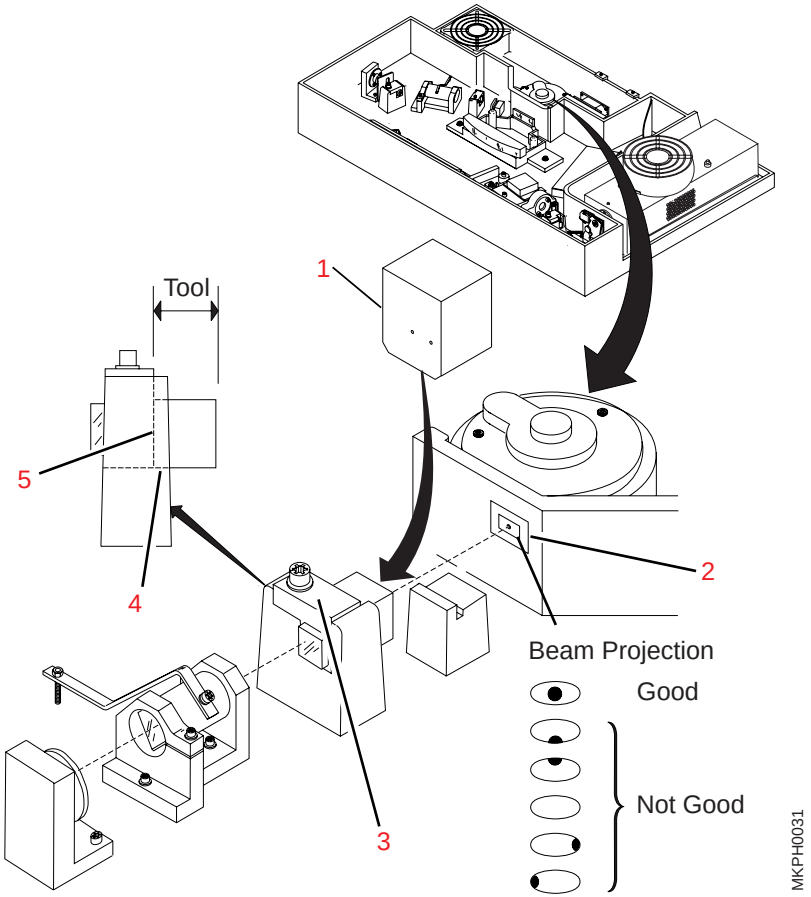
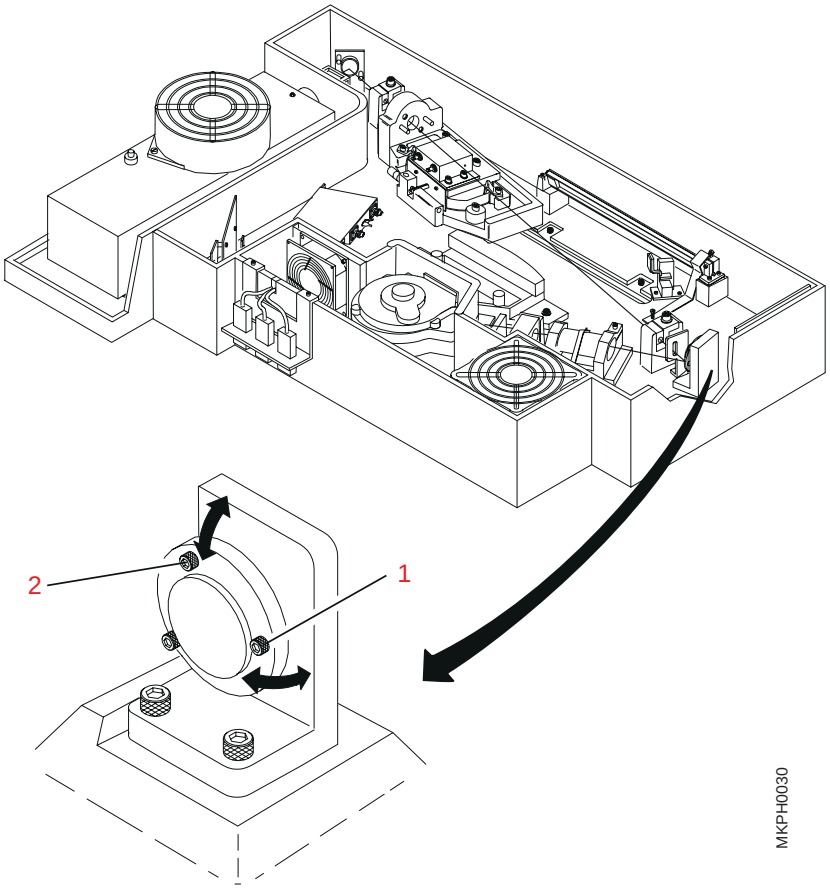
Table 787. M2 Mirror Check (continued)



8. Compare the beam projection:
   - If the beam projection is good, go to Beam Power Check of Printhead Checks and Adjustments.
   - If the beam projection is not good, continue with step M2 Mirror Adjustment.

(continued on next page)

Table 787. M2 Mirror Check (continued)

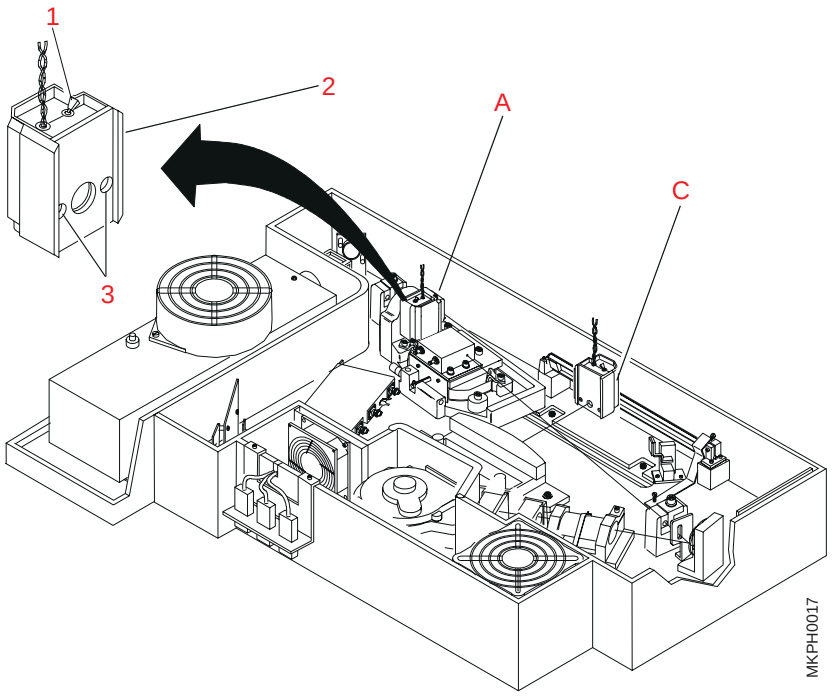


M2 Mirror Adjustment

9. Adjust the beam vertically by turning the side screw **(1)**.
10. Adjust the beam horizontally by turning the top screw **(2)**.
11. Repeat the above as necessary.
12. Reinstall the CYL1 lens, if you removed. Ensure it is the exact position you removed it from.
13. Go to Beam Power Check of Printhead Checks and Adjustments.

Beam Power Check

Table 788. Beam Power



Beam Power Measuring Points

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

1. Perform all steps under preparation, if not already done.
2. If you are not sure that the laser is correctly aligned, perform the following:
   a. Zero Beam Alignment Check
   b. M2 Mirror Check
3. Run Adjustment Routine C0 to switch on the primary beam without switching on the mirror motor.

   If you see a scanning beam at the return mirror, press **Stop/Start**. Run Adjustment Routine C0 again, pressing **Enter** only once. Wait for the mirror motor to stop scanning. This may take up to two minutes.

(continued on next page)

Table 788. Beam Power (continued)

4. Ensure that the printhead cover is installed and the switch on the laser power tool **(1)** is set to **High**. (The **High** setting is 10% of the **Low** setting.
5. Record the power readings at positions **A** and **C**.
   - **A** is located on the pins between the L2 lens and the AO modulator. Use pin holes **(3)** as a mounting for the power tool.
   - **C** is located in front of the return mirror.
6. Check the following conditions and then use the table here to determine which adjustment procedure to use.
   - The power at position **A** is 110 mV or more with the cover on and the power tool switch set to **High**.
   - The power at position **C** is 58 mV or more with the cover on and the power tool switch set to **High**.

A **110 mV or more**	**C** **58 mV or more**	**Go To...**
No	—	Go to Power Adjustment A.
Yes	No	Go to AO Modulator Adjustments. If this procedure has been performed, and the power at **C** is still too low, go to Power Adjustment C.
Yes	Yes	Go to AO Modulator Adjustments. If this procedure has been performed, go to Beam Detect Mirror Check.

Power Adjustment A:

Table 789. Power Adjustment A

The beam power at **A** is less than 110 mV. The problem is one or more of the following:

- Bad laser
- Beam path obstruction
- Dirty or damaged beam splitter, L2 lens, Wollaston prism, M1 mirror, or laser safety filter mechanism

Attention: Do not remove lenses, prisms, or a mirror from the printhead to examine or to clean them.

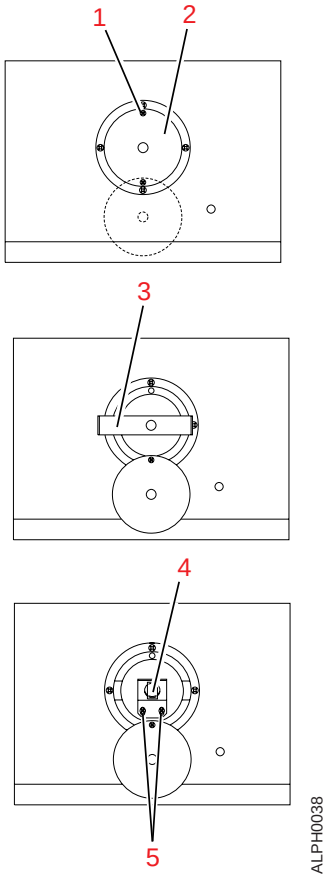
1. Check for obstructions in the beam path.
2. Check the lens shutter and the foam gasket for clipping of the beam.
3. Check the L2 lens, Wollaston prism, the M1 mirror, and the laser safety filter for dirt or damage **without removing them** from the printhead.

Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

4. Clean any dirty parts.
5. If you have not yet solved the problem, power-off the printer and remove theLaser.

(continued on next page)

Table 789. Power Adjustment A (continued)



Attention: The corners of the laser can scratch the cover paint. Use care.

6. With the laser on a suitable work surface, remove screw **(1)** from the cover **(2)**.
7. Remove the sliding shutter **(3)**.
8. Remove the two screws **(5)** holding the beam splitter **(4)** in place.
9. Carefully clean and dry both sides of the beam splitter using cotton swabs and isopropyl alcohol.
10. Reinstall the beam splitter, biasing the two screws toward the top of the elongated holes in the support.
11. Reinstall the sliding shutter with the hole closer to the right end of the shutter than to the left end.
12. Close the rotating cover, and reinstall the cover screw.
13. Tighten the upper and the lower cover screws.
14. Reinstall the Laser.
15. Perform the Simplified Laser Adjustment Procedure.
16. Measure the power at **A** again.
17. If the power is greater than 110 mV, go to step 4 in Beam Power Check.
18. If the low power problem still exists, replace the Laser.

Power Adjustment C:

The beam power at **A** is good but the beam power at **C** is not, and performing the AO Modulator Adjustments did not correct the problem. The problem is most likely the AO modulator or the AO driver. However, the problem could be the L1 lens, the M2 mirror, the dove prism, the CYL1 lens, the mirror motor, the aperture, or the F-Theta lens.

1. Using the straight edge of a white sheet of paper, hold it up to the right edge and then the left edge of the AO modulator window (laser beam entrance window).
2. Check the window on the other side of the AO modulator (laser beam exit window).
3. Verify that the laser is not being clipped by the edges of these windows.
4. If the beam is being clipped, perform the AO Modulator Adjustments.
5. Insert a piece of paper into the beam path, before and after each component. See Two Beam 240 Printhead Components. Check the beam projection on the paper to isolate any component that is clipping the beam. If the component is a lens or a prism, return to Zero Beam Alignment Check and try to realign the laser. Otherwise, adjust the component if it is the aperture or one of the mirrors.

(continued on next page)

Attention: Do not remove lenses, prisms, or a mirror from the printhead to examine or for cleaning.

Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

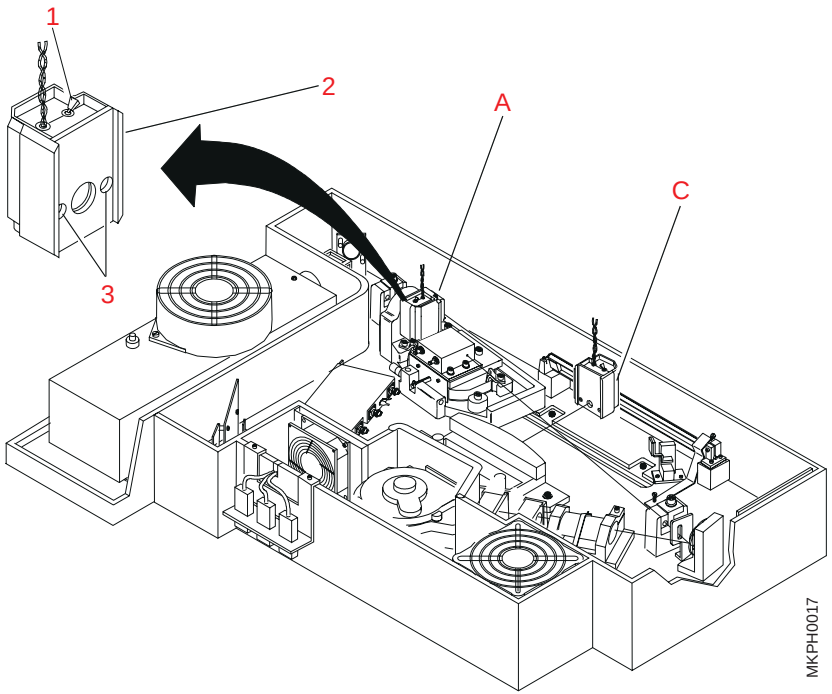
6. Closely examine and clean the following components without removing them:
   - L1 lens
   - M2 mirror
   - Dove prism
   - CYL1 lens
   - Mirror motor windows
   - F-Theta lens

Attention: If any component is replaced in the next step, scribe the position of the component so that it can be reinstalled in that exact position.

7. Replace damaged components. (Some components require approval from your next level of support.)
8. If the low power at position **C** is still not greater than 29 mV, replace the AO modulator, and then return to step 4 in Beam Power Check of Printhead Checks and Adjustments.

AO Modulator Adjustments:

Table 790. AO Modulator Adjustments



1. Cover the return mirror with paper.
2. Set the switch on the power tool to **Low**.
3. Ensure that the power adjustment potentiometers on both AOM drivers are peaked for maximum power. (See AOM Driver Power Peaking and Matching Adjustment.)
4. Run Adjustment Routine C0 to switch on the primary beams without running the scanning mirror motor.
5. Place the power tool at position **C** is located in front of the return mirror. The most accurate **C** reading is obtained in the center of the return mirror.
6. Ensure that the eye of the power tool is centered on the beam projection at position **C**.

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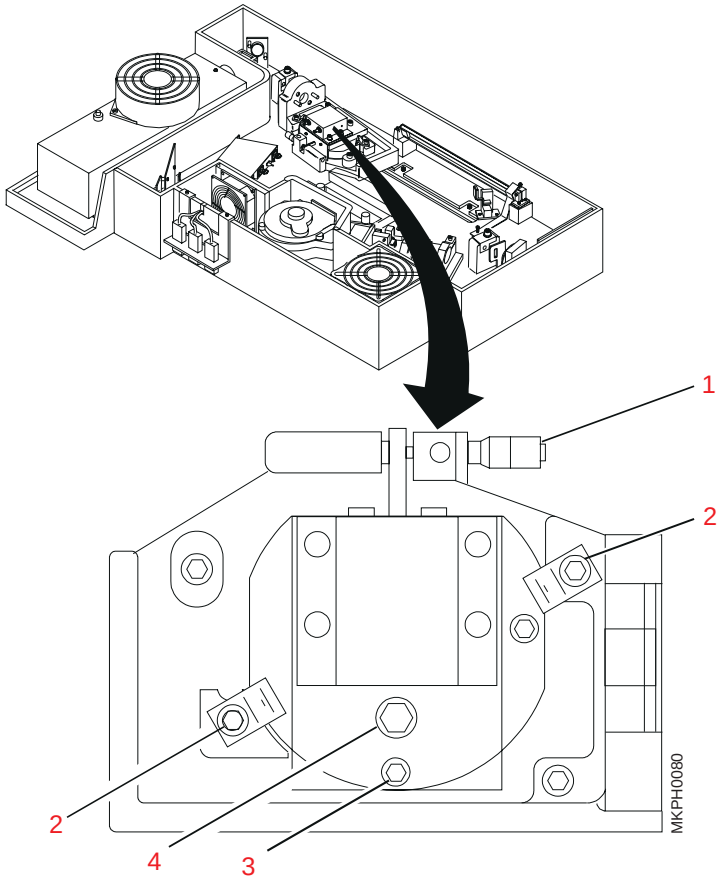
Table 790. AO Modulator Adjustments (continued)



7. Loosen the locking screw **(4)**.
8. Adjust screw **(3)** to obtain maximum power at **C** .
9. Tighten the locking screw **(4)**.
10. Loosen the two screws **(2)**.
11. Adjust the micrometer **(1)** to obtain maximum power at **C**.
12. Tighten the two screws **(2)**.
13. Ensure that maximum power is not decreased when the screws **(2)** and **(4)** are tightened.
14. Set the switch on the laser power tool to **High**.
15. Run Adjustment Routine C8 to switch on AM202 (upper beam).
16. Ensure that the eye of the power tool is centered on the beam projection at position **C**.

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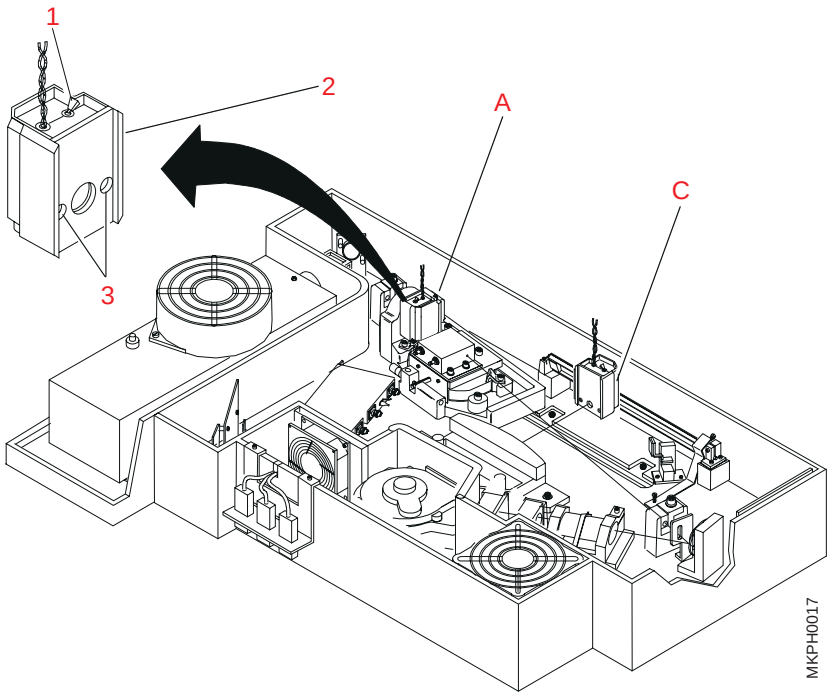
Table 790. AO Modulator Adjustments (continued)

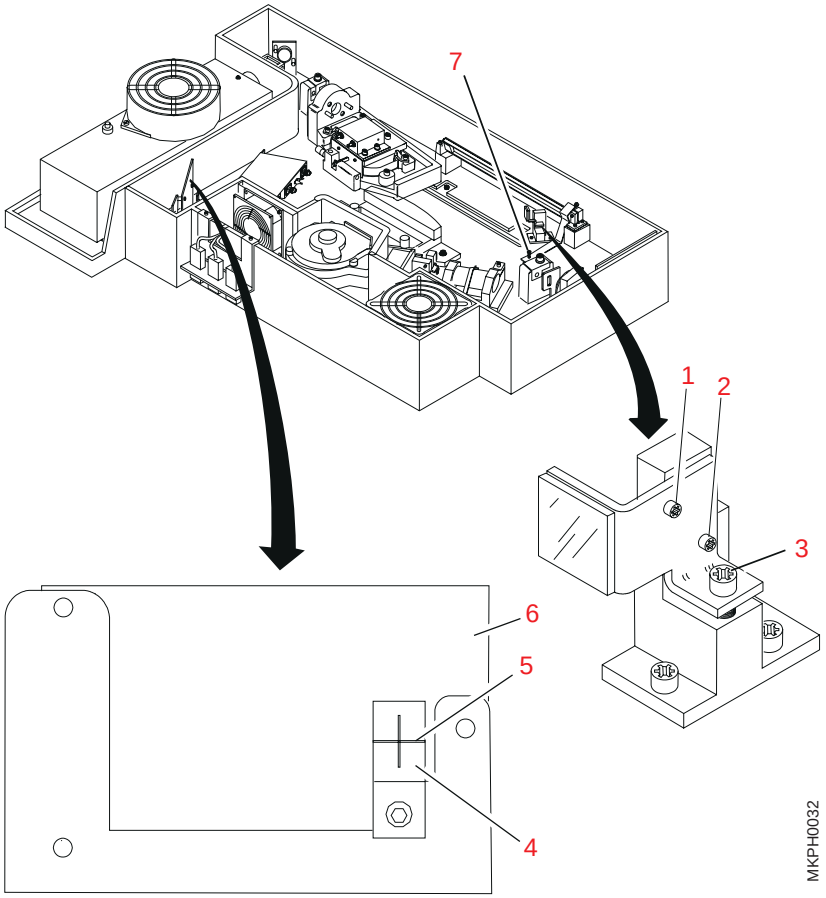


17. Measure and record the beam power at position **C** with the printhead cover on.
18. Run Adjustment Routine C9 to switch on AM203 (lower beam).
19. Ensure that the eye of the power tool is centered on the beam projection at position **C**.
20. Measure and record the beam power at position **C** with the printhead cover on.
21. If the beam power measurements in steps 17 and 20 are greater than 29 mV and within 3 mV of each other, go to step 4 in Beam Power Check. If not, continue here with step 22.
22. Adjust the potentiometers on the AOM drivers to obtain beam power readings greater than 29 mV and within 3 mV of each other. (See AOM Driver Power Peaking and Matching Adjustment.)
23. If one of the AOM drivers can not be adjusted to reach 29 mV, replace the AOM driver.

    If neither of the AOM drivers can not be adjusted to reach 29 mV, continue here with step 24; **do not replace the AOM drivers**, continue with this procedure.
24. Go to step 4 inBeam Power Check.

Beam Detect Mirror Check

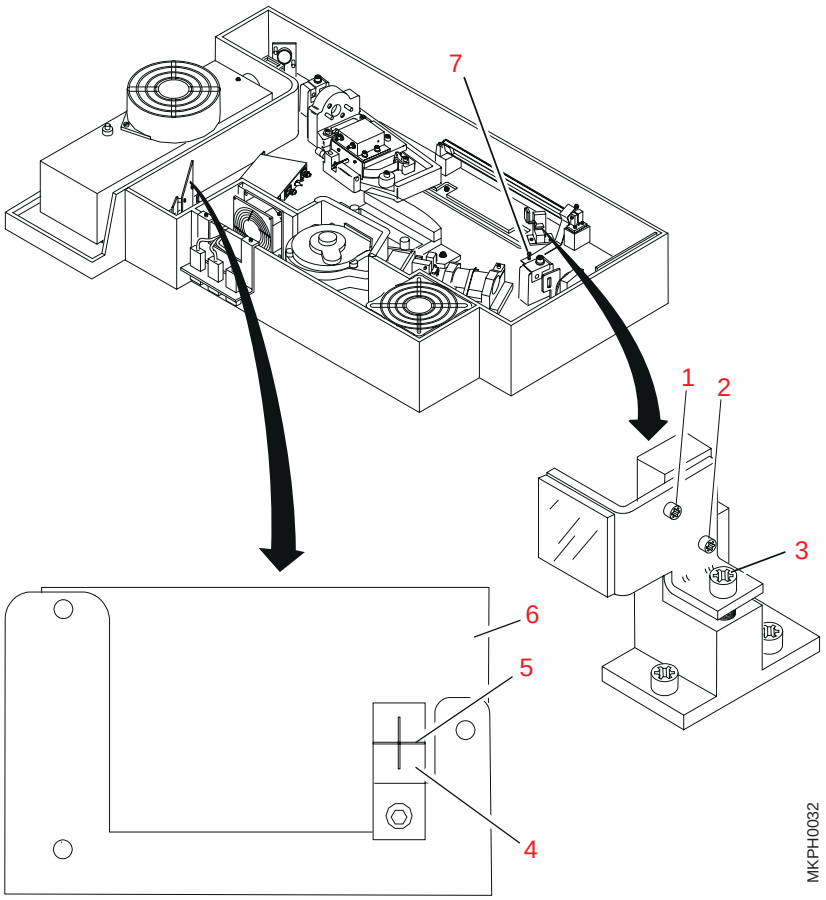
Table 791. Beam Detect Mirror



1. Run Adjustment Routine C0. If the scanning mirror is not running, press **Enter** on the maintenance panel to switch on the mirror motor.
2. Observe the vertical beam vertical alignment **(5)**. The beam should be centered vertically on the white line of the sensor cover **(4)**.
   - If the beam is good at both resolutions, the alignment procedure is complete. If additional adjustments are necessary, go to Print Sample Adjustments.
   - If the beam alignment is not good, go to Beam Detect Mirror Adjustment.

Beam Detect Mirror Adjustment:

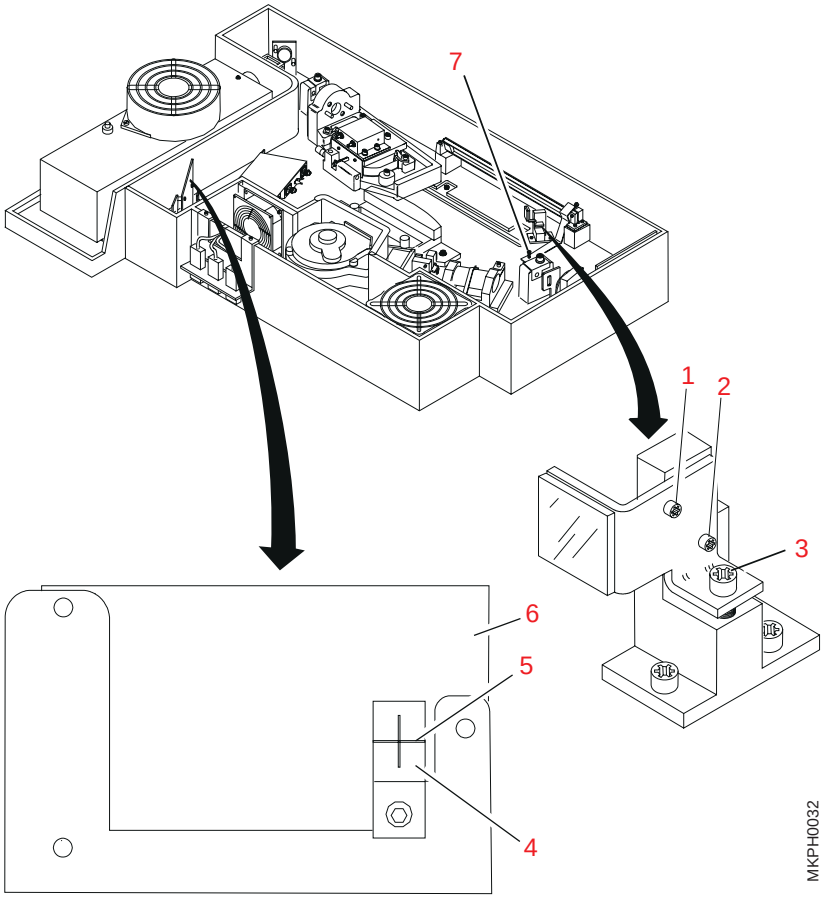
Table 792. Beam Detect Mirror Adjustment



1. Loosen the clamping screws **(1)** and **(2)** on the beam detect mirror assembly.
2. Adjust screw **(3)** until the beam is centered on the white line of the beam detect sensor cover **(4)**, located on the beam detect card assembly.
3. Tighten screws **(1)** and **(2)**. Ensure that the beam does not move as the screws are tightened.
4. Perform the following procedures:
   a. Registration
   b. Scan Direction (Horizontal) Adjustment

Completing the Primary Printhead Checks and Adjustments

Table 793. Completing the Primary Checks



1. Remove the paper from the return mirror and any foreign objects that may be in the printhead assembly.

Attention: Vibrations that can affect print quality (banding), can be transmitted from the printhead casting to the return mirror through the return mirror set screw **(7)** and the dove prism set screw.

2. Ensure that the return mirror set screw **(7)** and the dove prism set screw are not touching the printhead casting.
3. Replace the printhead cover.
4. Go to Print Sample Adjustments for additional adjustments.

Print Sample Adjustments

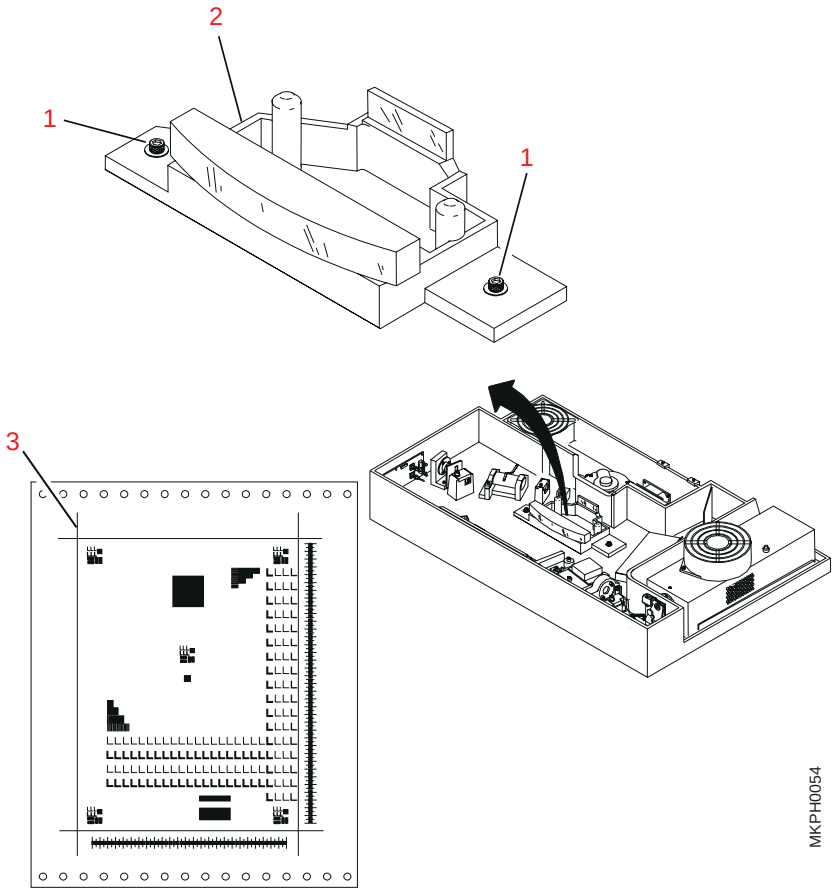
These procedures assume that the printhead is correctly aligned. (See Printhead Checks and Adjustments.)

Attention: The Print Sample Adjustments are all related and must **all** be performed in the sequence listed.

1. Print Width
2. Print Skew
3. Registration
4. AOM Skew
5. PQE Stroke Width
6. Scan Line Spacing

Print Width

Table 794. Print Width



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

DANGER

<22> You will need a wrench and a screwdriver to do this procedure. These tools can reflect the laser beam. Whenever these tools are used in the printhead, ensure that the printer is powered off.

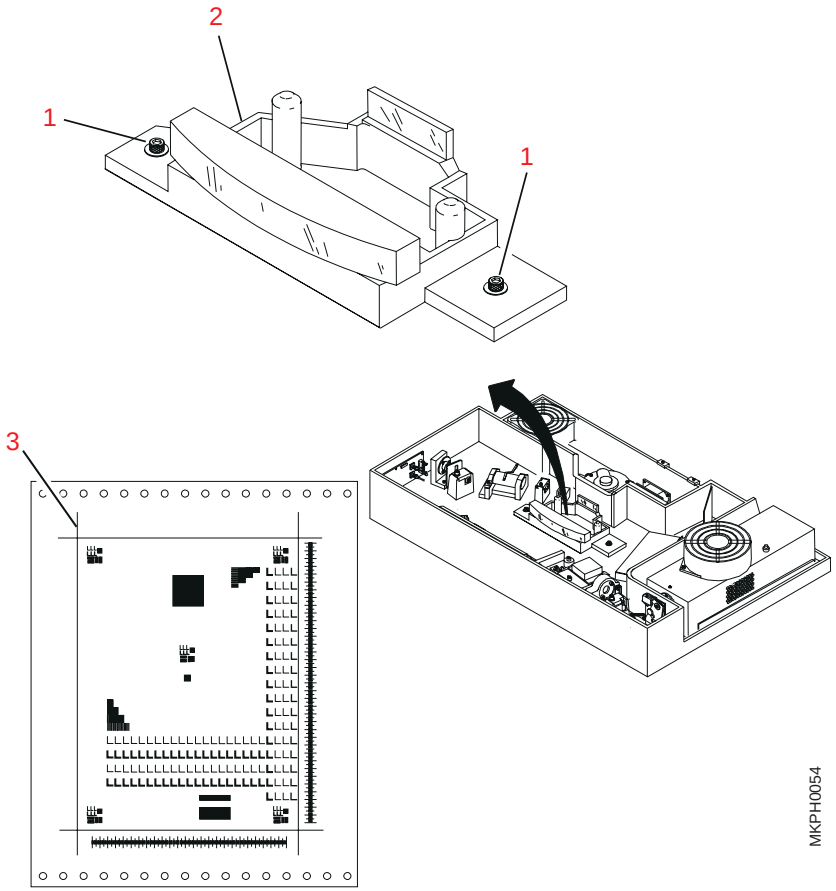
These procedures assume that the printhead is correctly aligned. See Printhead Checks and Adjustments.

Check

1. Ensure that forms 12 inches or wider are loaded.
2. Print an Alternate Print Sample.
3. Measure the total length of the long line **(3)** in the scan direction. If the line is not exactly 11.0 inches on the unfused image, perform the adjustment.

(continued on next page)

Table 794. Print Width (continued)



Print Width Adjustment

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the printhead cover.
3. Scribe the position of the F-Theta lens **(2)** so that it can be reinstalled in that exact position.
4. Loosen the two screws **(1)**.
5. Adjust the F-Theta lens **(2)** to change the line length as follows:

   Attention: Hold the F-Theta lens **(2)** against the machined surface of the printhead base to ensure that the F-Theta lens does not rotate.

   - To shorten the line, move the F-Theta lens toward the return mirror (to the right as viewed from the front of the printer).
   - To lengthen the line, move the F-Theta lens away from the return mirror (to the right as viewed from the front of the printer).

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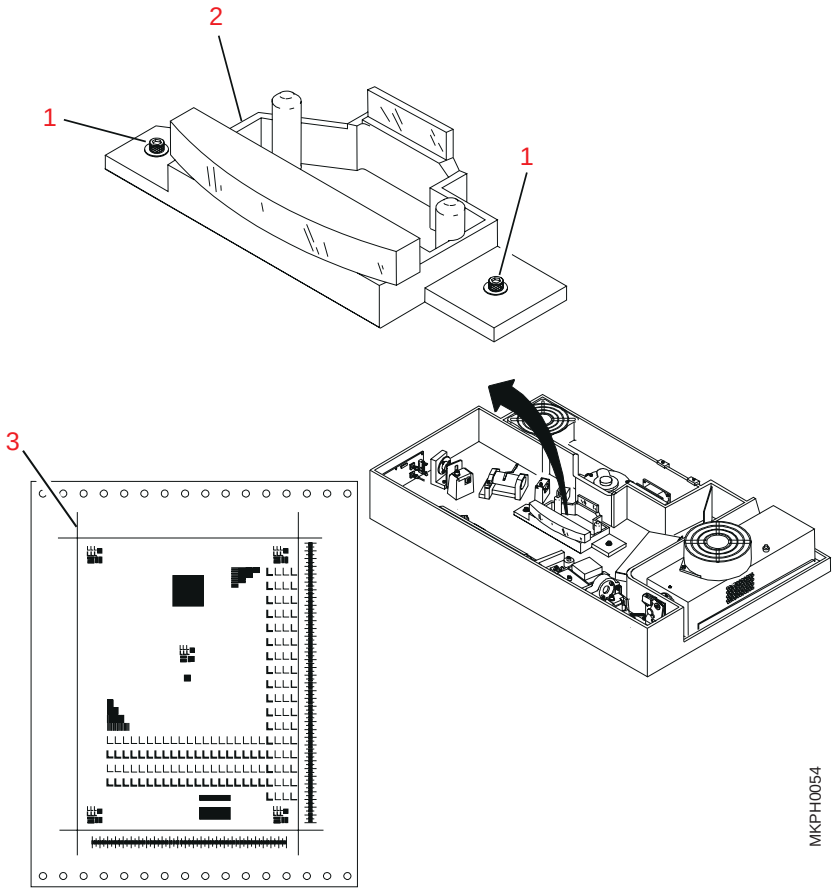
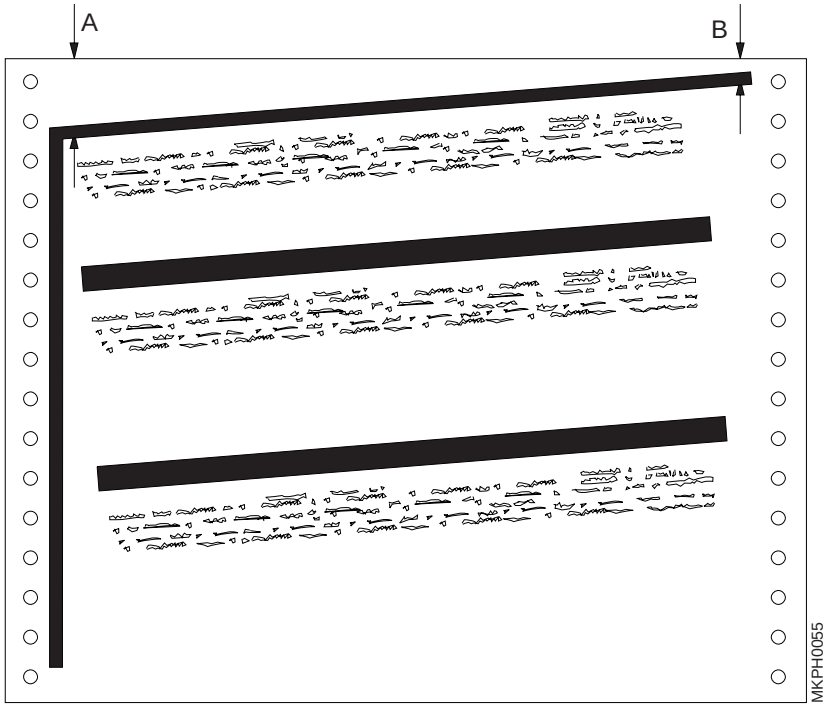
Table 794. Print Width (continued)



6. Tighten the two screws **(1)**.
7. Place the printhead cover on the printhead; **do not fasten it** with screws at this time.
8. Power-on the printer.
9. Run the Alternate Print Sample again and check the line length.
10. Run Text 1 Print Sample and verify that the three copy marks at the perforation are printed.
11. Repeat this procedure until the line length is exactly 11.0 inches.
12. If the line length can not be adjusted to 11.0 inches, replace the mechanism interface card (MIC) and repeat the procedure.
13. If the print width still can not be adjusted to 11.0 inches, the laser spot size may need to be adjusted. Call your next level of support.

Print Skew

Table 795. Print Skew



The scanned lines are not parallel with the perforations on the form.

Call your next level of support before making this adjustment.

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

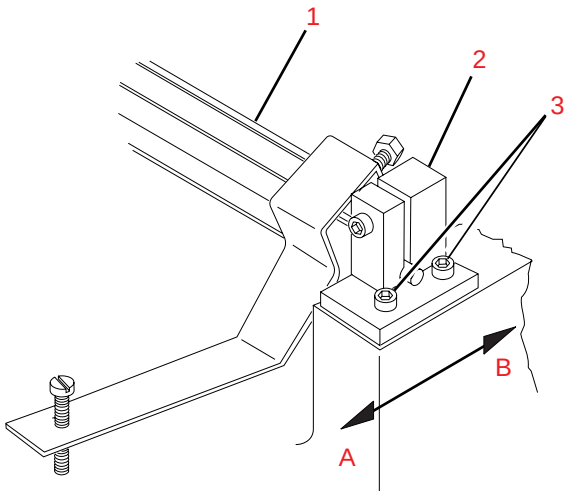
This procedure assumes that the printhead is correctly aligned. See Printhead Checks and Adjustments.

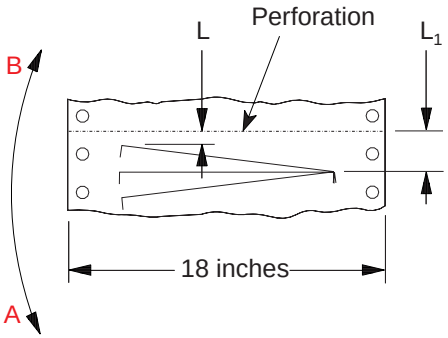
Check

1. Run Primary Print Sample to print on the widest available form.
2. Measure the distance from the folding perforation to the leading edge of the wide black bar that runs the width of the print. Measure the distance at the front and rear of the printer. See points **A** and **B**.
3. If the difference between the two measurements is greater than 0.2 mm over 14 inches, go to Return Mirror Adjustment.

Return Mirror Adjustment:

Table 796. Return Mirror Adjustment





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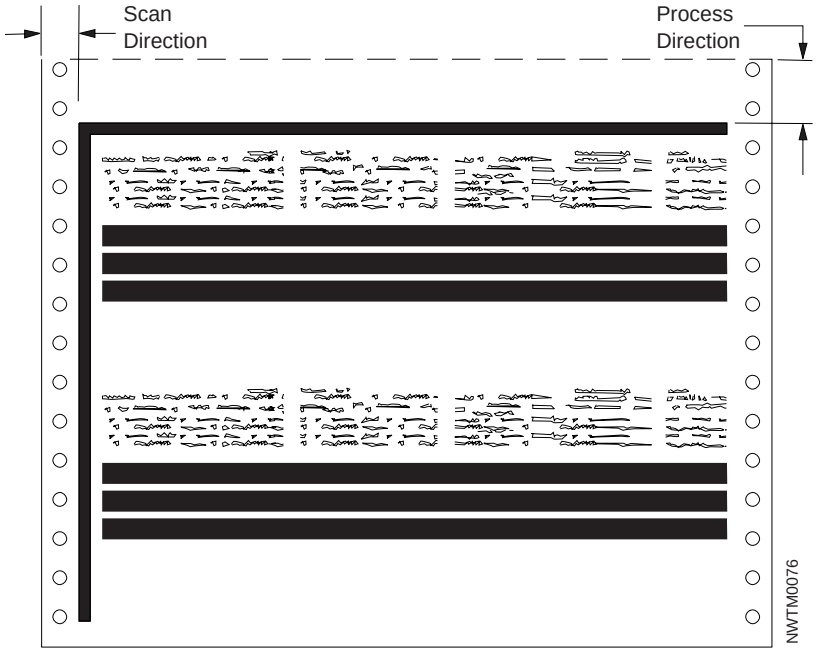
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the printhead cover.
3. Loosen the two screws **(3)**.
4. Move the return mirror **(1)** as follows:
   - To rotate the print in the **CCW** direction, move the front end of the return mirror **(2)** to the left (**A** direction).
   - To rotate the print in the **CW** direction, move the front end of the return mirror **(2)** to the right (**B** direction).
5. Place the printhead cover on the printhead; **do not fasten it** with screws at this time.
6. Power-on the printer.
7. Run the Primary Print Sample again and check the print skew.
8. Repeat this procedure as necessary.
9. Run the Alternate Print Sample and check the Print Width.
10. Repeat this procedure as necessary.
11. Ensure that the 2 screws **(3)** are tightened.
12. Recheck the Print Skew, Print Width, and Registration.
13. Go to Registration.

Registration

Table 797. Registration



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

The printed image is not in registration in either, or both, the horizontal (scan direction) or the vertical (process direction) direction.

Factors Affecting Registration

- Operator adjustment (**Adjust Print**) values
- Upper tractor timing
- Return mirror position
- Variation in the forms dimensions
- Image skew
- Print width
- Acceleration and deceleration of the forms
- Registration of a preprinted image on forms.

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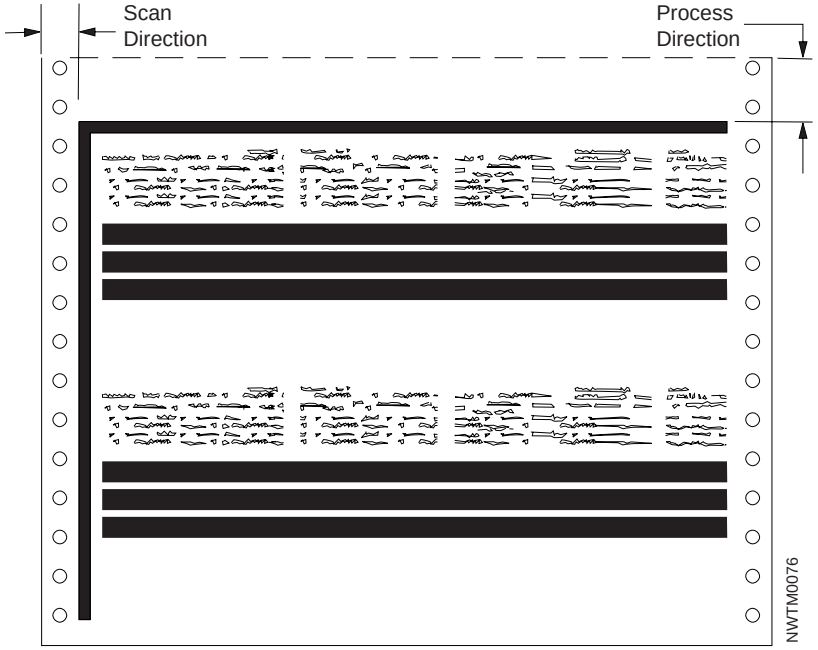
Table 797. Registration (continued)



Special Instructions

This section addresses only the return mirror position. Use MAP 1011: Registration Or Skew to eliminate other registration problems.

Special Tools

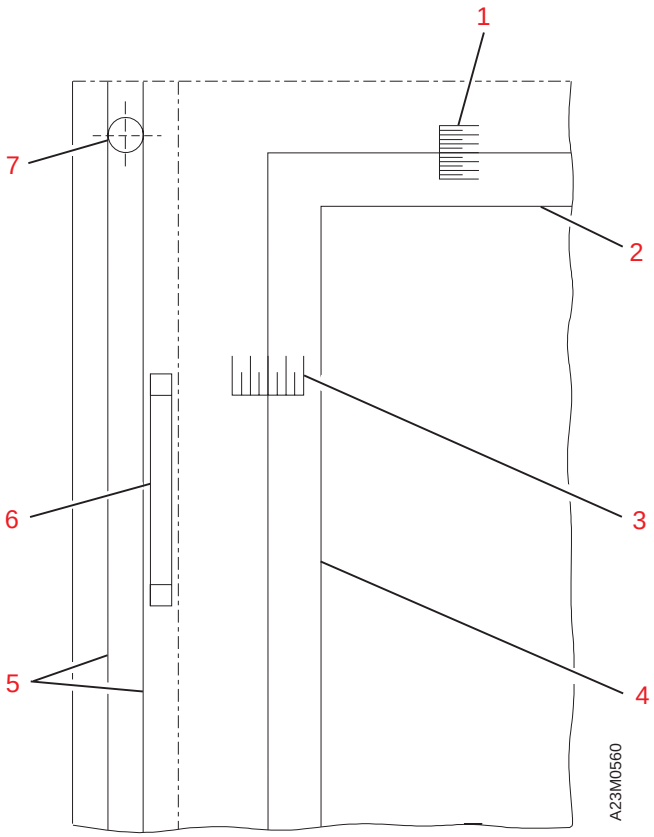
Registration template (PN 04H0739) (if available)

Check

1. Load the customer's most critical form.
2. Use the **Adjust Print** key on the operator's panel to ensure that both the horizontal adjustment and the vertical adjustment are set to **0** for the form that you are using for registration adjustment.
3. If you have not performed the Print Width check, do so now.
4. Run Text 1 Print Sample and verify that the three copy marks at the perforation are printed.
5. Run Primary Print Sample.
6. Select a fused print sample and perform the registration checks.
   - If you are using a registration template to make this check, go to Checking Registration Using the Template.
   - If a template is not available, go to Checking Registration Using a Scale.

(continued on next page)

Table 797. Registration (continued)

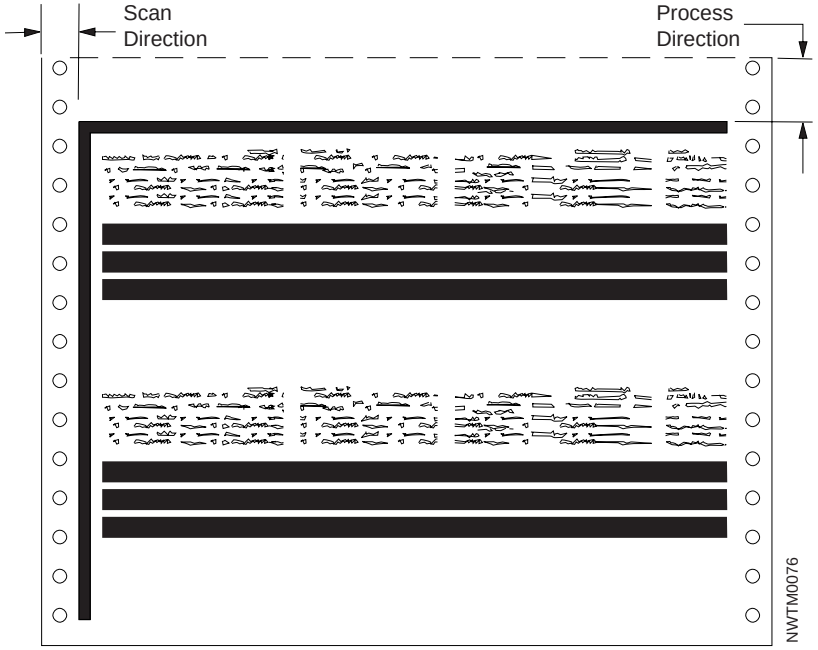


Checking Registration Using The Template

7. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
8. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
9. If the horizontal bar on the print sample does not align with the horizontal bar **(2)** on the template, go to Process Direction (Vertical) Adjustment.
10. If the vertical bar on the print sample does not align with the vertical bar **(4)** on the template, go to Scan Direction (Horizontal) Adjustment.

(continued on next page)

Table 797. Registration (continued)



Checking Registration Using A Scale

11. Measure to the same point each time you print Primary Print Samples.
    - The scan (horizontal) print-start position, is measured from the edge of the paper.
    - The process (vertical) print-start position, is measured from the perforation at the top of the form.

Check the Scan (Horizontal) Print-Start Position

12. Measure from the vertical bar to the edge of the paper for 23.3 ±1.2 mm (0.920 ±0.050 in.).

    If a scan (horizontal) direction adjustment is required, go to Scan Direction (Horizontal) Adjustment.

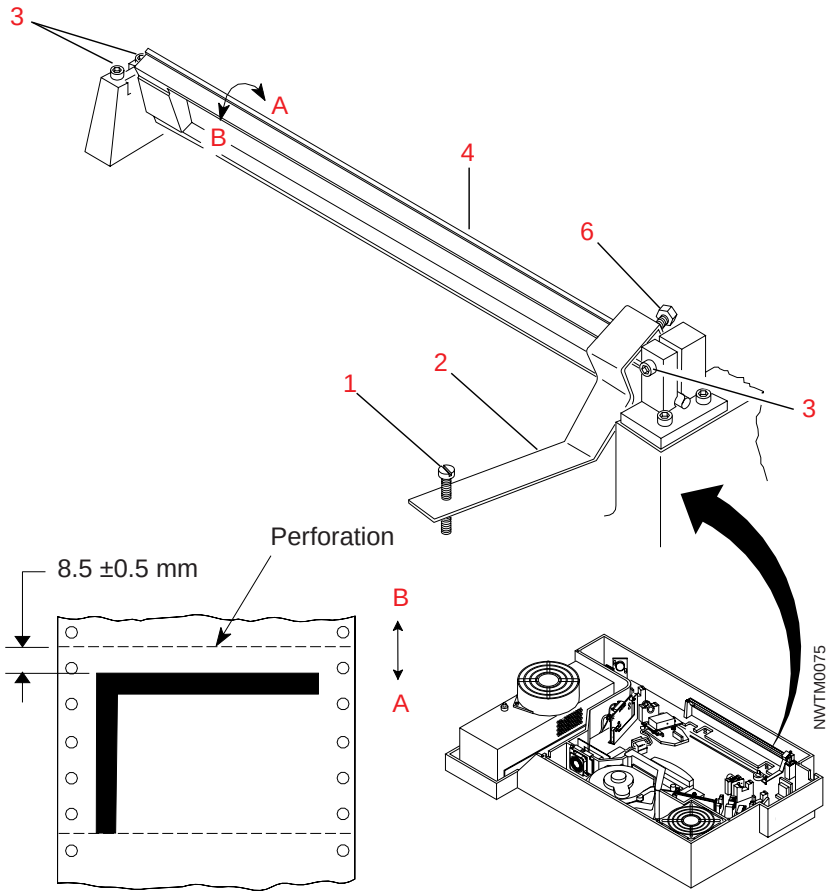
Check the Process (Vertical) Print-Start Position

13. Measurement from the horizontal bar on the print sample to the perforation at the top of the form for 8.5 ±1.2 mm (0.340 ±0.050 in.).

    If a process (vertical) direction adjustment is required, go to Process Direction (Vertical) Adjustment.

Process Direction (Vertical) Adjustment:

Table 798. Process Direction (Vertical) Adjustment



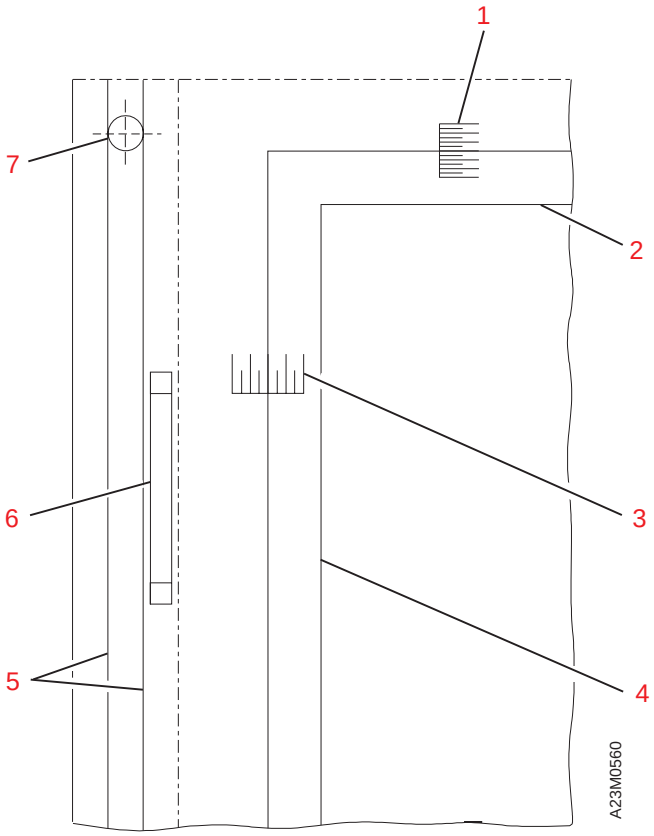
1. Log on in the **Customer Engineer** (service) mode.
2. Load the customer's most critical form.
3. Record the existing **Process Factory Adjust** values.

   From the **Configuration** pull-down menu, select **Configure Printer** and scroll down to **Process Factory Adjust**.
4. Try to correct the process (vertical) registration by altering the **Process Factory Adjust** value.

   The valid range of values is **0** to **60**. (Reference the Process Factory Adjust Values Table.) Any number from **0** to **60** can be entered, but only even numbers will change the registration. Each change of the value by 1 adjusts the image position by 1 pel.

   - Increasing the value moves the image in the **A** direction.
   - Decreasing the value moves the image in the **B** direction.
5. If a template is available, go to Determining the Amount of Adjustment Using the Template.
6. If a template is not available, go to Determining the Amount of Adjustment Using a Scale.

Registration Template



Determining the Amount of Adjustment Using the Template

7. To determine the amount of adjustment required, use the scale **(1)** on the template. Each increment on the scale is equal to 5 print adjust units. Keep the template and print aligned as follows:
   a. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
   b. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
8. Count the number of increments that the printed bar is off from the correct registration and multiply this value by 5.
   - If the printed bar is too close to the perforation, add the value to the existing **Process Factory Adjust** value and enter this total as the new value.
   - If the printed bar is too far from the perforation, subtract the value from the existing **Process Factory Adjust** value and enter this total as the new value.
   - Go to step 11.

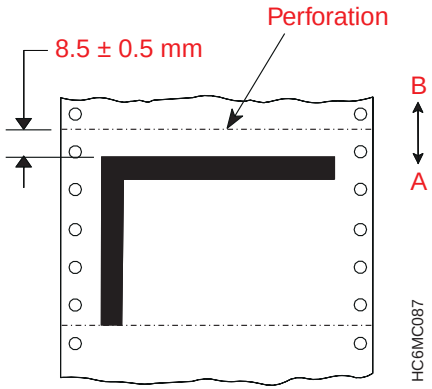
(continued on next page)

Table 798. Process Direction (Vertical) Adjustment (continued)

PFA Value	Pels	mm
0	−15	−1.6
5	−10	−1.0
10	−5	−0.5
15	**0**	**0**
20	5	0.5
25	10	1.0
30	15	1.6
35	20	2.1
40	25	2.6
45	30	3.1
50	35	3.7
55	40	4.2
60	45	4.7

Determining the Amount of Adjustment Using a Scale.

9. Determine the **Process Factory Adjust** (PFA) value required by measuring the amount and direction that the image must be moved to obtain the correct process (vertical) print-start position of 8.5 ±0.5 mm (0.340 ±0.020 in.) from the perforation at the top of the form.



10. The table shows the relationship between **Process Factory Adjust** values and the distance the image is moved from the default position.

    The default value is 15. The default value will not move the image.

    - Negative **Pels** and **mm** values indicate how much closer to the leading edge of the form the image is moved.
    - Add or subtract the number of pels that the image must move from the existing value.
    - Enter this new value using the **Configure Printer** operation.

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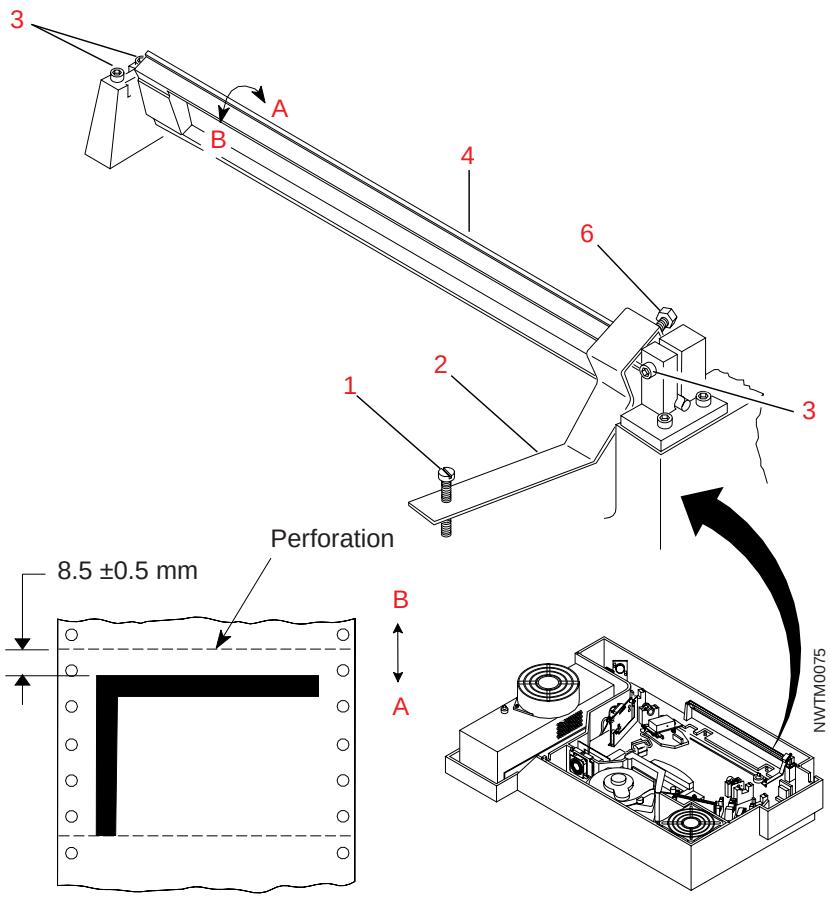


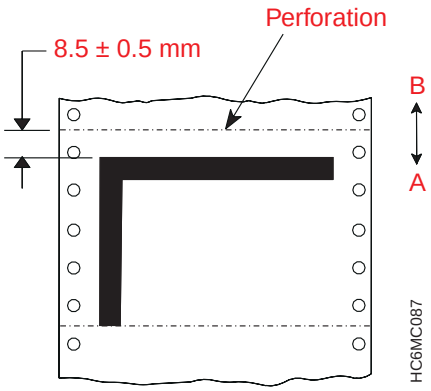
11. If necessary, review the instructions under “Configuring the System” in the *Operator’s Guide*.

Note: A Restart is not required for the new **Process Factory Adjust**.

12. If you cannot obtain the correct adjustment, set the **Process Factory Adjust** configuration value to **15**, and continue with this procedure.
13. Perform the Upper Tractor Timing adjustment procedure.
14. Request the system operator to stop activity on the printer. Disable all host attachments.
15. Remove the printhead cover.
16. Turn the adjusting screw **(1) CW** until it is finger tight against the bottom of the printhead.
17. Loosen the screws **(3)** so that the return mirror can be moved with some resistance.
18. Gently press on the end near the adjusting screw **(1)** to hold the screw against the base of the printhead.

    This procedure works best when you always turn the screw in the **CW** direction (move the print down the page). If you go past the desired point, turn the screw **CCW** slightly and try again.
19. Turn screw **(1) CW** to move the print in the **A** direction, down the page.
20. Turn screw **(1) CCW** to move the print in the **B** direction, up the page.
21. Gently press on the lever near the adjusting screw **(1)** and tighten screws **(3)**.

Table 798. Process Direction (Vertical) Adjustment (continued)



22. Return the printhead cover to its operating position. It is not necessary to reinstall all the fastening screws.
23. Run Primary Print Sample and recheck the vertical registration. Adjust for a process (vertical) print-start position of 8.5 ±0.5 mm (0.340 ±0.020 in.) from the perforation at the top of the form.
24. Repeat steps 17 through 23 as necessary.
25. Return the printhead to the operating condition.

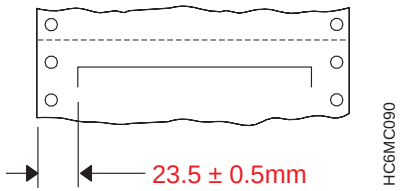
Scan Direction (Horizontal) Adjustment:

Table 799. Scan Direction (Horizontal) Adjustment

1. Log on as the **Customer Engineer** in service mode.
2. Load the customer's most critical form.
3. Record the existing **Scan Factory Adjust** values.

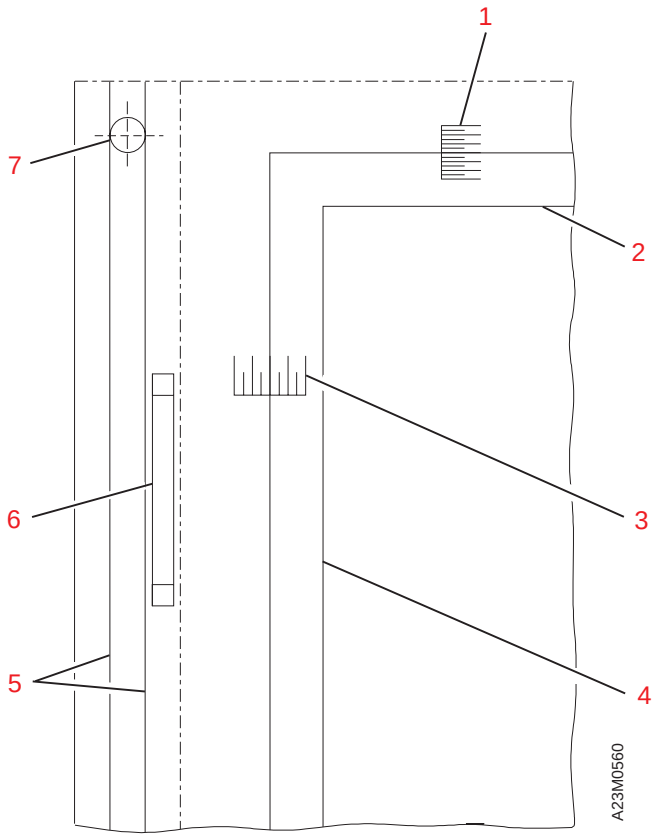
   From the **Configuration** pull-down menu, select **Configure Printer** and scroll down to **Scan Factory Adjust**
4. Try to correct the scan (horizontal) registration by altering the **Scan Factory Adjust** value.

   The valid range of values is **0** to **100**. (Reference Scan Factory Adjust Values Table). Any number from **0** to **100** can be entered, but only the numbers listed in the table will change the registration. Each change of the value by 1 adjusts the image position by 2 pels.
   - Increasing the value moves the image closer to the rear of the printer.
   - Decreasing the value moves the image closer to the front of the printer.
5. Adjust for a scan (horizontal) print start position of 23.3 ±0.5 mm (0.920 ±0.020 in.).



6. If a template is available, go to step Determining the Amount of Adjustment Using the Template.
7. If a template is not available, go to Determining the Amount of Adjustment Using a Scale.

Table 799. Scan Direction (Horizontal) Adjustment (continued)



Determining the Amount of Adjustment Using the Template

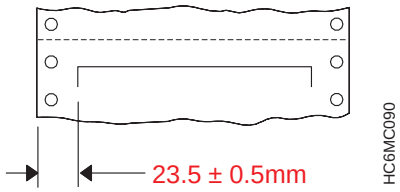
8. To determine the amount of adjustment required, use the scale **(3)** on the template. Each increment on the scale is equal to 5 print adjust units. Keep the template and print aligned as follows:
   a. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
   b. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
9. Count the number of increments that the printed bar is off from the correct registration and multiply this value by 5.
   - If the printed bar was too close to the perforation, add the value to the existing **Scan Factory Adjust** value and enter this total as the new value.
   - If the printed bar was too far from the perforation, subtract the value from the existing **Scan Factory Adjust** value and enter this total as the new value.
   - Go to step 12.

Table 799. Scan Direction (Horizontal) Adjustment (continued)

SFA Value	Pels	240 DPI (mm)
0	−80	−8.4
5	−70	−7.4
10	−60	−6.3
15	−50	−5.3
20	−40	−4.2
25	−30	−3.1
30	−20	−2.1
35	−10	−1.0
40	**0**	**0**
45	10	1.0
50	20	2.1
55	30	3.1
60	40	4.2
65	50	5.3
70	60	6.3
75	70	7.4
80	80	8.4
85	90	9.5
90	100	10.6
95	110	11.6
100	120	12.7

Determining the Amount of Adjustment Using a Scale.

10. Determine the **Scan Factory Adjust** (SFA) value required by measuring the amount and direction that the image must be moved to obtain the correct scan (horizontal) print-start position of 23.3 ±0.5 mm (0.920 ±0.050 in.) from the edge of the form.



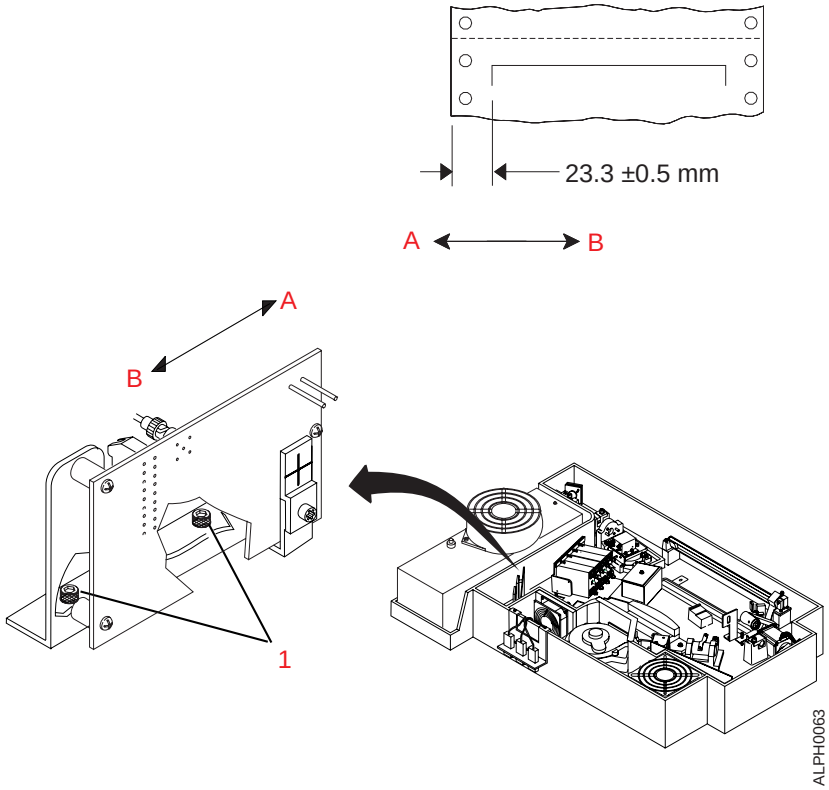
11. The table shows the relationship between **Scan Factory Adjust** values and the distance the image is moved from the default position.

    The default value is 40. A default value of 40 will not move the image.

    - Negative **Pels** and **mm** values indicate how much closer to the left edge of the form the image is moved.
    - Add or subtract the number of pels that the image must move from the existing value.
    - Enter this new value using the **Configure Printer** operation.

(continued on next page)

Table 799. Scan Direction (Horizontal) Adjustment (continued)



12. If necessary, review the instructions under “Configuring the System” in the *Operator’s Guide*.

Note: A Restart is not required for the new **Scan Factory Adjust**.

13. If you cannot obtain the correct adjustment, set the **Scan Factory Adjust** configuration value to **40**, and continue with this procedure.
14. Remove the printhead cover.
15. Loosen, but do not remove, the two socket head screws **(1)** on the BD132 mounting base.
16. To move the print in the **A** or the **B** directions, move the BD132 an equal amount in the direction shown.
17. If the scan is not centered on the beam detect sensor, adjust the beam detect mirror. See Beam Detect Mirror Adjustment.
18. Return the printhead to its operating position. It is not necessary to reinstall the fastening screws yet.
19. Run Primary Print Samples and check the horizontal registration again.
20. Repeat this procedure from step 1 as necessary.
21. When complete tighten the two screws **(1)**.
22. Return the printhead to the operating condition.

AOM Skew Adjustment

Table 800. AOM Skew

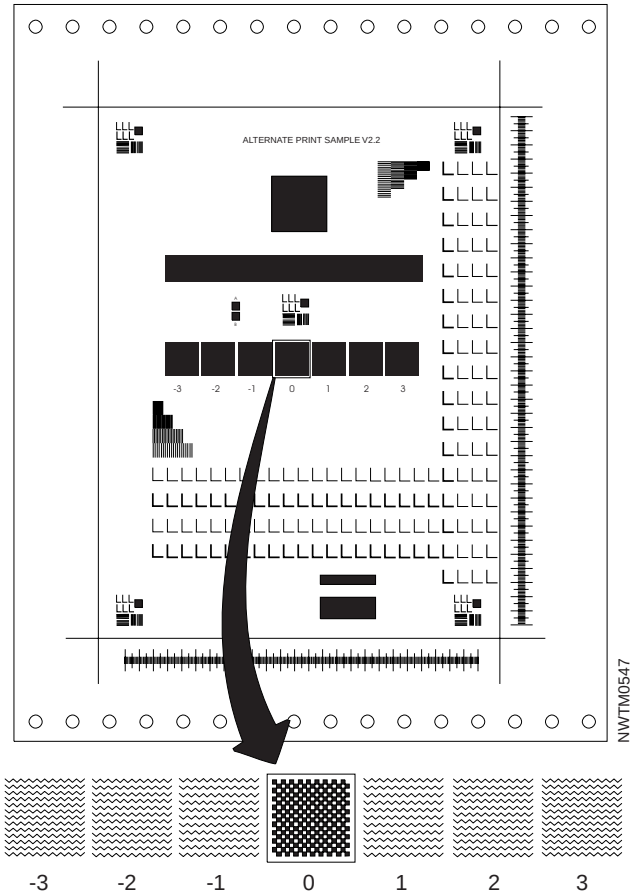
1. Perform this procedure for both printer 1 and printer 2.
2. Load 12-inch wide paper into the printer.
3. Set contrast on the printer control panel to **7**.
4. Disable host attachments.
5. If the microcode level is lower than v8.2, **Adjust Print** values must be set to **0**. Perform the following:
   a. Select **Configure** , and then **Adjust Print**.
   b. Ensure that the correct form is selected.
   c. In the **Side to Adjust** field:
      - Select each duplex option, one at a time.

        For each **Side to Adjust** option, record the current horizontal and vertical print adjust values. Then set both values to **0**.

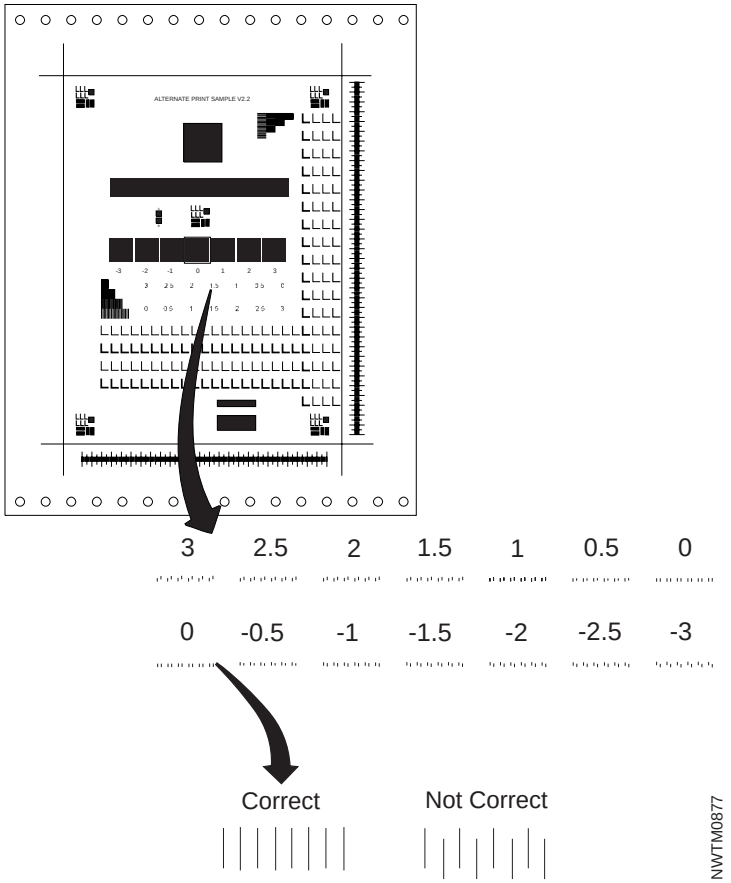
   d. Select **OK**.
6. Select **Analyze**, **Service Actions**, and then **CE password**.
7. Run 100 Alternate Test Prints. Compare the Alternate Print Sample to the following two figures.

(continued on next page)

Table 800. AOM Skew (continued)



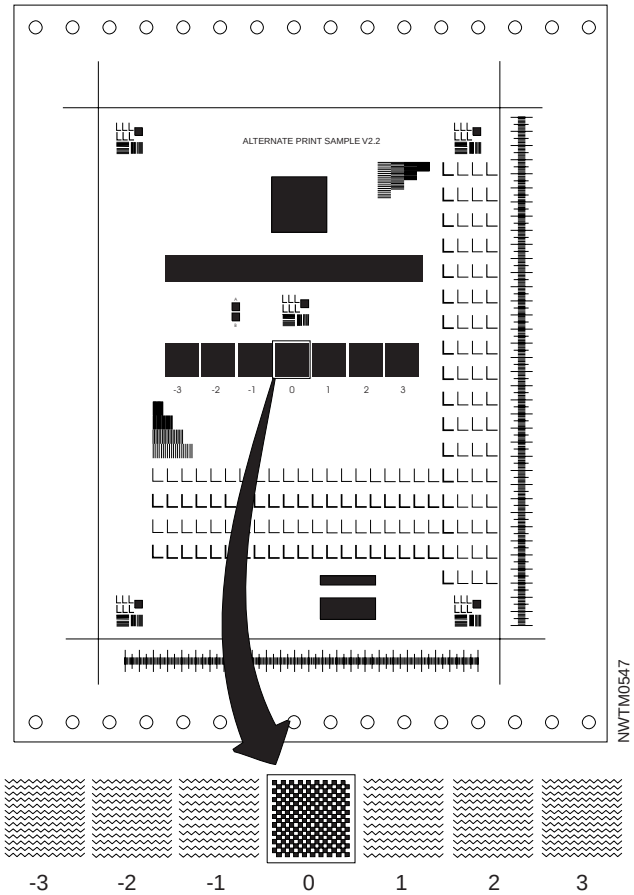
8. If the prints look like this, go to step 10.



9. If the prints look like this, go to step 27.

(continued on next page)

Table 800. AOM Skew (continued)

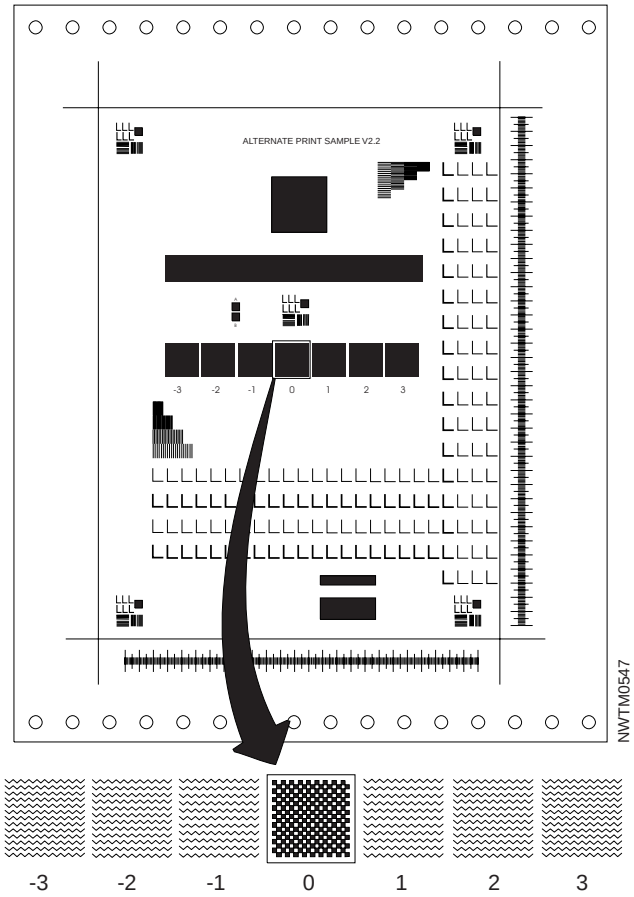


10. At the transfer station, view the squares labeled −3, −2, −1, 0, 1, 2, and 3 as shown.
11. Use a loupe or other magnifying glass to look at the pattern. Look for the square that looks most like a checker board. (The rest should look like connected "**W**"s.)
12. The checker board pattern should be in the square labeled "**0**".
13. If the checker board pattern is not in the square labeled "**0**", AOM skew is off by the number of pels as stated under the square (−3, −2, −1 , 0, 1, 2, or 3).
14. If the checker board pattern is in the square labeled "**0**", go to step 20. Otherwise, continue with step 15.
15. Do not log off from the **Customer Engineer** window.
16. Select **Configure**, then **Configure Printer**. Page down to **Beam 2 Offset**.
17. If the checker board pattern is in the square other than that labeled "**0**", then add that number to the number displayed in **Beam 2 Offset**.

    If the square is labeled with a negative number (−3, −2, or −1), then subtract that number from the number displayed in **Beam 2 Offset**.

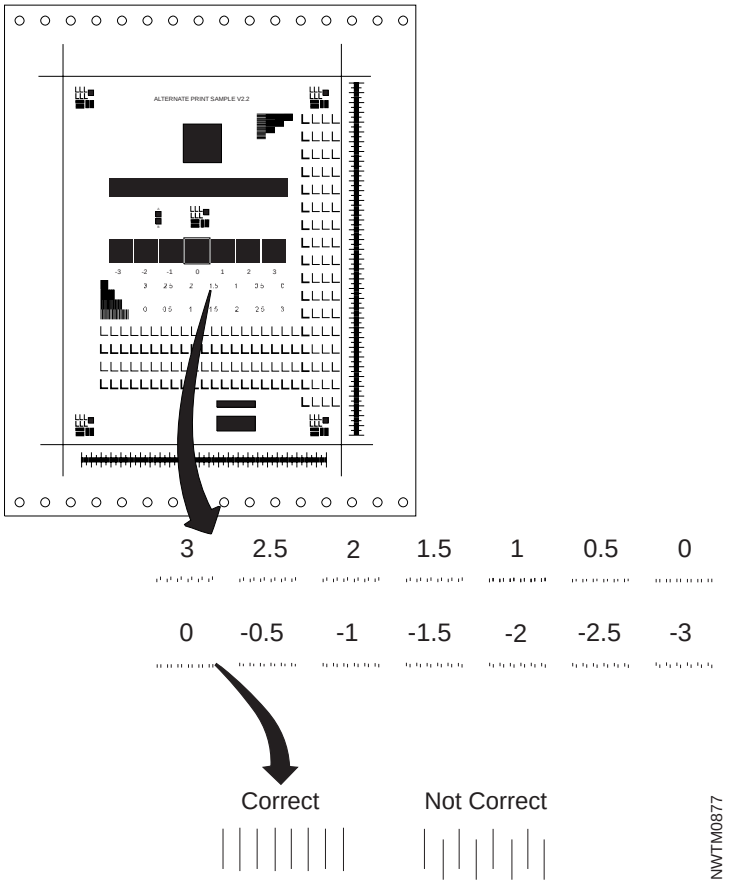
(continued on next page)

Table 800. AOM Skew (continued)



18. Enter the new number in the **Beam 2 Offset**.
19. Print 10 Alternate Print Samples.
20. Add 0.2 to the **Beam 2 Offset** value and print one Alternate Print Sample.
21. Subtract 0.4 from the **Beam 2 Offset** value and print one Alternate Print Sample.
22. Compare the last three Alternate Print Samples (offset, offset+0.2, and offset+0.2 −0.4). Choose the best looking checker board pattern located in the square labeled "**0**" and record that value in the **Beam 2 Offset** value.
23. Repeat steps 18 through 22 until you find the best offset value.
24. Select the contrast back to normal.
25. Restore all the horizontal and vertical **Print Adjust** values to the values recorded in step 5c.
26. Go to PQE Stroke Width.

Table 800. AOM Skew (continued)



27. Use a loupe or other magnifying glass to observe the unfused prints at the buffer arm area. The alignment marks should be aligned in the "0" position.

Note: Beam 1 is the reference beam and all the other beams are aligned to it. Every other beam in the alignment mark rows is beam 1. The other beam is beam 2.

28. If the alignment marks are not aligned in the "**0**" position, locate the position (3 to -3) where the beams appear to be most closely aligned. Record that position for beam 2.
29. Do not log off from the **Customer Engineer** window.
30. Select **Configure**, then **Configure Printer**. Page down to **Beam 2 Offset Adjustment**. Note that **Beam 1** is grayed out, because beam 1 is the reference beam and is not adjusted.

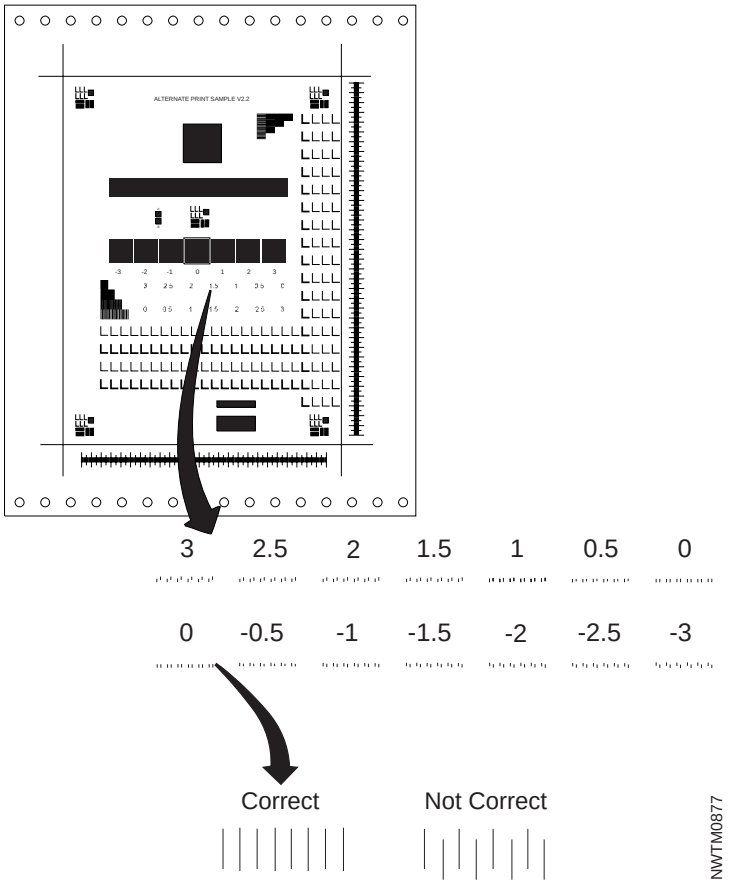
Note: A setting of **8.0** is the default setting.

31. Add or subtract the appropriate numbers to the beam offset adjustment value to bring the correctly aligned marks into the "**0**" position.

Note: The beam 2 lines on the Alternate Test Master are ½ pel shorter than the beam 1 lines for −2.5, −1.5, −0.5, 0.5, 1.5, and 2.5. Do not attempt to line up the edges of the lines. Instead, center the lines.

(continued on next page)

Table 800. AOM Skew (continued)



Example 1:

If the correctly printed pattern for beam 2 were in the **2.5** position, you would add **2.5** to the existing beam offset for beam 2.

Example 2:

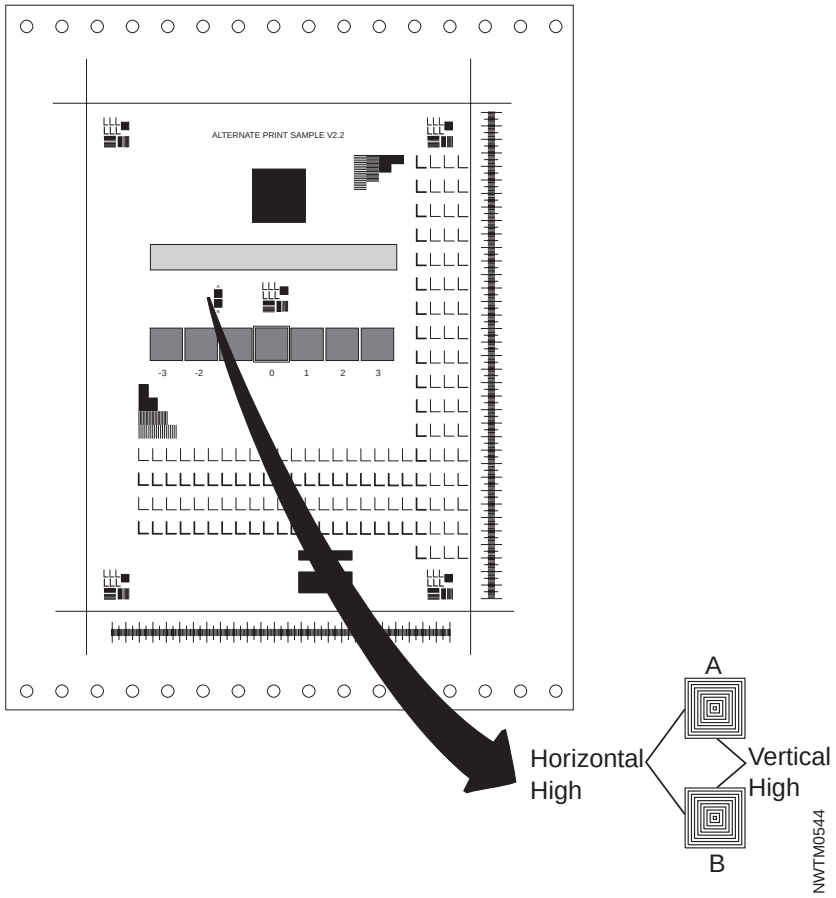
If the correctly printed pattern for beam 3 were in the **−1.5** position, you would subtract **1.5** to the existing beam offset for beam 3.

32. Select the beam 2.
33. Enter the appropriate number (added or subtracted) to or from the existing number to bring the corrected-position white spaces into the "**0**" position.
34. After you have entered the desired number, select **OK** on the Printer Configuration screen to save the changes.
35. Print 10 Alternate Print Samples and check the alignment of the groups of marks again. If they are not exactly in the "**0**" position, you can change the offset adjustment in 1/10 pel increments to get the alignment exact.
36. The "**0**"checkerboard is very sensitive to AOM skew error. Adjust until the squares are evenly spaced diagonally.
37. When you are satisfied that the alignment marks are correct for the alignment marks that you chose, verify by checking the other set of marks.
38. Repeat steps 27 through 37 for the second printer.
39. Select the contrast back to normal.
40. Restore all the horizontal and vertical **Print Adjust** values to the values recorded in step 5c.
41. Go to PQE Stroke Width.

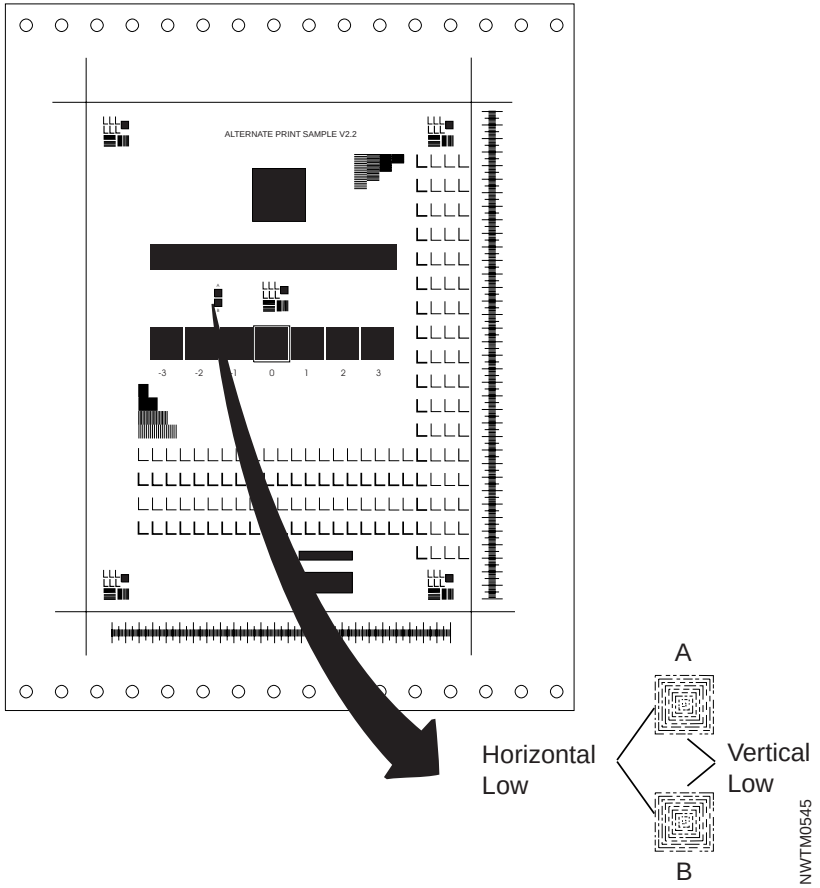
PQE Stroke Width

Horizontal High and Low Adjustment:

100% Boldness extremes Sample



0%Boldness extremes Sample



This procedure assumes that the printhead is correctly aligned.

Controller microcode level 2.0 or higher must be installed.

1. Power-on the printer.
2. Load 8½ inch wide paper into the printer. This makes it easier to observe the boldness extremes test prints in the printer.
3. Set **Contrast** on the printer control panel to **7**.
4. Select **Analyze** on the Display/Touch Screen.
5. Select **Service Actions** on the menu that appears.
6. If you have not already entered your password as a customer engineer, the **Password** window appears.

   Select **Customer Engineer** in the **Password** window. Use the keyboard that appears to select your password, and then select the **OK** key. When your password is accepted, the **Service Actions** window reappears.
7. Select **Configure Printer**, and then **Dual Simplex Mode**.
8. Select **Diagnostics** on the **Service Actions** menu.

Note: If a preventive maintenance (PM) item is due, the **PM** window appears. Temporarily bypass the maintenance item and close the **PM** window to complete the stroke width adjustment. After this adjustment, perform the appropriate PM procedures.

9. Select **Print Quality Enhancement** (PQE) on the menu that appears. The **Print Quality Enhancement** window appears.
10. Verify that the **Current vector** is **1** for both beams.
11. Set the **PQE boldness** for both beams to **50%**.
12. Using the zero beam, set the **Horizontal high** value to **63**.
13. Using the zero beam, set the **horizontal low** and the **vertical low** values to **15**.
14. Select **Print** and then **Boldness extremes** from the **PQE adjust** screen, and print the **Boldness extremes** test pages (100% boldness and 0% boldness).
15. NPRO this print sample through the printer and save the 100% boldness sample (the first page printed). This is the horizontal high reference sample.
16. Using the zero beam, set the **Horizontal high** and the **Vertical high** values to **45**.

17. Using the zero beam, reduce the **Horizontal high** value entered by two.
18. Print the **Boldness extremes** samples again.
19. At the tension arm, compare the 100% boldness sample to the lightest squares pattern on the horizontal high reference sample printed in step 15.
20. Using the zero beam, reduce the **Horizontal high** value entered by two units and print the **Boldness extremes** samples again.

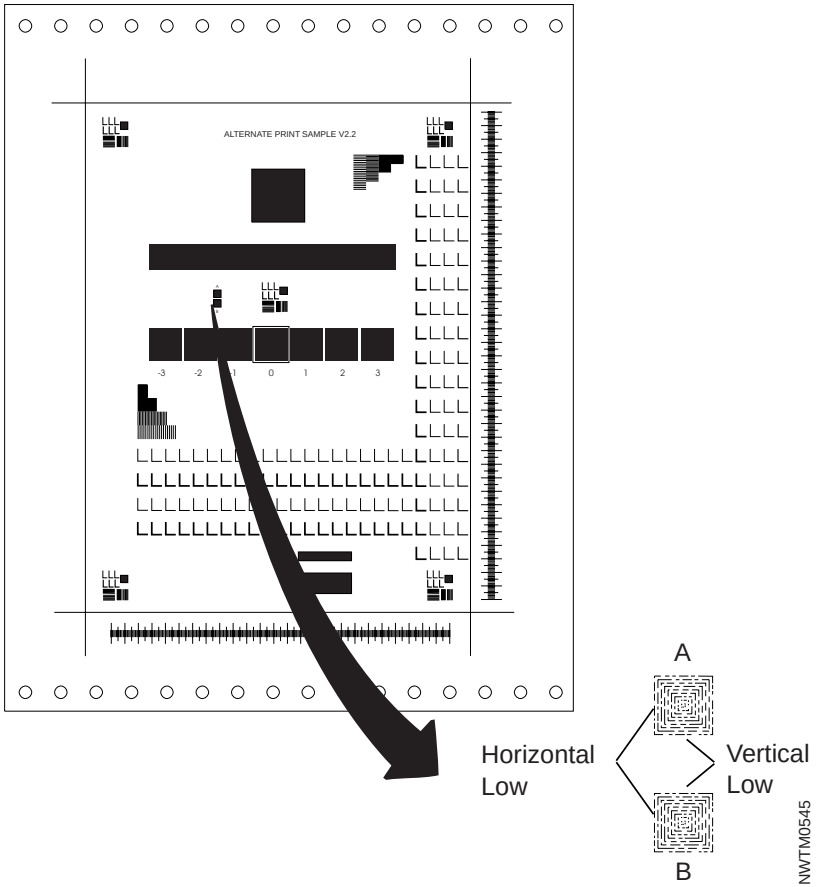
    Continue reducing the value and printing samples until the horizontal lines of the squares on the 100% boldness sample just start to lighten in appearance compared to those on the horizontal high reference sample printed in step 15.
21. Using the zero beam, increase the **Horizontal high** value by two units.
22. Using the zero beam, adjust the **Horizontal low** value until the horizontal lines of the squares pattern on the 0% boldness sample (second **Boldness extremes**) page just disappear.

Note: This can be done at the same time as the **Horizontal high** adjustment.

23. When the point where the horizontal lines in the squares pattern just disappears, enter a value one unit larger for the **Horizontal low** value for each beam.

Stroke Width Balancing:

Table 801. Stroke Width Balancing

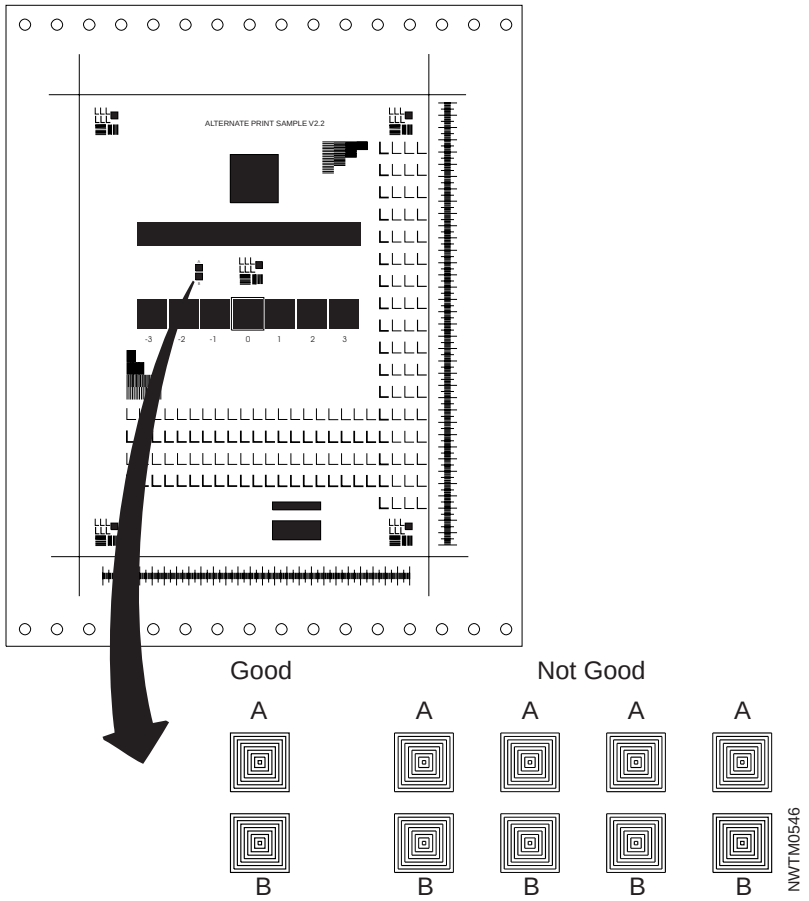


The stroke width between vertical and horizontal printing must match.

1. Using the 0% boldness page, adjust the vertical low values using the zero beam until the vertical lines in the squares pattern just disappear.
2. Print Alternate Print Samples at 50% boldness for the remaining part of this procedure. Do not use the boldness extremes sample previously used.
3. Select **Beam 0** and adjust the vertical high values so that the appearance of the vertical lines in the squares pattern match the horizontal lines.
4. Select **Beam 1** and **Beam 2** and adjust the horizontal high values so that the appearance of all the squares patterns for each beam are the same.

Engine Boldness Balancing:

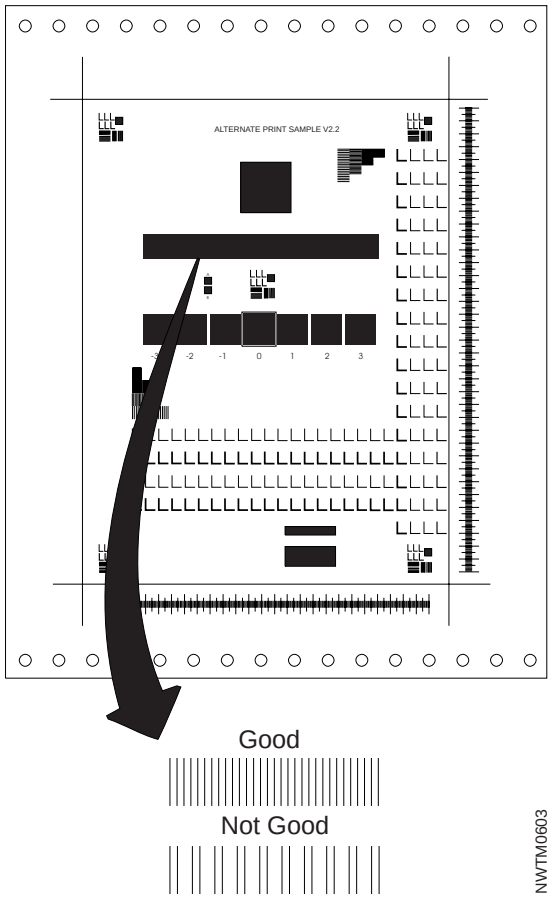
Table 802. Engine Boldness Balancing



1. Use the Alternate Print Samples at 50% boldness printed in step 2 under Stroke Width Balancing for this procedure.
2. Adjust the PQE boldness of the lighter printer so that the squares patterns of both printers match
3. Select **Save** to save the PQE values.
4. Exit the **Service** screens.

Scan Line Spacing Check:

Table 803. Scan Line Spacing Check



1. Power-on the printer.
2. Run test prints to verify that no system reference codes are displayed and that print quality is good.
3. Print several pages of the Alternate Print Samples.
4. View the scan lines for equal spacing between lines.
5. If the spacing between lines is not equal, call your next level of support. The laser beams are not correctly spaced.

Two Beam 240/300 Printhead

Laser Safety 2848
Laser Interlock 2849
Laser Safety Filter Check 2850
Laser Shutter 2852
Two Beam 240/300 Printhead Components 2853
Two Beam 240/300 Printhead Beam Path 2855
What You Should and Should Not Do 2856
Special Tools 2857
Printhead Access 2858
Printhead Cleaning Procedure 2859
Acusto-Optic (AO) Modulator AM201 2861
Acusto-Optic (AO) Modulator Drivers AM202/AM203 2863
AOM Driver Power Peaking and Matching Adjustment 2865
Beam Detect Card (BD131/BD132) 2867
Cylinder Lens (CYL1) 2869
F-Theta Lens Assembly 2871
Front Printhead Fan (B201) 2873
Laser 2875
Simplified Laser Adjustment Procedure 2879
Laser Power Supply and Laser Current Meter (L102) 2884
L1 Lens 2885
L2 Lens 2887
Mirror Motor (M201) 2889
Mirror Motor Driver Board (MD192) 2890
Printhead Interface Card (VI141) 2891
Printhead Pressurizing Fan (B202) and Filter 2892
Resolution Lens Motor (M202) 2893
Resolution Lens Sensor (S202) 2895
Wollaston Prism 2897

Printhead Checks & Adjustments 2899
Zero Beam Alignment Check 2901
Beam Pattern Check 2908
Aperture Adjustment 2911
M2 Mirror Adjustment 2912
Beam Power Check 2914
Beam Detect Mirror Check 2923
Completing the Primary Checks 2925
Print Sample Adjustments 2926
Print Width 2927
Print Skew 2930
Registration 2932
AOM Skew Adjustment 2945
PQE Stroke Width 2949

Laser Safety

Perform Laser Safety Filter Check to ensure that the laser filter correctly operates.

DANGER

<8> Laser radiation is present. Always power-off the printer before removing the printhead cover. After the cover has been removed, ensure that the laser-filter slide is operating correctly before powering-on the printer.

DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

DANGER

<2> Laser radiation is present when the printer is powered-on.

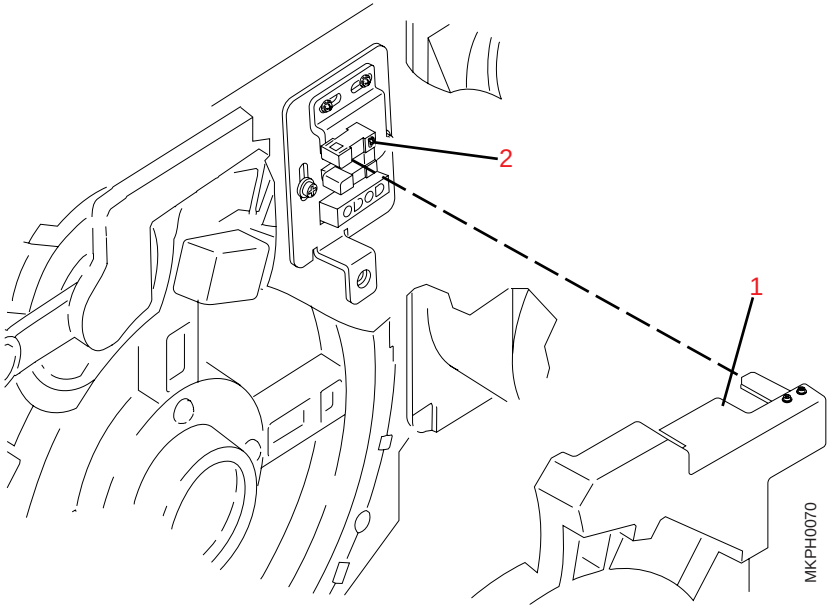
Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Laser Interlock

Table 804. Laser Interlock



A switch **(2)** is provided to remove power from the laser when you remove the PC drum cover **(1)**. This prevents accidental exposure to the laser beam when working in the PC drum cavity with power on.

Disconnecting switch S122, disables this safety feature. Do not disconnect the switch. If you must disconnect the switch, check for pushed pins and good contact when the connector is reconnected.

When it is necessary to work in the PC drum cavity with power on:

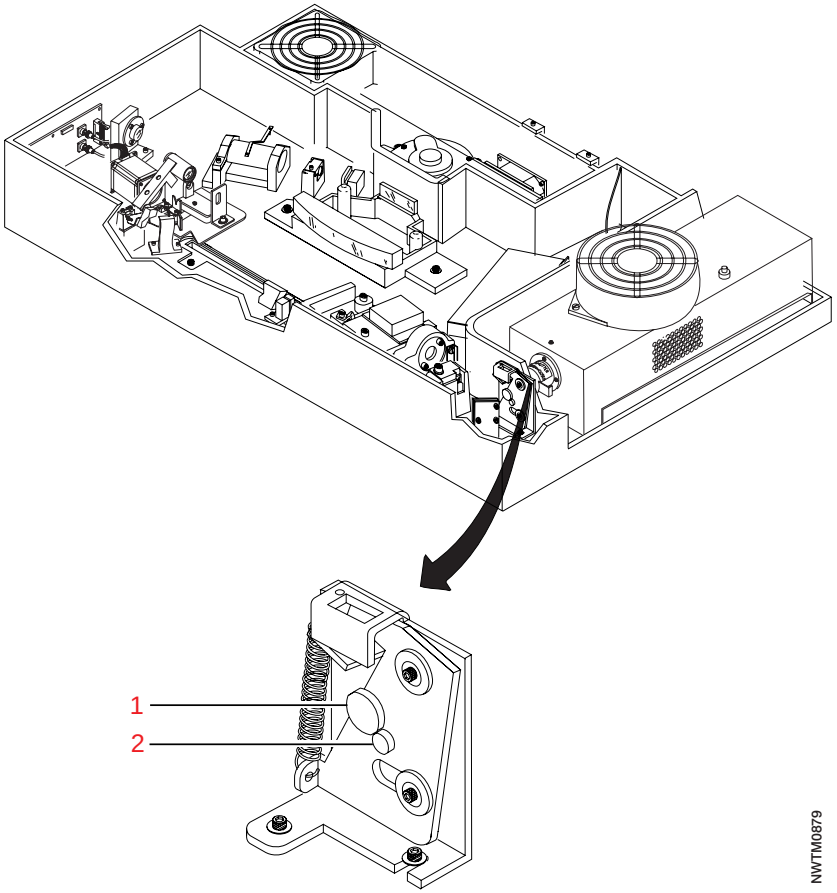
1. Use only the routines available with the diagnostic function switch in position **3**.
2. Open the printhead internal cover so that the safety filter will reduce beam power. See Printhead Access.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser Safety Filter Check

Table 805. Laser Safety Filter



DANGER

<2> Laser radiation is present when the printer is powered-on.

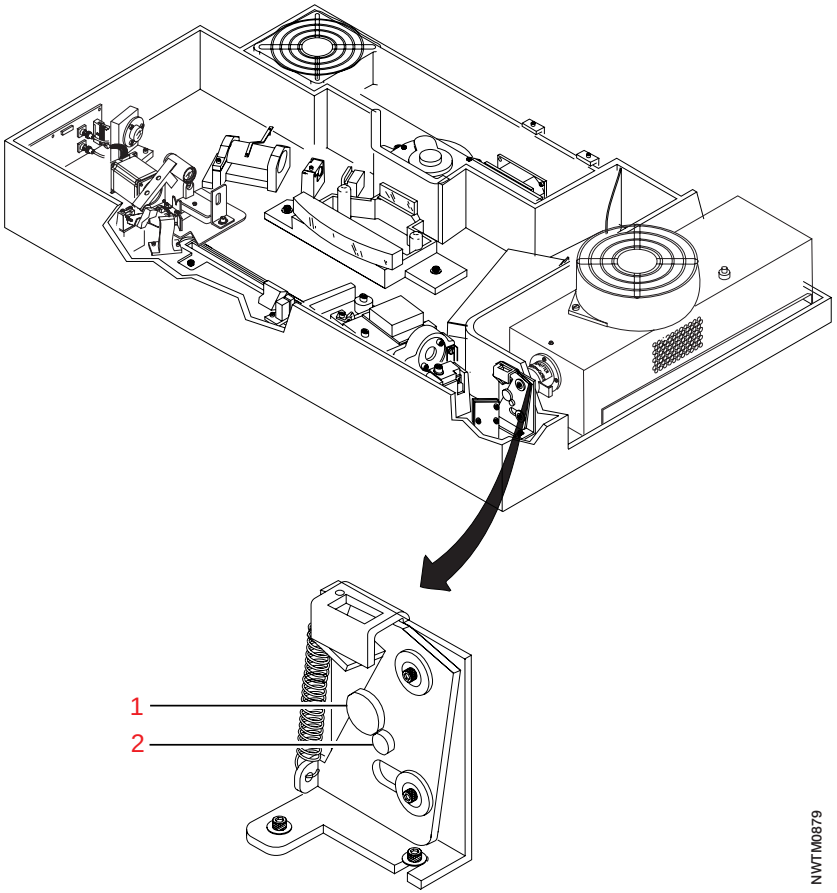
Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Perform this safety check before servicing the printhead to ensure that the laser filter operates correctly.

Table 805. Laser Safety Filter (continued)



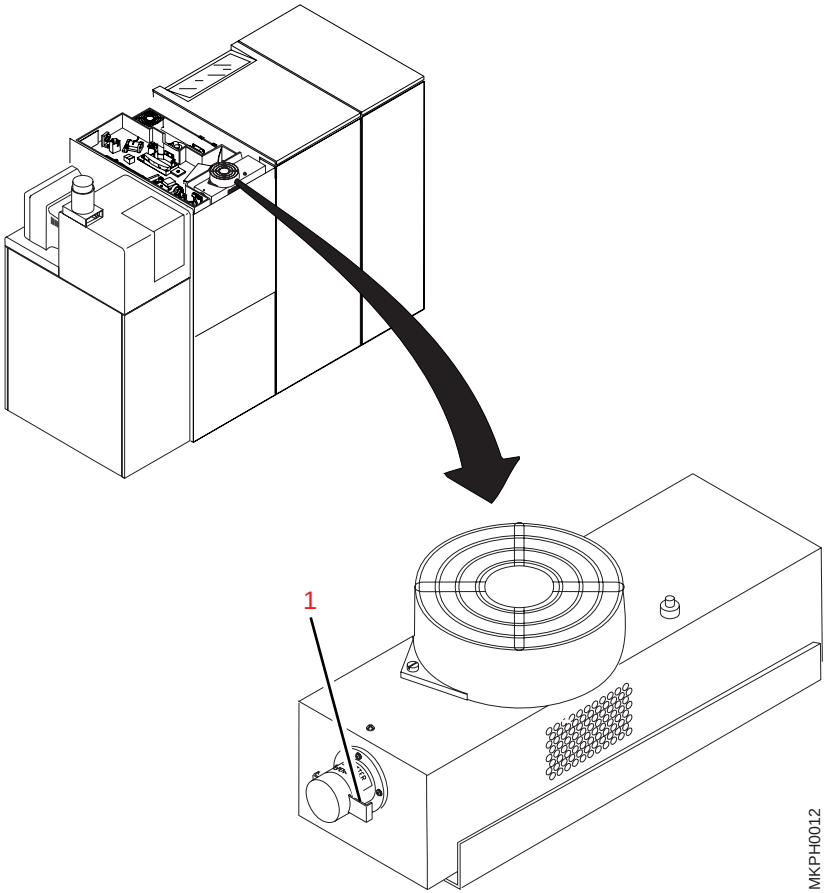
The operating power of the laser can damage the eyes.

For maintenance purposes, a spring loaded filter, held out of the beam path by the printhead cover, is positioned between the laser and the printhead. Removing the printhead cover releases the filter into the beam path. This reduces the beam power to less than 1 milliwatt for servicing.

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Ensure that the glass safety filter **(2)** is in place.
4. Ensure that the safety filter mechanism correctly operates with no binds.

Laser Shutter

Table 806. Laser Shutter



To close the laser shutter **(1)**, push the slide toward the rear of the printer

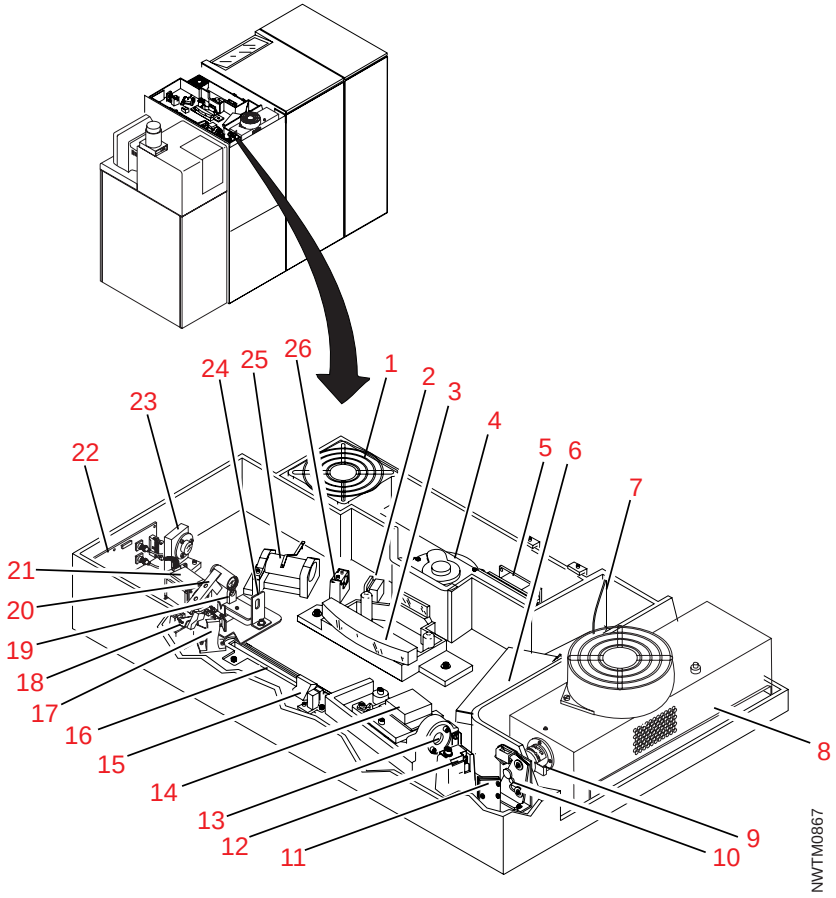
If the laser shutter is left in the closed position, a D706 error displays when you attempt to print.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Two Beam 240/300 Printhead Components

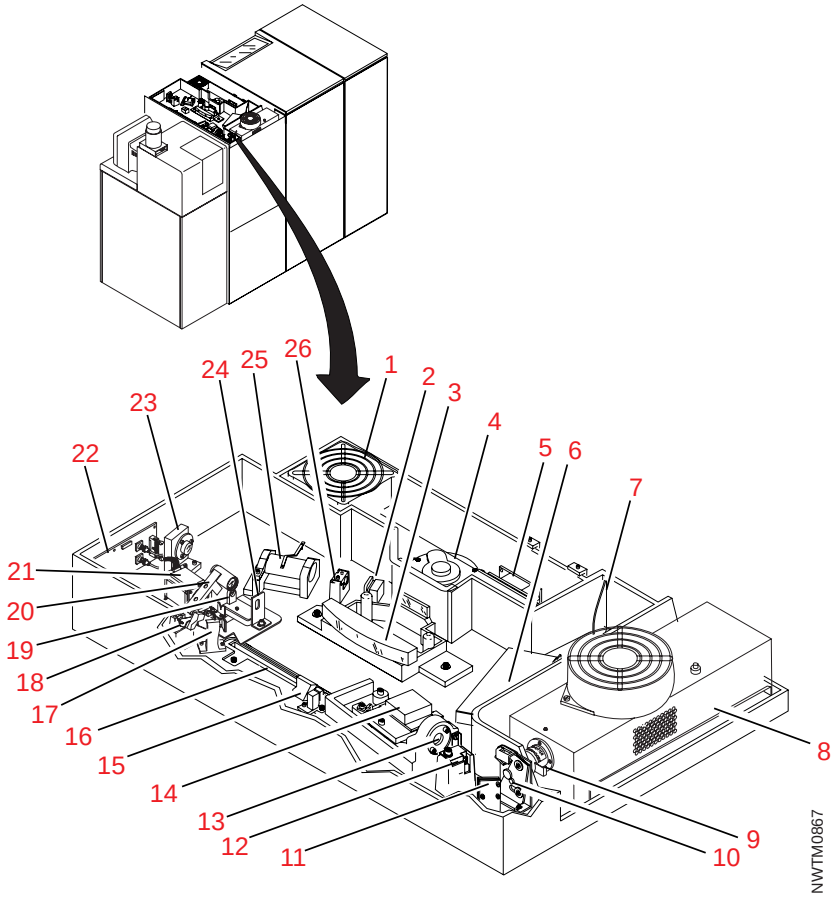
Table 807. Two-Beam Printhead (240/300 DPI) Components (Rear View)



(continued on next page)

(1) Front printhead fan (B201)
(2) Power tool pedestal
(3) F-Theta lens
(4) Mirror motor (M201)
(5) Printhead pressurizing fan (B202)
(6) AOM drivers (AM202 and AM203)
(7) Beam detect card (BD131)
(8) Laser
(9) Laser shutter
(10) Laser safety filter
(11) M1 mirror
(12) Wollaston prism
(13) L2 lens
(14) AO modulator (AM 201)

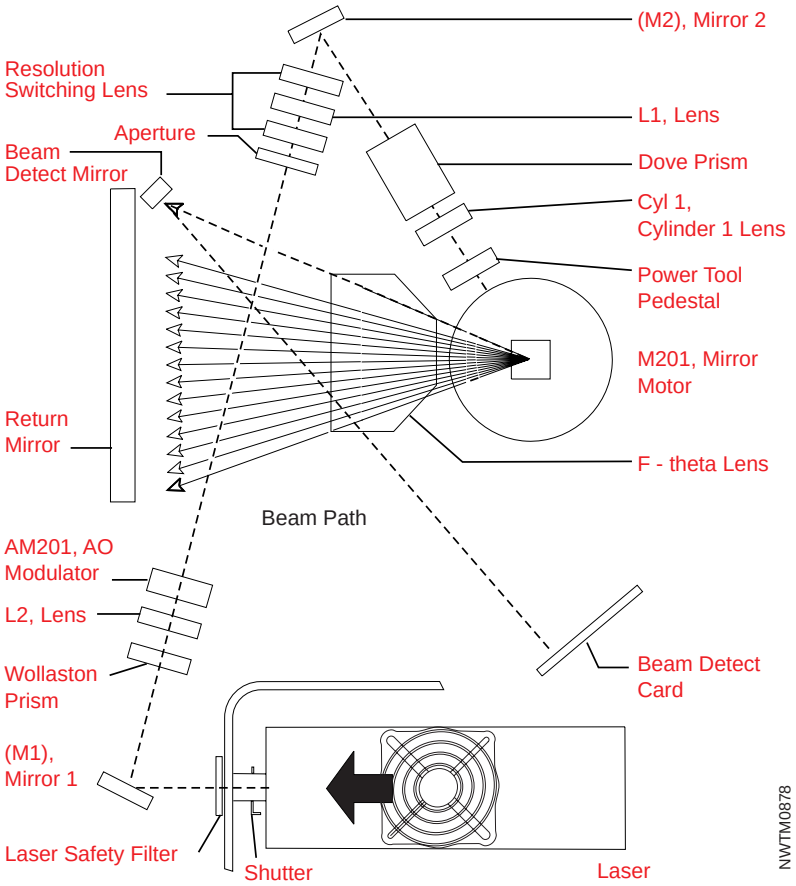
Table 807. Two-Beam Printhead (240/300 DPI) Components (Rear View) (continued)



(15) Return mirror
(16) Exit window
(17) Beam detect mirror
(18) Resolution lens sensor (S202)
(19) L1 lens
(20) Resolution switching lens
(21) Resolution lens motor (M202)
(22) Printhead interface card (VI141)
(23) M2 mirror
(24) Aperture
(25) Dove prism
(26) CYL1 lens

Two Beam 240/300 Printhead Beam Path

Table 808. Two Beam 240/300 Printhead Beam Path



What You Should and Should Not Do

Before working in the area of the printhead, ensure the following:

- Review Laser Safety.
- Review Two Beam 240/300 Printhead Components.

Adjust only the following:

- Laser
- AO modulator
- Aperture
- M1 mirror
- M2 mirror
- Beam detect card
- Printhead interface card (VI141)
- Mirror motor driver board (MD141)
- AOM driver
- Return mirror
- Beam detect mirror.

Do not perform any of the following, unless directed by your next level of support:

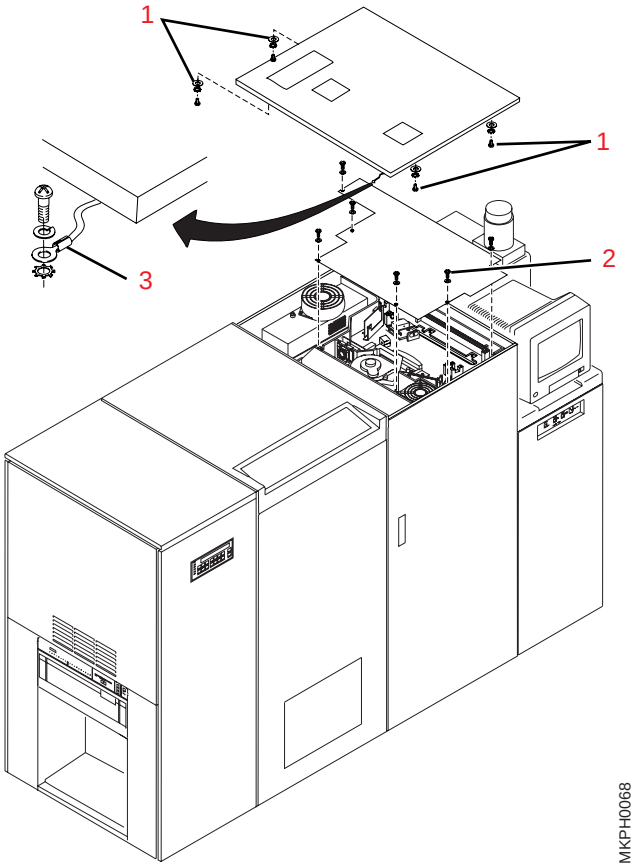
- The printhead is very sensitive. Do not randomly replace parts or loosen screws as this could cause more problems.
- **Do not** adjust the following, unless directed by your next level of support:
  - CYL1 lens
  - F-Theta lens
  - L1 lens
  - Wollaston prism
- Do not disable, remove, or press down the laser safety filter.
- Do not look directly into the laser beam. If the beam seems uncomfortably bright, close your eyes, and turn your head. Use a darker or less shiny piece of paper (a piece of cardboard from the top of a box of forms). Look at the target and not into the source.
- Do not use shiny tools when the laser beam is present. If necessary, wrap black tape around the tools that you are using.
- Do not connect or disconnect any cables between the AO modulator and any AOM driver while any beam is switched on.

Special Tools

- Laser alignment tool (PN 30H2978)
- Laser alignment tool stand (PN 57G6641)
- Registration template (PN 04H0739)
- Stool (PN 2497185)

Printhead Access

Table 809. Printhead Access



DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right front cover.
4. Open the printer left rear cover.
5. Remove the four screws **(1)**.
6. Disconnect the ground strap **(3)** from the printer frame.
7. Remove the printer right top cover.
8. Remove the six screws from the printhead top cover **(2)** and lift off the printhead cover.
9. Perform Laser Safety Filter Check.

Installation

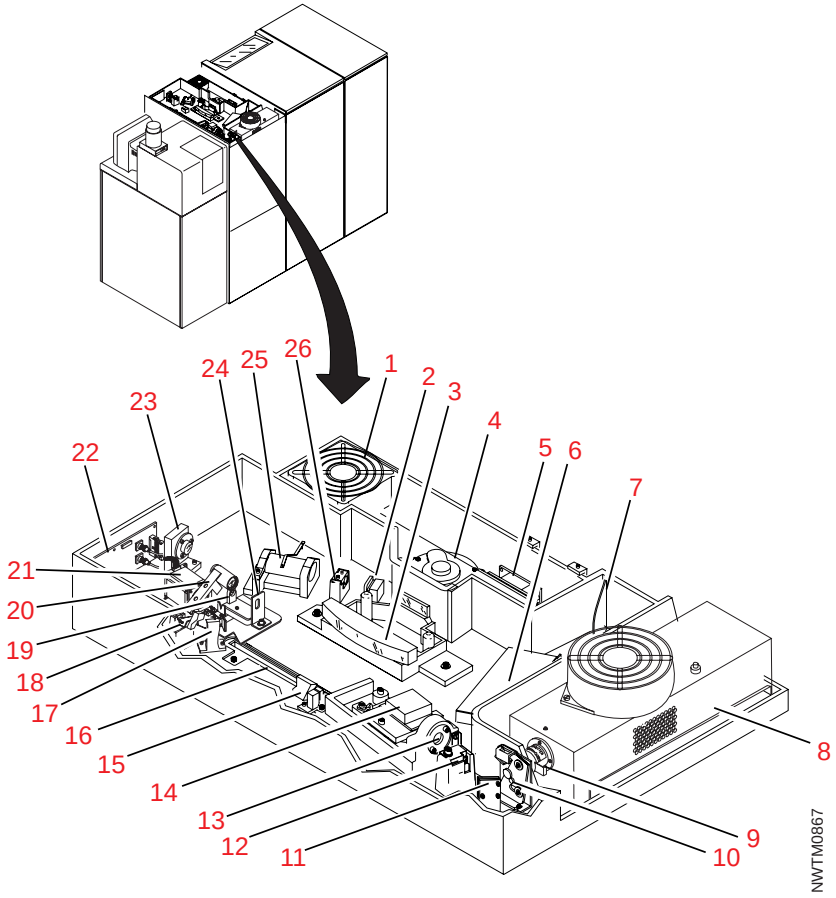
Reverse the removal procedure. Ensure that you install the star washer between the ground strap and the printer frame.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Cleaning Procedure

Table 810. Printhead Cleaning Procedure



(continued on next page)

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

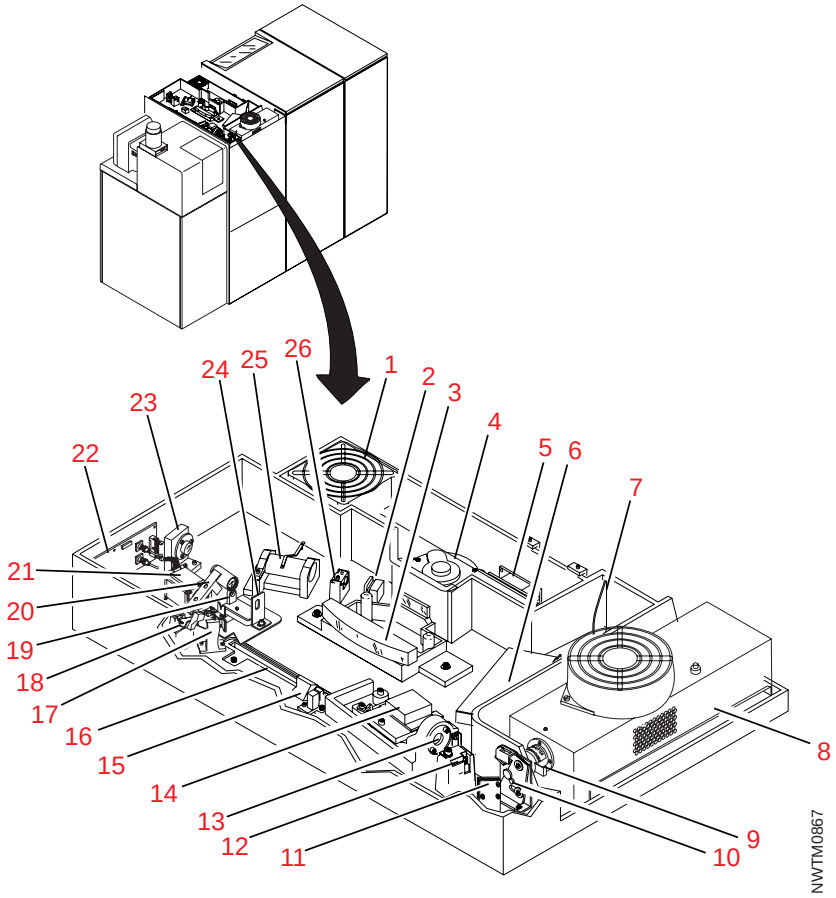
Attention: Use this procedure to clean contamination from the printhead lenses and mirrors only if you find a contamination problem.

The printhead fan provides a positive pressure inside the printhead to keep out contamination. If the fan fails, check the lenses and mirrors carefully for toner and paper dust.

Procedure

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.

Table 810. Printhead Cleaning Procedure (continued)



Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

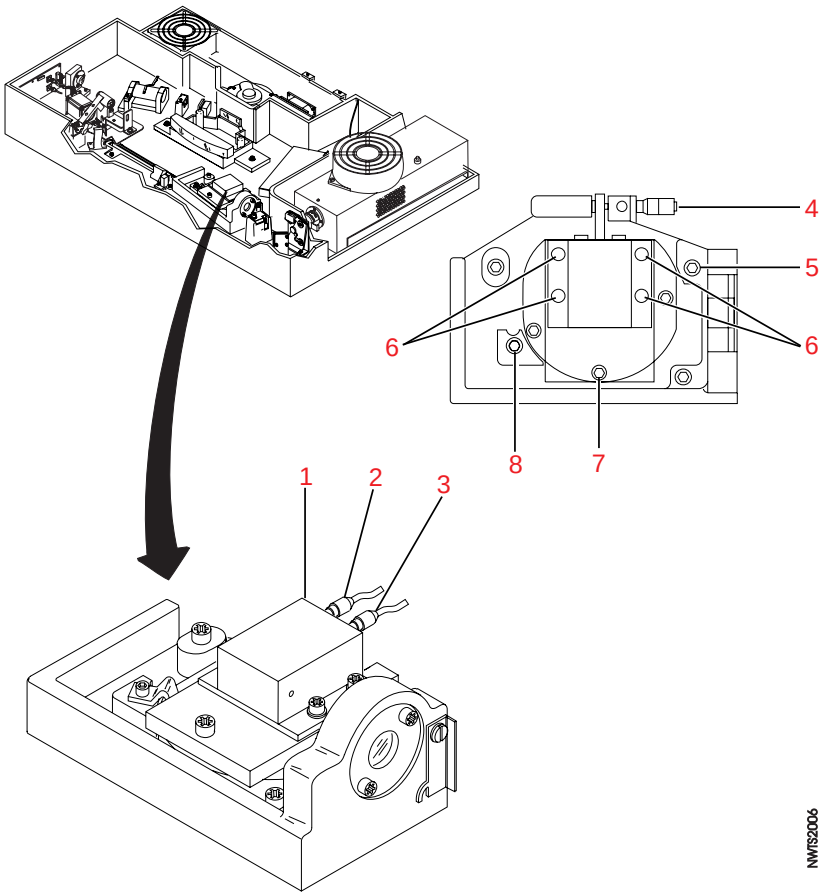
4. Inspect the lenses and the mirrors for toner, paper dust, and fingerprints.
5. Clean as necessary.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Acusto-Optic (AO) Modulator AM201

Table 811. Acusto-Optic (AO) Modulator



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Disconnect connectors PJ215 **(2)** and PJ240 **(3)** from the AO modulator **(1)**.
5. Scribe the position of the AO modulator so that it can be reinstalled in that exact position.

Attention: Do not loosen the screws in the AO modulator base mount.

6. Remove the four Allen screws **(6)** and remove the AO modulator **(1)**.

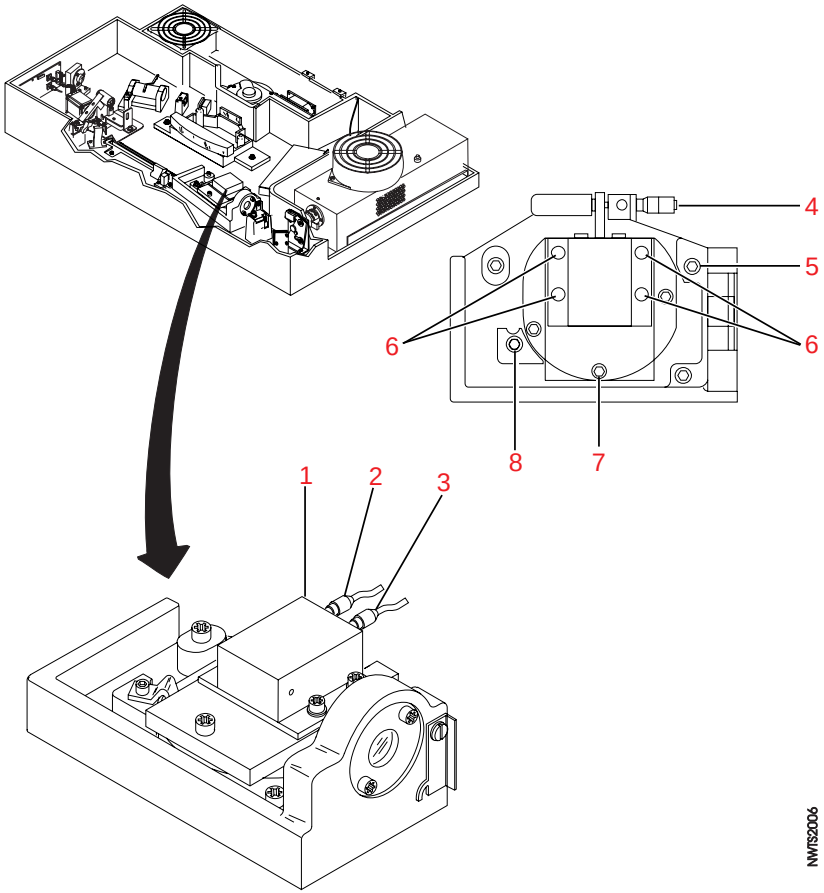
Installation

Reverse the removal procedure.

Ensure that the AO modulator is positioned exactly as before.

(continues on next page)

Table 811. Acusto-Optic (AO) Modulator (continued)



Check

1. Verify that the beam is not being clipped by either edge of the entrance or the exit windows as follows:
   a. Using the straight edge of a white piece of paper, hold it up to the right edge, and then up to the left edge of the modulator window facing the rear of the printer (laser beam entrance window).
   b. Check the other modulator window facing the front of the printer (laser beam exit window).
   c. If the beam is being clipped, perform the Adjustment procedure.

Adjustment

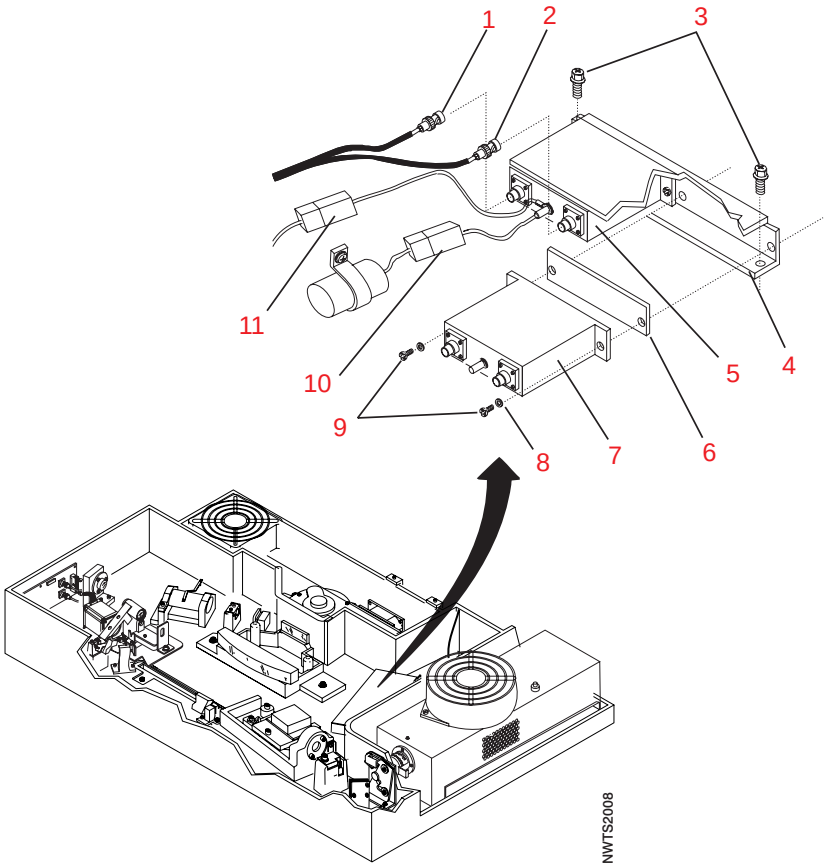
1. If the beam is being clipped, adjust the window facing the rear of the printer first (laser beam entrance window), and then adjust the window facing the front of the printer (laser beam exit window).
2. Loosen the four Allen screws **(6)**.
3. Move the AO modulator so that it is not clipping the beam, and then tighten the four screws.
4. Perform AO Modulator Adjustments.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Acusto-Optic (AO) Modulator Drivers AM202/AM203

Table 812. Acusto-Optic (AO) Modulator Drivers



Removal

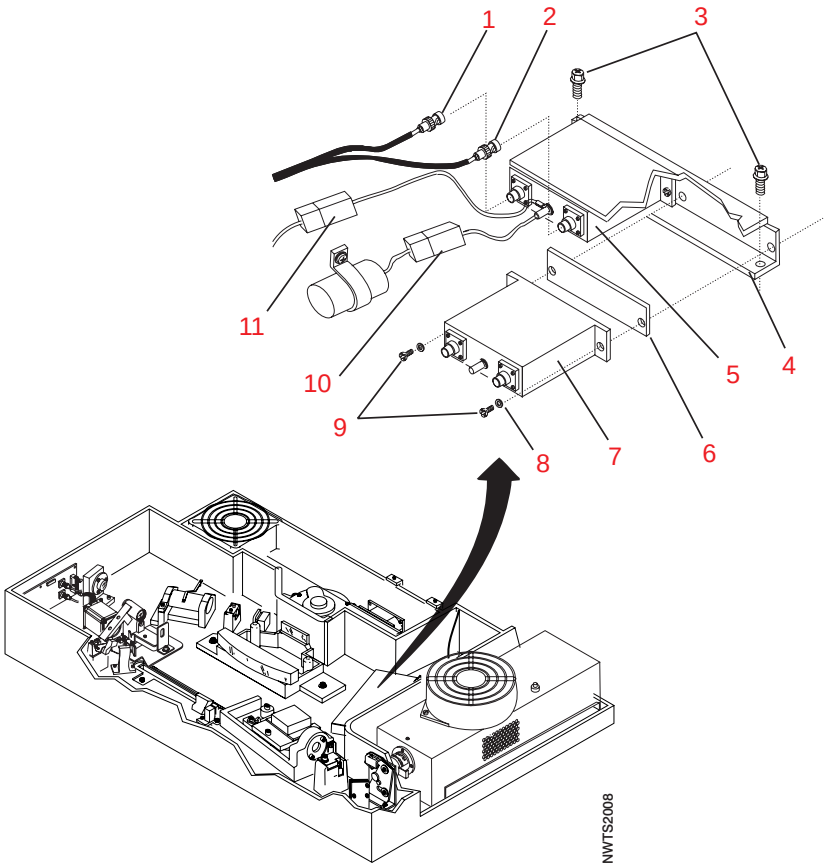
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Disconnect connectors PJ213 **(1)**, PJ214 **(2)**, PJ216 **(8)**, and PJ220 **(9)** from the AOM driver AM202 (top).
5. Disconnect connectors PJ238, PJ239, PJ241, and PJ242 from the AOM driver AM203 (bottom).
6. Remove all necessary cable clamps.
7. Remove the two screws **(3)** and the AOM driver mounting bracket **(4)**.

Attention: In the next step, use care not to loose the insulating washers **(6)** that insulate the AOM driver assembly from the printhead casting. These insulating washers must be reinstalled for correct AOM driver operation.

8. Remove the two screws **(7)**, and the insulating washers **(6)** to remove the AOM driver from the mounting bracket.
9. Do not discard the insulating sheet **(5)**; this is **not provided** with the new driver.

(continued on next page)

Table 812. Acusto-Optic (AO) Modulator Drivers (continued)



Installation

1. Perform the AOM Driver Power Peaking and Matching Adjustment before installing the new AOM driver.
2. Reverse the removal procedure ensuring the following:
   - The insulating sheet **(5)** is correctly installed between the AOM driver and the mounting bracket **(4)**
   - The insulating washers **(6)** are correctly installed on the two screws **(7)**
3. Connect connectors PJ213 **(1)**, PJ214 **(2)**, PJ216 **(8)**, and PJ220 **(9)** to the AOM driver AM202 (top).
4. Connect connectors PJ238, PJ242, PJ241, and PJ239 to the AOM driver AM203 (bottom).
5. Ensure that all cables are lying flat against the bottom of the printhead casting to avoid blocking the beam path.
6. Install the AOM driver assembly using the two screws **(3)**.

Check

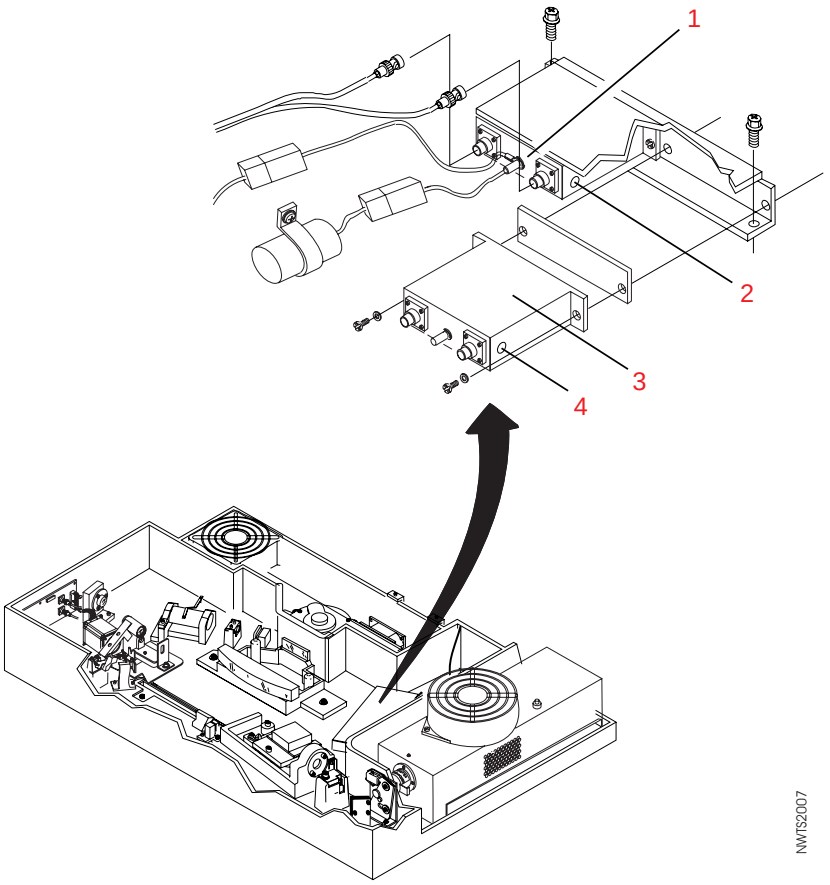
1. Cover the return mirror with paper.
2. Run Adjustment Routine C0 to switch on the primary beams without switching on the scanning mirror motor.
3. Perform the AO Modulator Adjustments.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

AOM Driver Power Peaking and Matching Adjustment

Table 813. AOM Driver Power Peaking and Matching Check

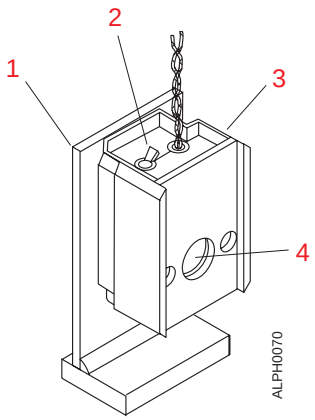


Attention: With multi-beam printheads, if the AO driver output is too high, it can overdrive the AO modulator. This reduces the AO modulator output and the efficiency of the beam.

1. Ensure that all cables are connected to the AO drivers AM202 (upper) and AM203 (lower), and that the adjusting potentiometers are accessible. If necessary, remove the AOM driver from the mounting bracket, but do not disconnect it.
2. Perform the Printhead Access procedure.
3. Power-on the printer in the diagnostic mode.
4. Cover the return mirror with paper.
5. Run Adjustment Routine C8 for AM202 **(3)** (top beam) without scanning the beam. To prevent the mirror motor from running, do not press **Enter**.

(continued on next page)

Table 813. AOM Driver Power Peaking and Matching Check (continued)



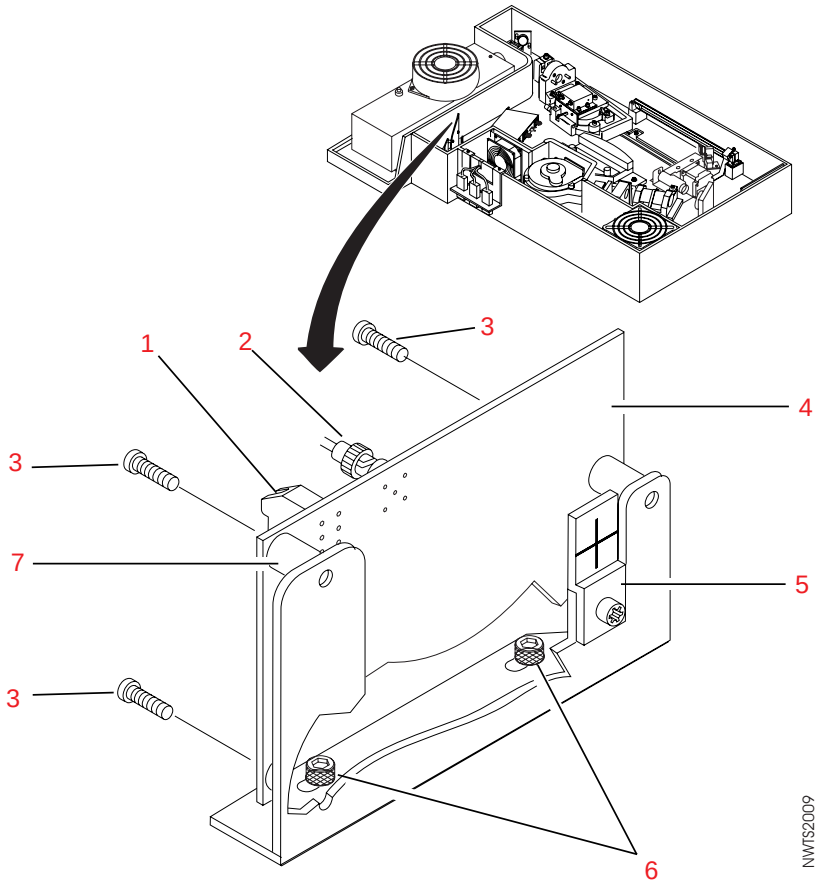
6. Set switch **(2)** on the laser power tool **(3)** to **High**.

Attention: In the following step, slightly move the power tool to ensure that the beam is centered on the sensor **(4)** of the laser power tool.

7. Place the power tool **(3)** on the power tool stand **(1)**, and position it at **C**. (Reference Beam Power Measuring Points.)
8. Adjust the potentiometer on the AOM driver so that the power reading is 2–4 mV. (The manufacturing level of the AOM driver determines in which direction to adjust the potentiometer for a power increase or decrease.)
9. Adjust the potentiometer on the AOM driver for a maximum reading. If the potentiometer is fully rotated, and the power is still rising, the adjustment is complete.
10. If the power starts to decrease before the potentiometer is fully rotated, slowly adjust the potentiometer in the opposite direction, back to the point of peak power.
11. When the beam power is at its peak, slowly adjust the potentiometer in the direction of decreasing power to the point where power **just begins** to decrease. This ensures that the AOM driver is tuned to peak efficiency for the AO modulator.
12. Record the value for later use.
13. Run Adjustment Routine C9 for AM203 (lower beam).
14. Repeat steps 7 through 12 for AM203 (lower beam).
15. Reduce the power of the AOM driver with the highest output to match that of the driver with the lowest.

Beam Detect Card (BD131/BD132)

Table 814. Beam Detect Card (BD131)



Removal

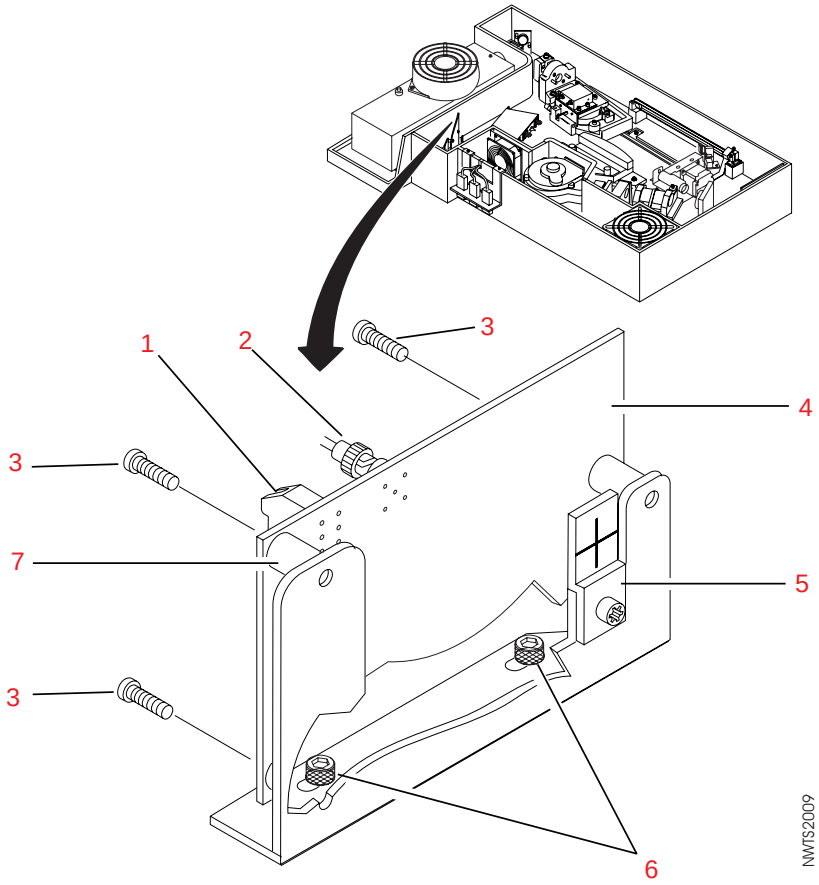
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Scribe the position of the beam detect card so that it can be reinstalled in that exact position.
5. Disconnect PJ211 **(1)**.
6. Disconnect PJ212 **(2)**.
7. Remove the two Allen screws **(6)**.
8. Lift out the card and bracket.
9. Remove the sensor cover.
10. Remove the three screws **(3)** and the standoffs **(7)**.
11. Remove the card.

Installation

1. Reverse the removal procedure leaving screws **(6)** loose so that the card can be adjusted.
2. Perform the Check procedure.

(continued on next page)

Table 814. Beam Detect Card (BD131) (continued)



Check

1. Check for correct operation of the beam detect card as follows:
   a. Cover the return mirror with paper.
   b. Run Adjustment Routine C0 to switch on the laser and the mirror motor.
   c. Move the card horizontally until the scanning beam is horizontally centered on the sensor cover **(5)** and then tighten screws **(6)**.
   d. Ensure that the beam is vertically centered on the white line of the sensor cover.
   e. If the beam is not vertically centered on the white line, perform the Adjustment procedure.
   f. Stop the diagnostics and remove the paper from the return mirror.
2. Check the Scan Direction (Horizontal) Adjustment to set the final position of the beam detect card.

Adjustment

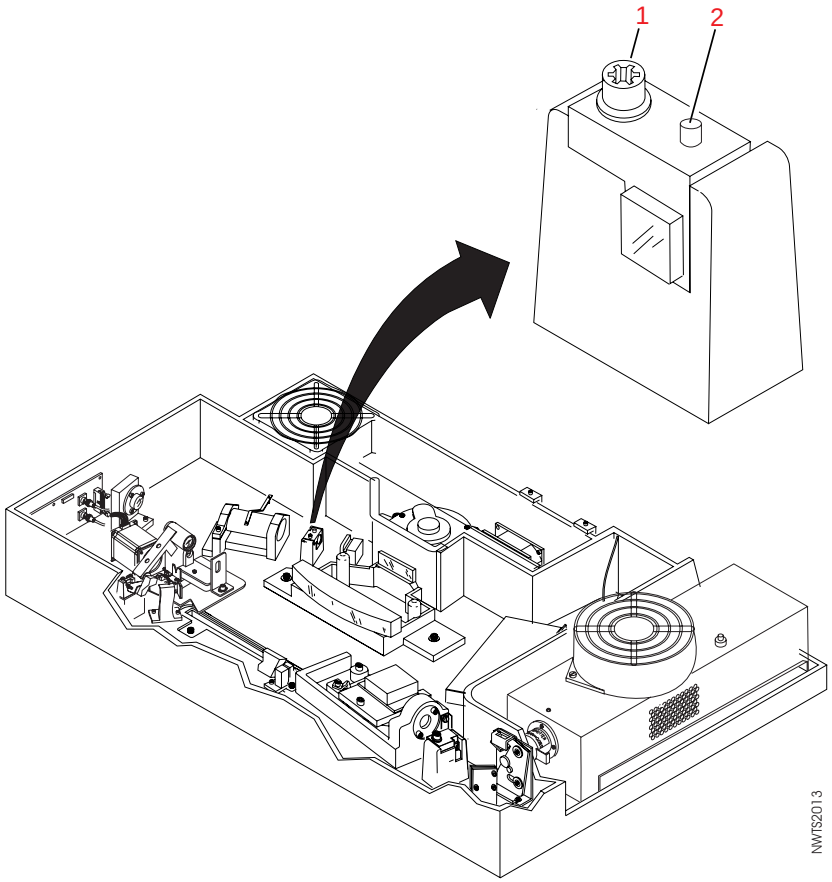
1. Perform Printhead Checks and Adjustments Beam Detect Mirror Check and the adjustment, if necessary.
2. Perform Registration and the adjustment, if necessary.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Cylinder Lens (CYL1)

Table 815. Cylinder Lens (CYL1)



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Attention: Call your next level of support before performing this procedure. Exact positioning of the cylinder lens (CYL1) requires a beam scanner.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Scribe the position of the cylinder lens pedestal at the reference surface so that it can be reinstalled in that exact position.
5. Remove screw **(1)**.

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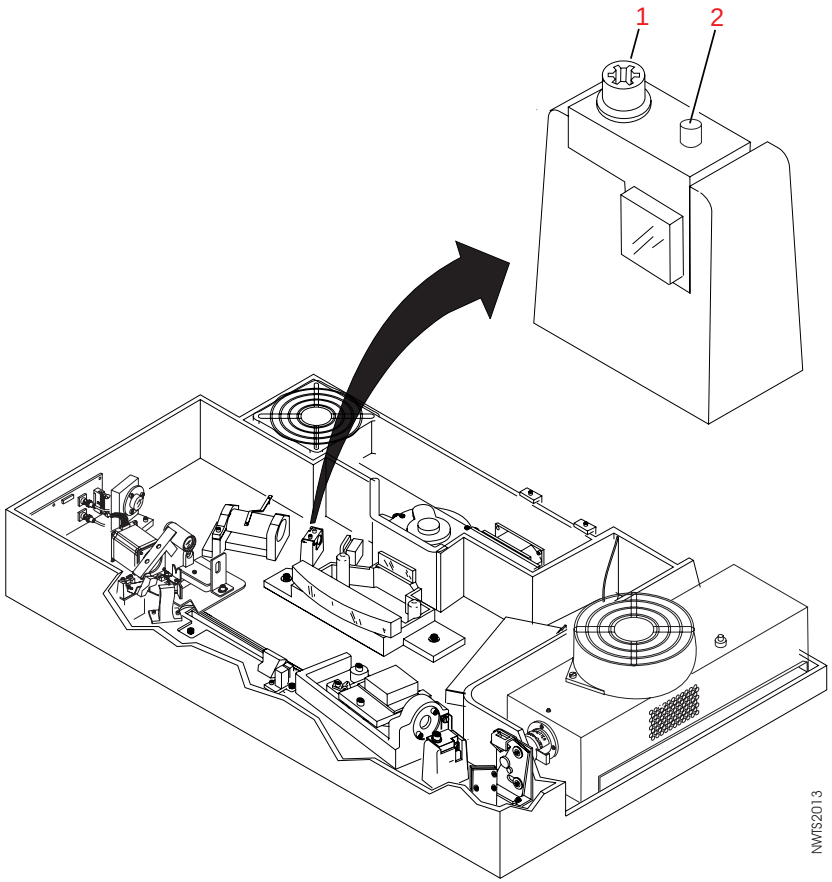
Table 815. Cylinder Lens (CYL1) (continued)



Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

6. Carefully, lift out the CYL1 lens **(2)**.

Installation

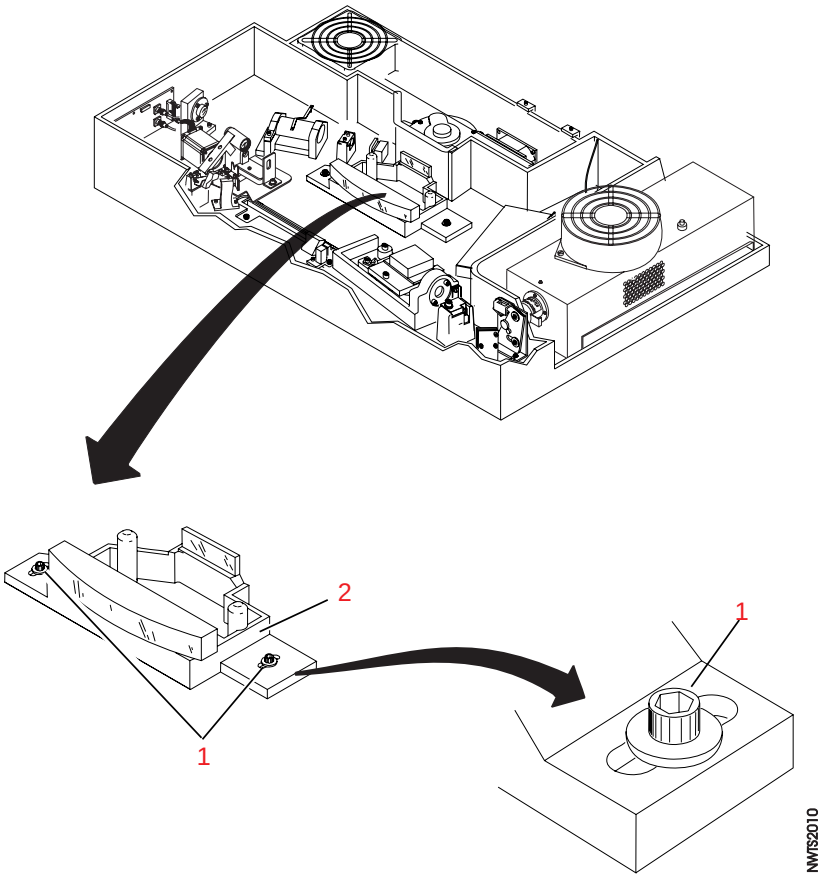
1. Reverse the removal procedure.
2. Ensure that the CYL1 lens is positioned exactly as before.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

F-Theta Lens Assembly

Table 816. F-Theta Lens Assembly



DANGER

<22> You will need a wrench and a screwdriver to do this procedure. These tools can reflect the laser beam. Whenever these tools are used in the printhead, ensure that the printer is powered off.

Attention: Call your next level of support before performing this procedure. Exact positioning of the cylinder lens (CYL1) requires a beam scanner.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Scribe the position of the F-Theta lens so that it can be reinstalled in that exact position.
5. Remove the two screws **(1)** and washers.
6. Remove the F-Theta lens **(2)** assembly.

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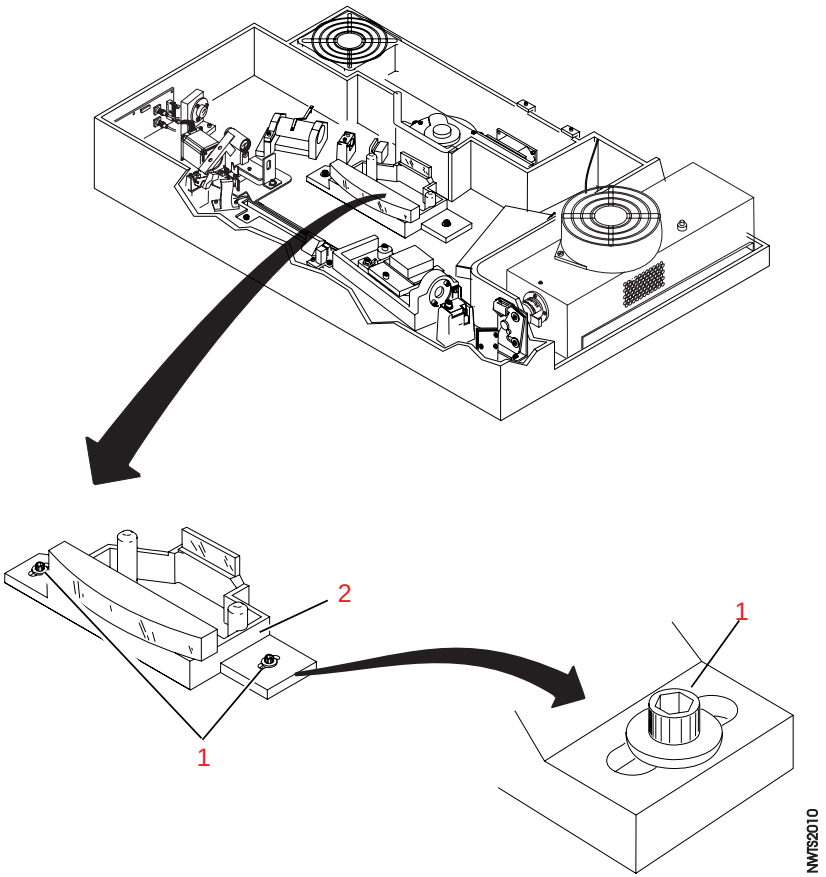
Table 816. F-Theta Lens Assembly (continued)



Installation

1. Reverse the removal procedure.
2. Ensure that the F-Theta lens is positioned exactly as before.

Adjustment

Perform the following procedures and adjust if necessary:

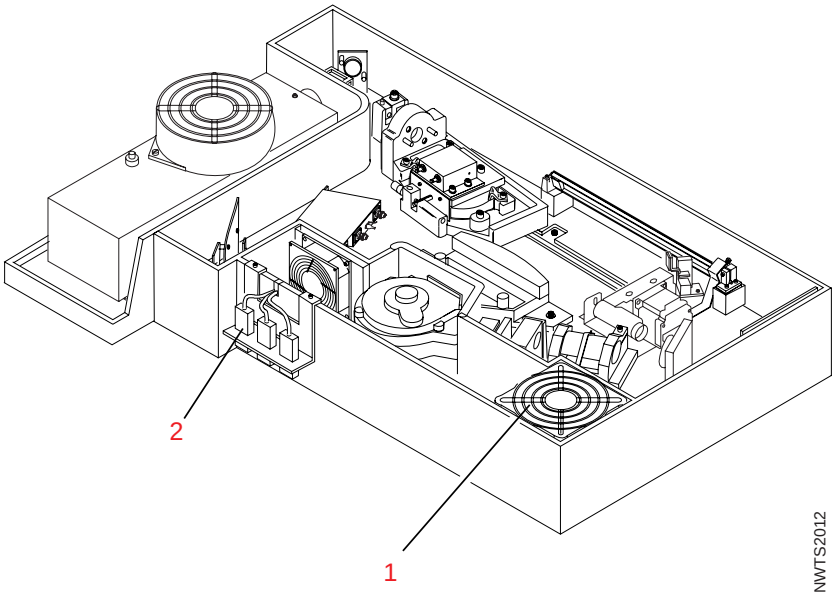
1. Print Skew
2. Print Width

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Front Printhead Fan (B201)

Table 817. Front Printhead Fan (B201)



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

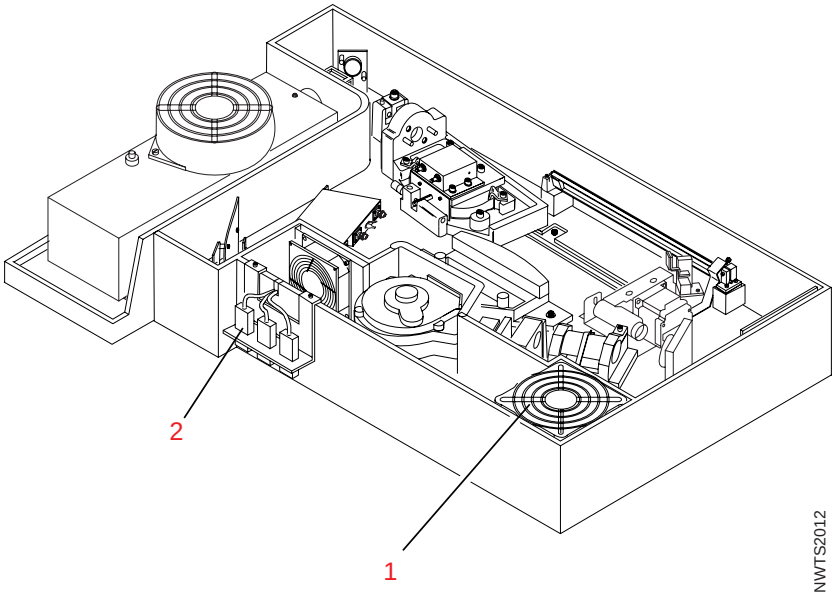
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Disconnect PJ217 **(2)**.
5. Remove the cable clamp(s).
6. Lift and remove the fan **(1)**.

Installation

Reverse the removal procedure.

(continued on next page)

Table 817. Front Printhead Fan (B201) (continued)



Check

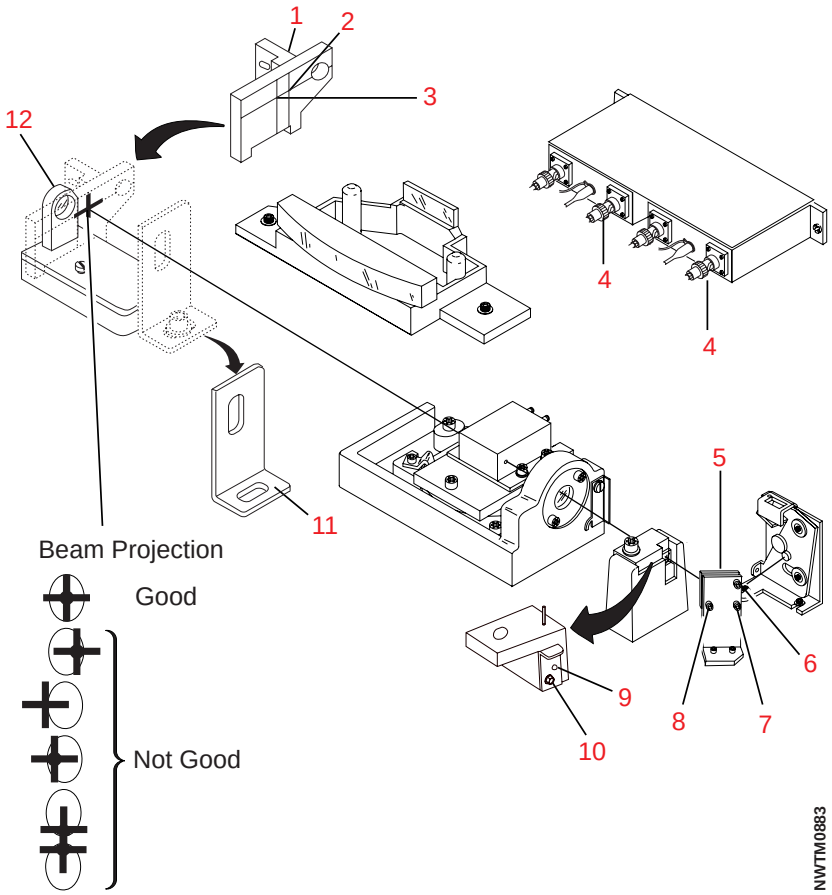
Ensure that the front printhead fan is moving air in the correct direction.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser

Table 818. Laser



DANGER

<19> Abnormally high laser power may be present.

Do not open the printhead cover if the laser power supply current meter reading is 12 amps or greater at operating power.

Check

1. If the laser current meter indicates 12.0 Amps or more, replace the Laser.
2. Perform the Zero Beam Alignment Verification.

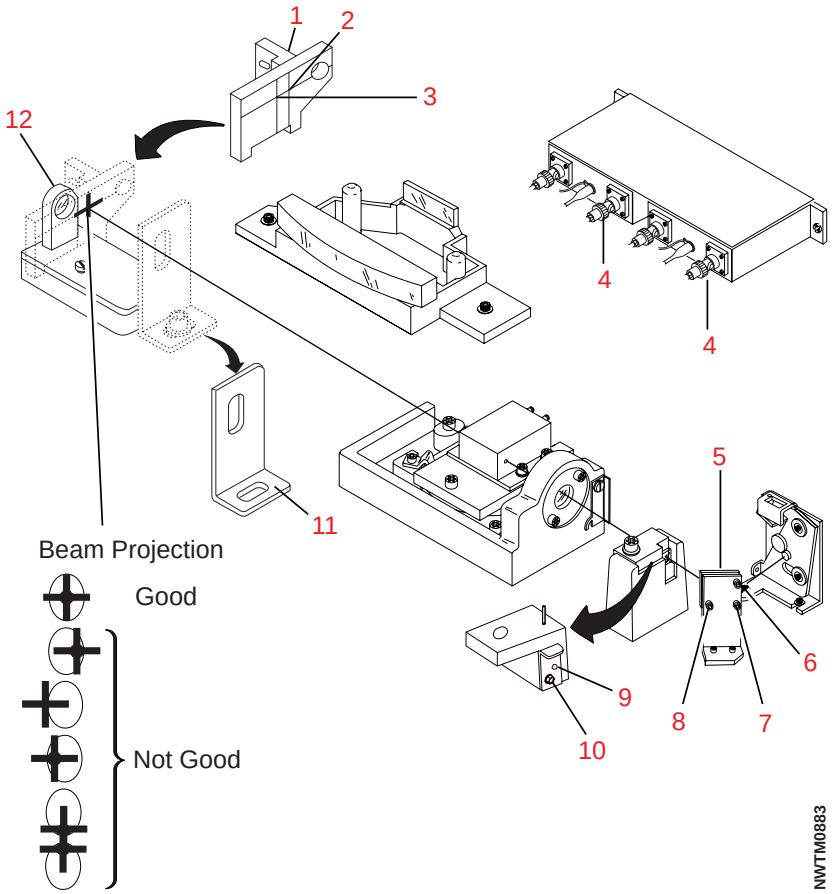
   If the old laser is correctly aligned, you can use the Simplified Laser Adjustment Procedure after you install the new laser. This procedure adjusts only the new laser to put it in the same position as the old laser.

Zero Beam Alignment Verification

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Cover the return mirror with paper.

(continued on next page)

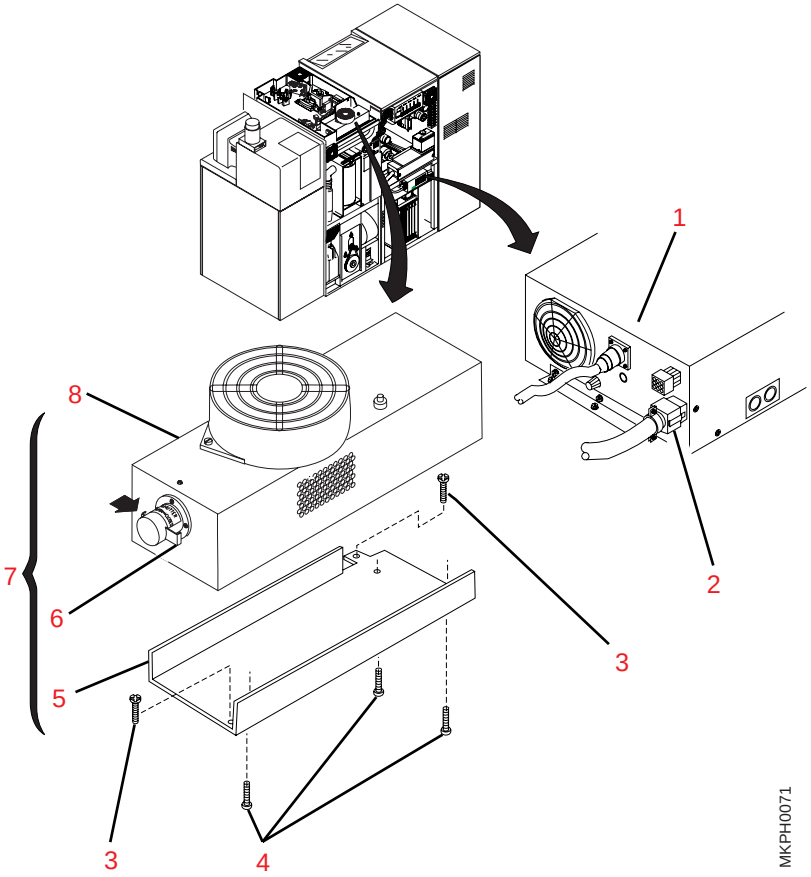
Table 818. Laser (continued)



4. Scribe the position of the aperture **(10)** so that it can be reinstalled in that exact position.
5. Remove the aperture.
6. Do not remove the L1 lens **(12)**.
7. Place the laser alignment tool **(1)** on the pedestal in front of the L1 lens **(12)** as shown.
8. Run Driver Routine 3F to move the resolution switching lens out of the beam path.
9. Run Adjustment Routine C1, and set it to switch on only the zero beam. The zero beam should be centered on the black cross hairs **(2)** located on the white surface of the laser alignment tool.
10. If the zero beam projection is centered on the black cross hairs of the alignment tool as viewed from the rear of the printer, you can use the Simplified Laser Adjustment Procedure to adjust the new laser.
11. If the zero beam projection is not centered on the black cross hairs, use the Printhead Checks and Adjustments to adjust the new laser.
12. Leave the laser alignment tool in place.

(continued on next page)

Table 818. Laser (continued)

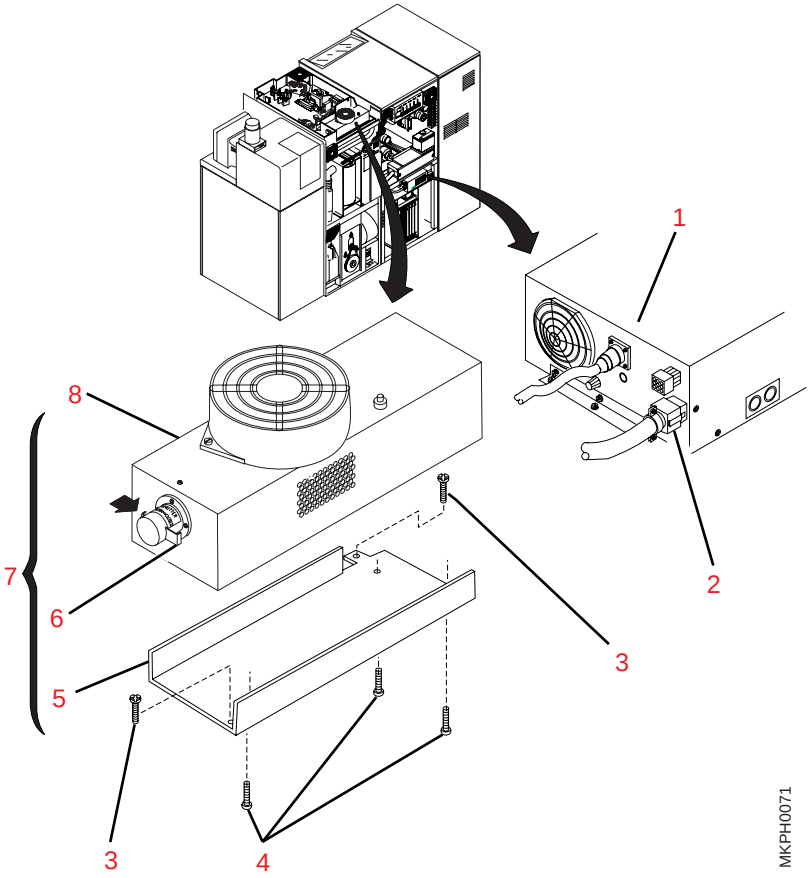


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the B1 board cover.
4. Remove the rear process cover.
5. Disconnect PJ596 **(2)** from the laser power supply **(1)**.
6. Note the path of the laser power cable through the printer
   a. Disconnect the laser power cable.
   b. Feed the laser power cable back to the laser so that it can be removed with the laser.
7. Slide the laser shutter **(6)** to the **closed** position.
8. Remove the three screws **(3)**.
9. Remove the laser assembly **(7)**.
10. Remove the three screws **(4)** and remove the laser **(8)** from the laser mounting plate **(5)**.

(continued on next page)

Table 818. Laser (continued)



Installation

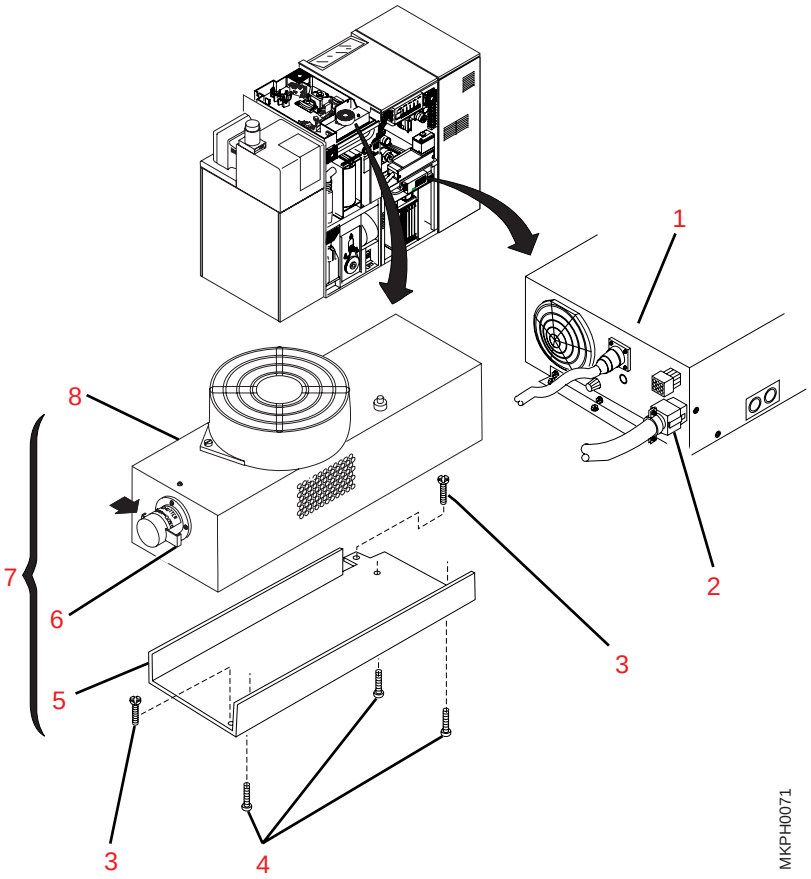
Attention: Use care if you place the laser on the printer covers. The corners of the laser can scratch the cover paint.

1. Attach the new laser to the laser mounting plate **(5)** with the three screws **(4)**.
2. Feed the laser power cable down and behind the laser support shelf.
3. Set the new laser in place and loosely install the three screws **(3)** into the laser mounting plate **(5)**.
4. Connect PJ596 **(2)** to the laser power supply **(1)**.
5. Slide the laser shutter **(6)** to the **open** position.
6. Install the printhead cover. See Printhead Access.
7. Power-on the printer.
8. Run Adjustment Routine C0. Press **Enter**; wait for 5 seconds and press **Enter** again.
9. Wait for approximately 30 seconds, and then read the laser current meter. If the reading is less than 5 Amps, the laser is not switched on. Press **Enter** again.
10. If the current meter reading is 12 Amps (indicator fully to the right), the laser is bad.

    Perform the necessary steps in the Laser Removal and Installation procedures to install a new laser.
11. If the new laser is OK, and the old laser was correctly adjusted, go to the Simplified Laser Adjustment Procedure.
12. If the old laser was not correctly aligned, go to Printhead Checks and Adjustments.

Simplified Laser Adjustment Procedure

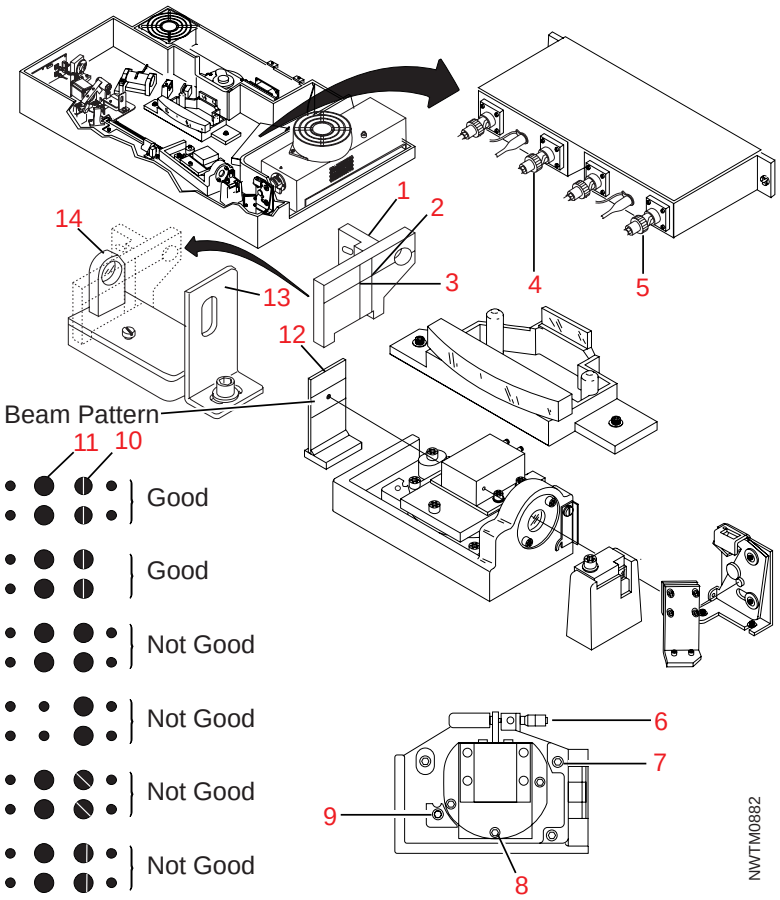
Table 819. Simplified Laser Adjustment Procedure



1. Install the screws **(3)** into the laser. Leave them loose so that the laser can be horizontally adjusted.
2. Cover the return mirror with paper.

(continued on next page)

Table 819. Simplified Laser Adjustment Procedure (continued)



3. Scribe the position of the aperture **(13)** so that it can be reinstalled in that exact position.
4. Remove the aperture. (Do not remove the L1 lens **(14)**.)
5. Run Driver Routine 3F to move the resolution switching lens out of the beam path.
6. Place the laser alignment tool **(1)** on the pedestal in front of the L1 lens **(14)**.
7. Run Adjustment Routine C1, and set it to switch on only the zero beam.

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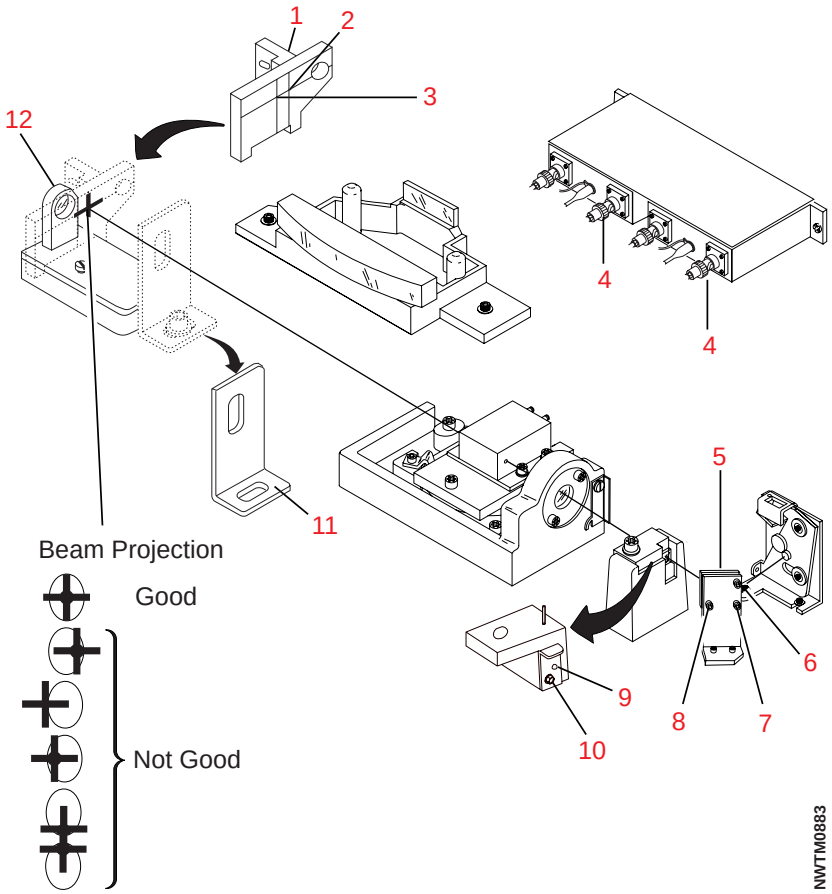
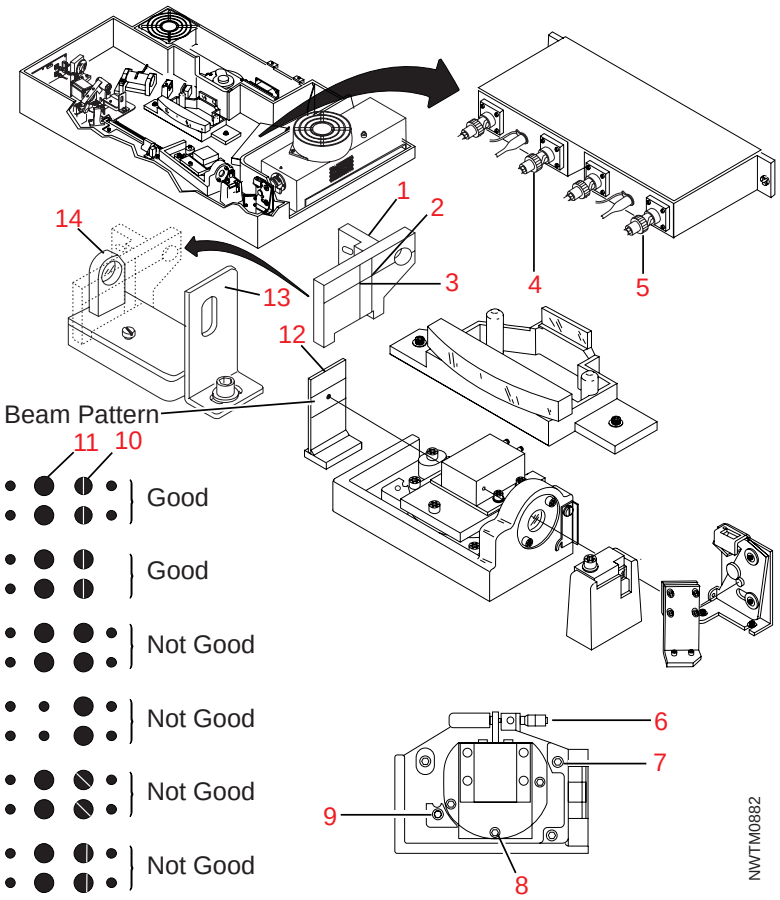
Table 819. Simplified Laser Adjustment Procedure (continued)



8. Adjust the laser so that the zero beam is centered on the cross hairs **(2)** (located on the right side of the laser alignment tool as viewed from the rear of the printer).
9. Rotate the laser so that the beam is centered on the M1 mirror and the black cross hairs of the laser alignment tool. The beam may slightly high until the laser screws are tightened.
10. If necessary, adjust screw **(6)** to adjust the M1 mirror (the vertical beam position).

(continued on next page)

Table 819. Simplified Laser Adjustment Procedure (continued)

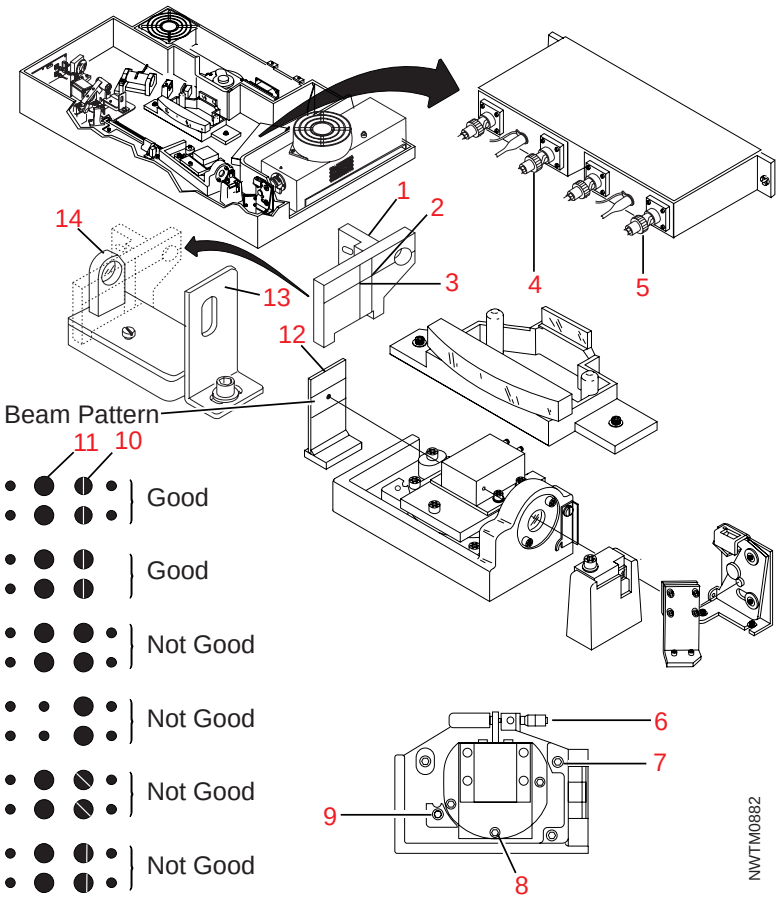


11. Attach one of the white magnetic strips to the laser power tool support **(12)**.
12. Place the laser power tool support between the L1 lens and the AO modulator.
13. Press **Enter** on the maintenance panel to switch on the primary beam **(11)**. You should see multiple beams.

    If you place the support within an inch of the AO modulator, two rows of beams are visible. As you slide the stand toward the L1 lens, the two rows of beams increase in size, and merge into one, out of focus, beam. Position the stand to the position for best viewing.
14. Gently move the laser until the zero beams **(10)** are split into equal size spots by a vertical line.
15. Remove the laser power tool support from the beam path to see if the split zero beam **(10)** is still centered on the cross hairs **(2)** on the right side of the alignment tool.
16. Three conditions must be present:
    - The zero beam must be split into two smaller, equal size, spots.
    - The zero beam must be centered on the cross hairs **(2)** on the right side of the alignment tool.
    - The primary beams must line up on the cross hairs **(3)** on the left side of the alignment tool.

(continued on next page)

Table 819. Simplified Laser Adjustment Procedure (continued)



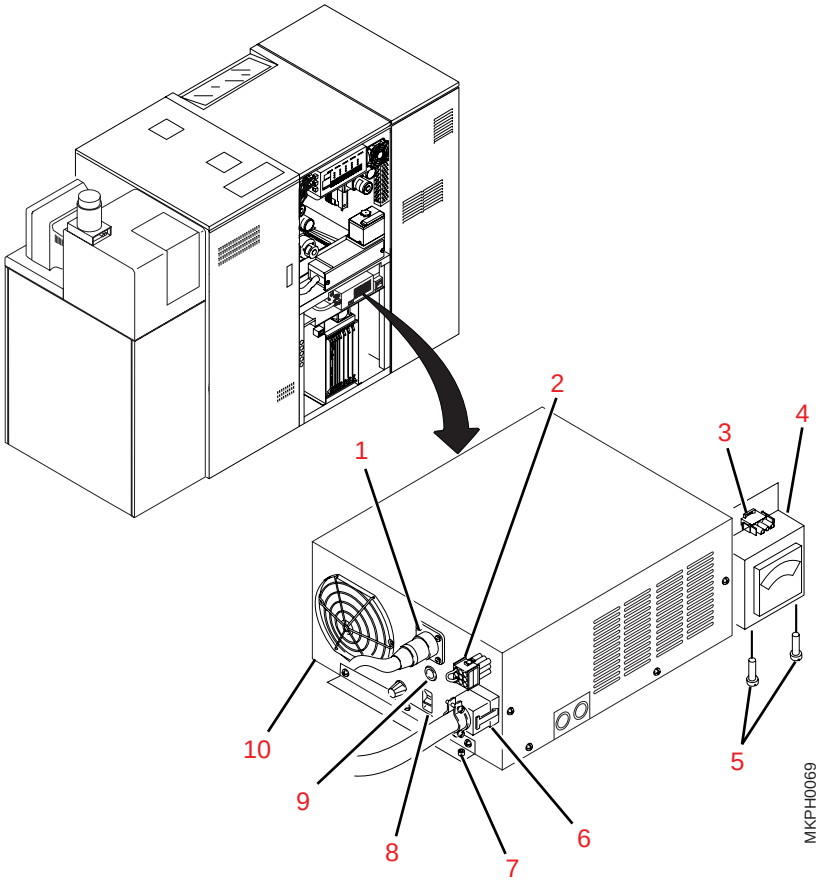
17. If it is not possible to create the correct beam pattern with the zero beam on the cross hairs **(2)** (located on the right side of the laser alignment tool), as would happen when you replace an old laser with a new one, perform all of the procedures under Printhead Checks and Adjustments.
18. Gently tighten the laser screws in an alternating fashion. Try to maintain the beam pattern. If the beam changes as the screws are tightened, adjust mirror 1 for the correct the beam pattern. See M1 Mirror Adjustment.
19. Perform a final tightening of the screws.
20. If the beam pattern is correct, perform the following:
    a. Remove the laser alignment tool support **(12)**.
    b. Perform Aperture Adjustment of Printhead Checks and Adjustments
    c. Check the Registration
    d. Check the PQE Stroke Width
21. If the old laser was not correctly adjusted or if you are having trouble with this procedure, perform all of the procedures under Printhead Checks and Adjustments.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Laser Power Supply and Laser Current Meter (L102)

Table 820. Laser Power Supply and Laser Current Meter (L102)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the B1 board cover.
4. Disconnect PJ595 **(1)**, PJ596 **(6)**, and PJ597, which is located below and to the left of the usage meter.
5. Remove two screws **(5)**.
6. Disconnect PJ599 **(3)** and remove the laser current meter (L102) **(4)**.
7. Remove the two screws **(7)** to remove the laser power supply **(10)**. One screw is on the left side of the power supply, the other on the right side.

Installation

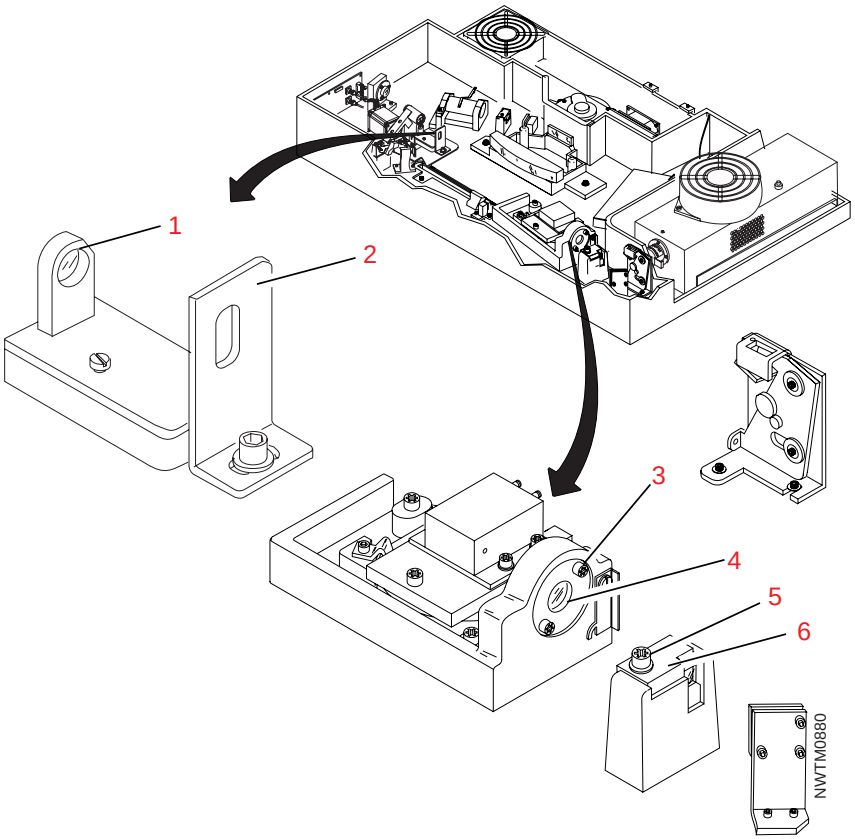
1. Ensure that the key **(9)** and the power switch **(8)** are in the **On** position, and the jumper plug PJ598 **(2)** is in place.
2. Reverse the removal procedure.

Check

1. Run Adjustment Routine C0 to ensure that the laser current meter is correctly operating when the laser is powered on.
2. Run Print Pack to verify print quality and that no system reference code is displayed.

L1 Lens

Table 821. L1 Lens



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

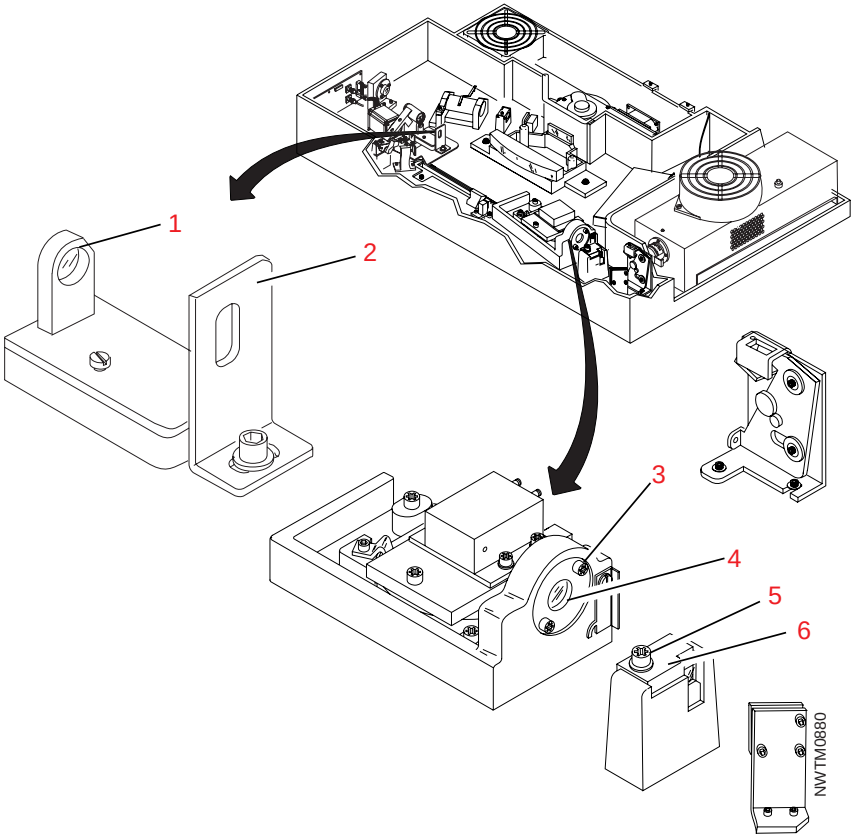
Removal

Attention: Call your next level of support before performing this procedure. Exact positioning of the L1 lens requires a beam scanner.

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Scribe the position of the L1 lens pedestal at the reference surface so that it can be reinstalled in that exact position.
5. Remove screw from the L1 lens base.

(continued on next page)

Table 821. L1 Lens (continued)



Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

6. Remove the L1 lens **(1)**.

Installation

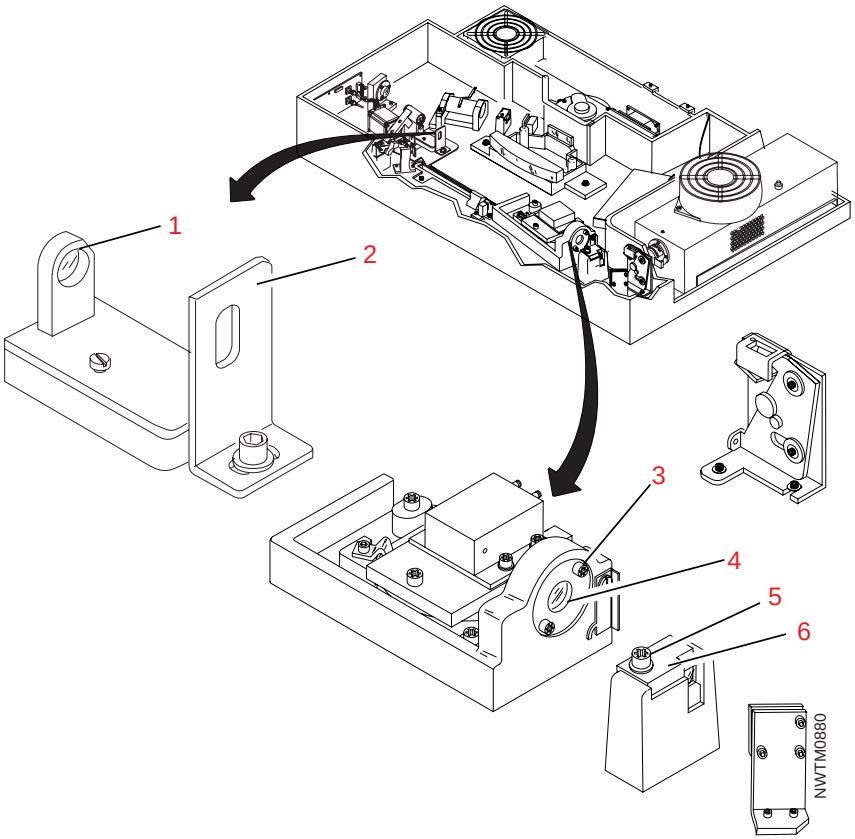
1. Reverse the removal procedure.
2. Ensure that the L1 lens is positioned exactly as before.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

L2 Lens

Table 822. L2 Lens



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

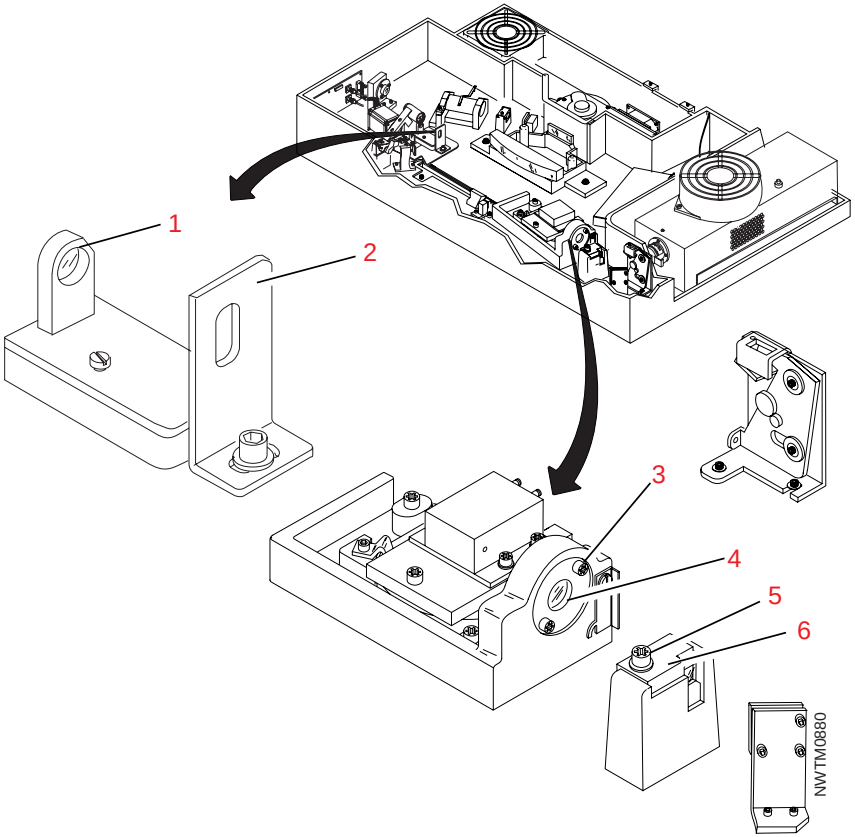
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Remove the two screws **(3)**.

Attention: Do not touch the glass lens surface with your fingers. Oils from your fingers will contaminate the lens, causing a reduction in beam power.

5. Remove the L2 lens **(4)**.

(continued on next page)

Table 822. L2 Lens (continued)



Installation

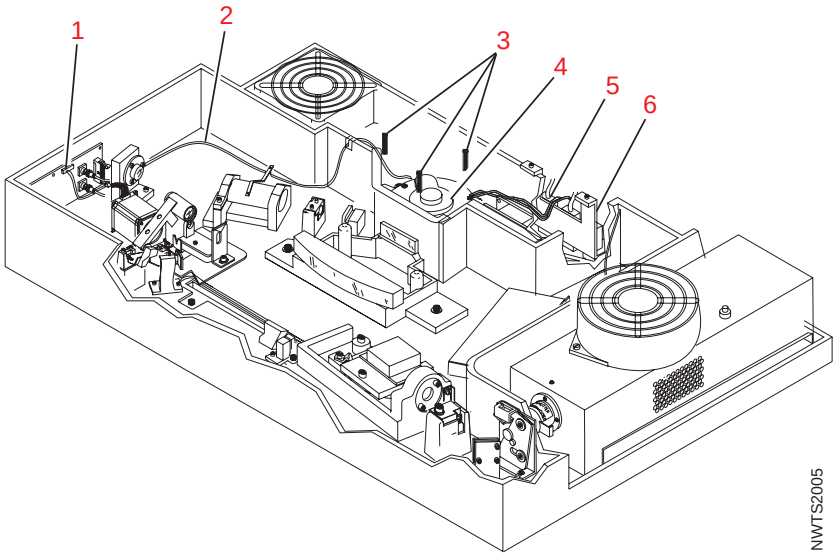
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Mirror Motor (M201)

Table 823. Mirror Motor (M201)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. PerformPerform the Printhead Access procedure.
4. Disconnect PJ208 **(1)** and PJ219 **(5)**.

Attention: Do not loosen or remove the three hex bolts on the mirror motor assembly.

5. Remove the three Phillips screws **(3)** from the mirror motor.
6. Remove the mirror motor **(4)**.

Installation

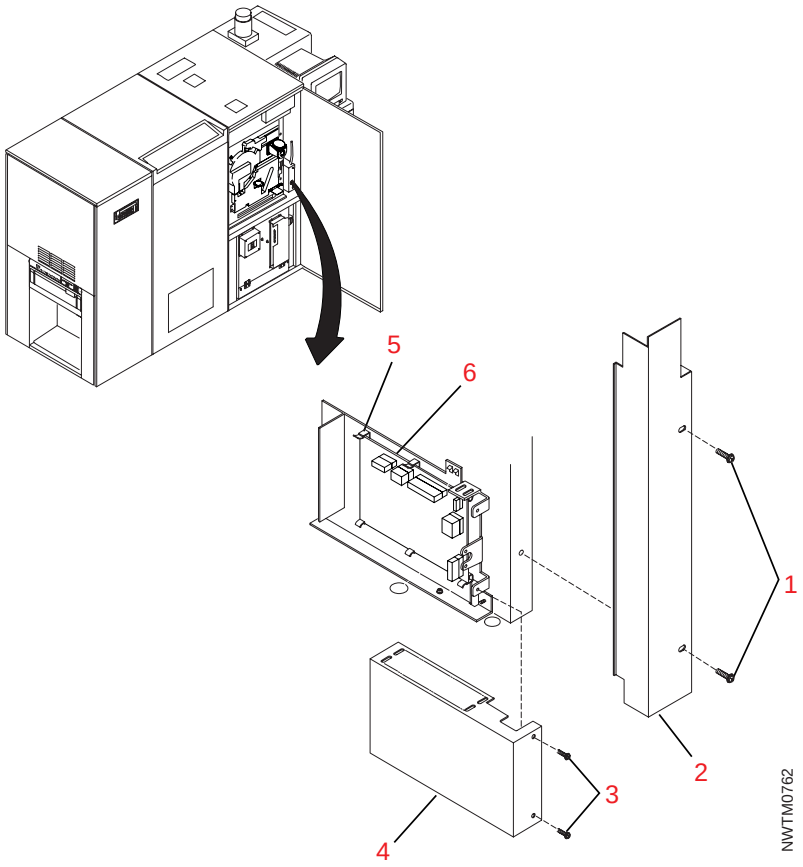
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Mirror Motor Driver Board (MD192)

Table 824. Mirror Motor Driver Board (MD192)



Attention: Use ESD procedures when working with the mirror motor driver board (MD192).

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer fight front cover.
4. Remove the two screws **(1)** and remove the cover **(2)**.
5. Remove the two screws **(3)** and remove the inner mirror motor driver board cover **(4)**.
6. Disconnect P224, P225, P226, P261, P262, P263, and P264.
7. Release the board holders **(5)** and remove the mirror motor driver board (MD192) **(6)**.

Installation

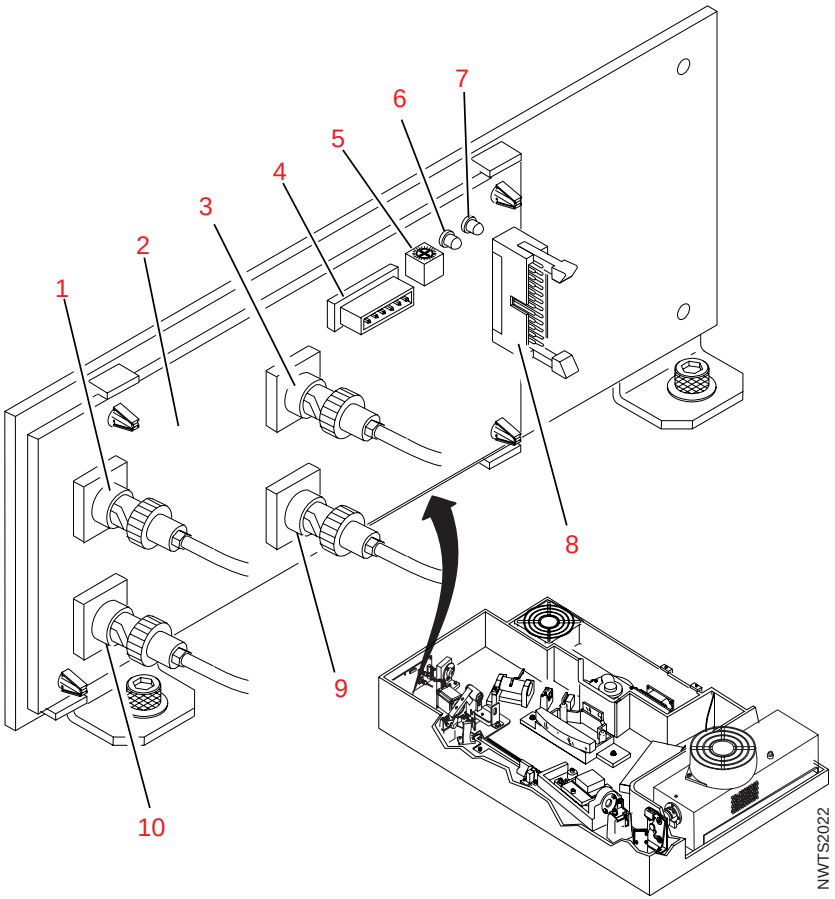
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Interface Card (VI141)

Table 825. Printhead Interface Card (VI141)



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Disconnect PJ208 **(4)**, PJ237 **(1)**, PJ207 **(10)**, PJ236 **(3)**, PJ206 **(9)**, and PJ210 **(8)**.
5. Release the card clips and remove the card **(2)**.

Installation

Reverse the removal procedure.

Adjustment

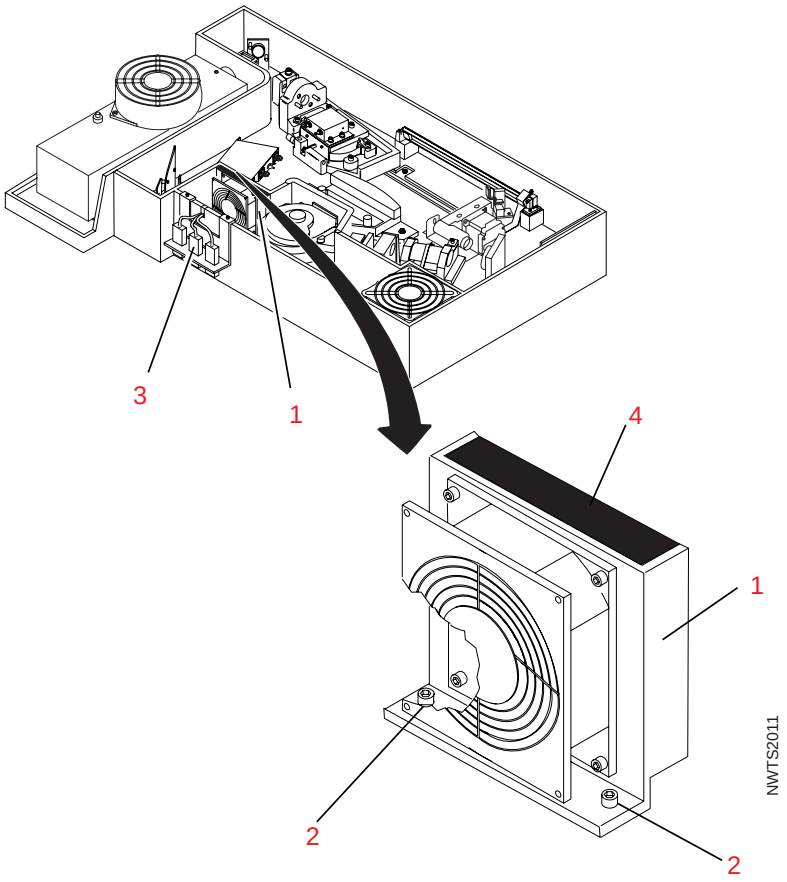
1. Cover the return mirror with paper.
2. Run Adjustment Routine C1.
3. Adjust potentiometer **(5)** **CCW** until LED **(6)** switches off. Note the position of the potentiometer.
4. Adjust potentiometer **(5)** **CW** until LED **(7)** switches off. Note the position of the potentiometer.
5. Adjust potentiometer **(5)** to a point that is centered between that of step 3 and step 4.
6. Stop the diagnostic and remove the paper from the return mirror.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Pressurizing Fan (B202) and Filter

Table 826. Printhead Pressurizing Fan (B202) and Filter



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Disconnect PJ223 **(3)**.
5. Remove the two screws **(2)** and remove the printhead pressurizing fan (B202) assembly **(1)** and the filter **(4)**.

Installation

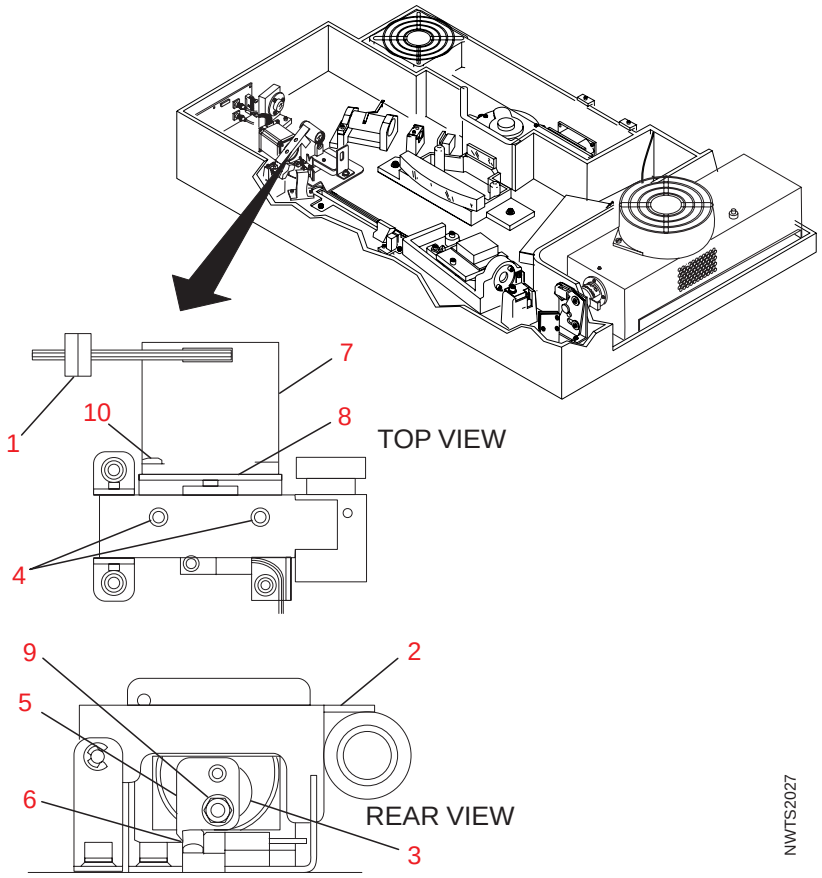
Reverse the removal procedure.

Verify

Run Print Pack to verify print quality and that no system reference code is displayed.

Resolution Lens Motor (M202)

Table 827. Resolution Lens Motor (M202)



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

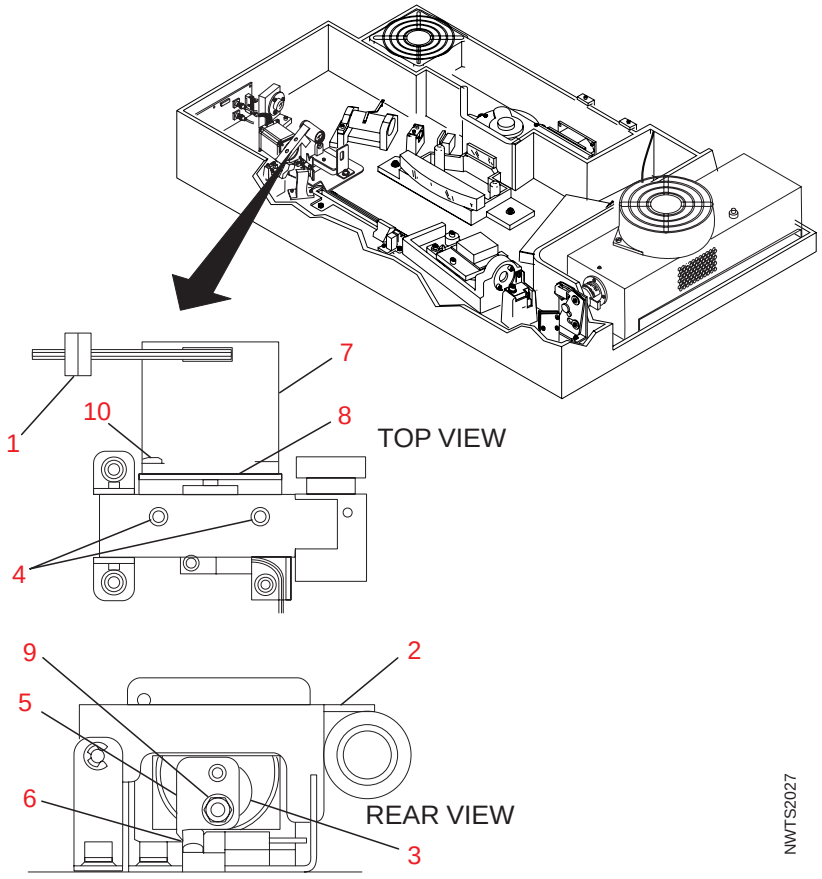
Do not push the laser filter slide while the printer is powered-on.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Disconnect PJ259 **(1)**.
5. Rotate cam **(3)** so that the lens assembly **(2)** is down.
6. Loosen the two hex socket head bolts **(4)** through the holes in the switching arm.
7. Rotate cam **(3)** so that the sensor plate clears the resolution sensor assembly **(6)**.
8. Pull the motor assembly **(7)** out, and away from the resolution sensor.

(continued on next page)

Table 827. Resolution Lens Motor (M202) (continued)



9. Remove the hex socket head bolt **(9)** and then remove the sensor plate **(5)** from the motor assembly.
10. Remove the two hex socket head bolts **(10)** and remove the motor from the motor mounting plate **(8)**.

Installation

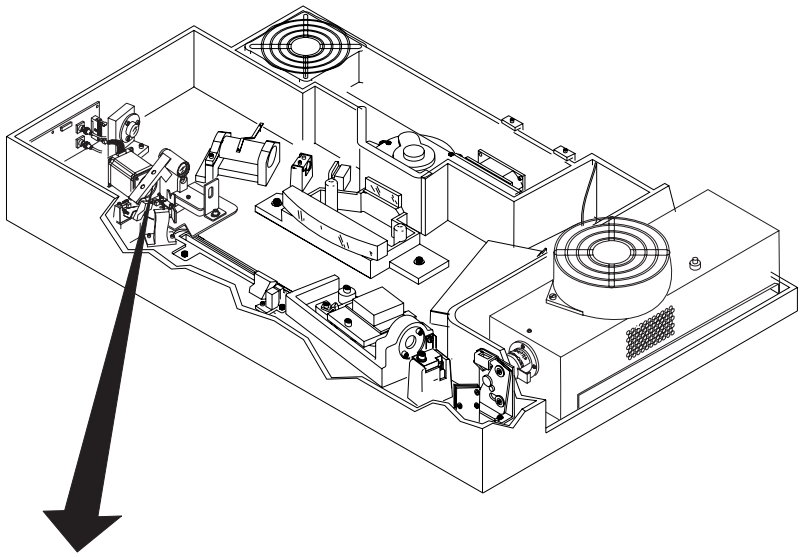
Reverse the removal procedure.

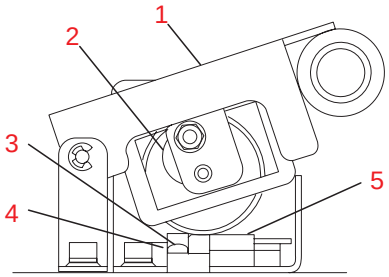
Check

1. Run Driver Routine 3F to ensure that the motor is correctly running.
2. Run Print Pack to verify print quality and that no system reference code is displayed.

Resolution Lens Sensor (S202)

Table 828. Resolution Lens Sensor (S202)





NWTS2028

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Removal

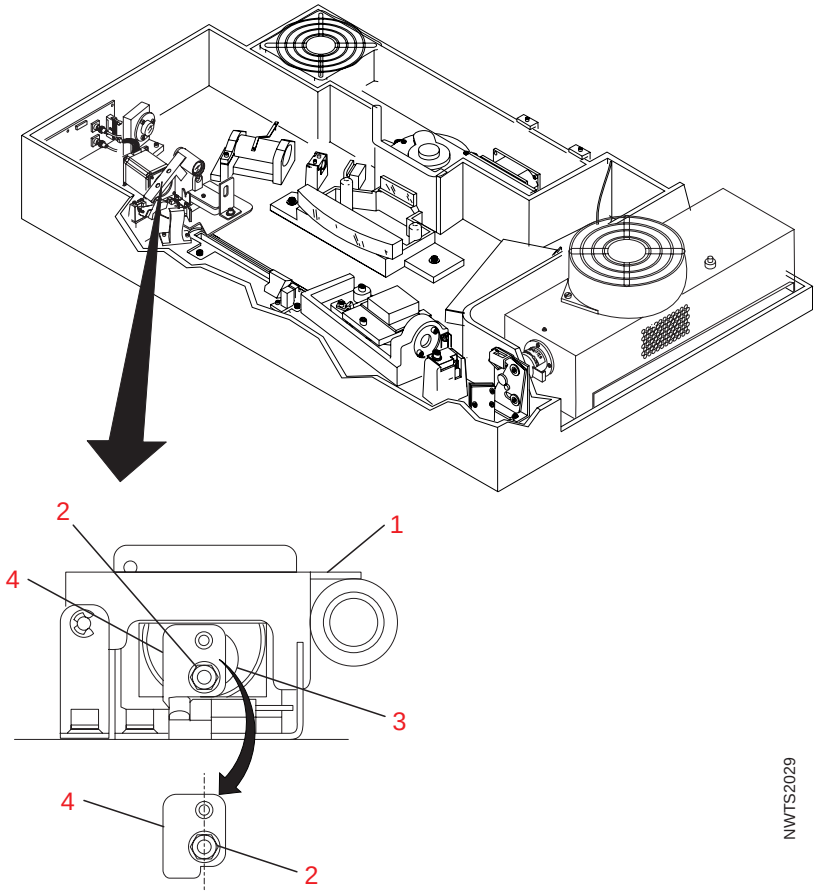
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Rotate cam **(2)** so that the lens assembly **(1)** is up.
5. Remove the Phillips screw **(3)**.
6. Remove the sensor **(4)** and disconnect PJ258.

Installation

Reverse the removal procedure.

(continued on next page)

Table 828. Resolution Lens Sensor (S202) (continued)



Adjustment

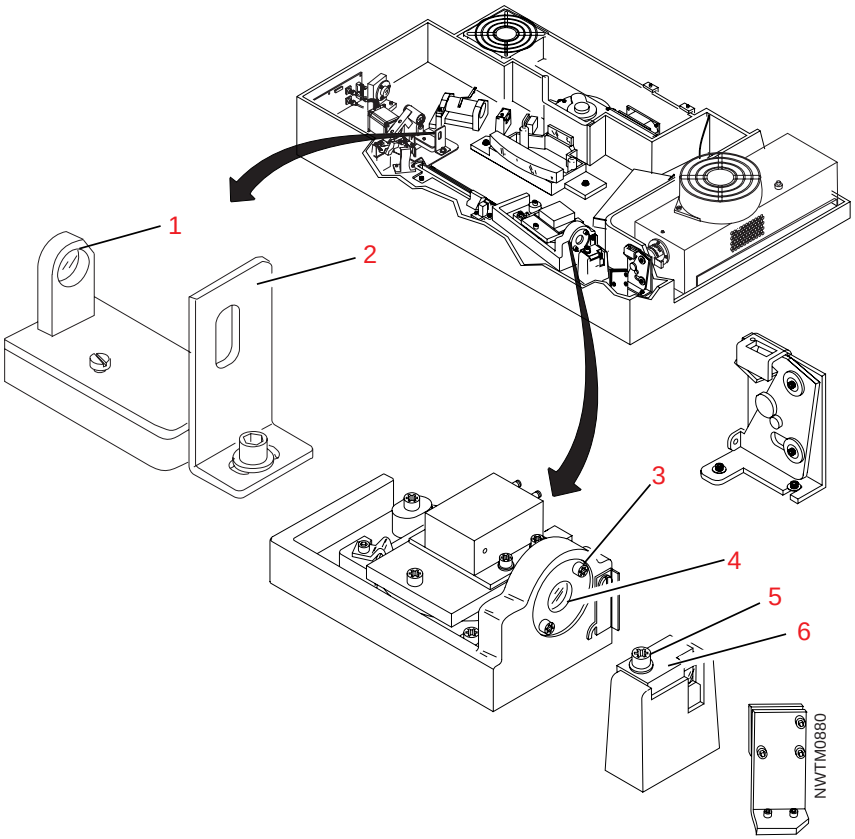
1. Run Driver Routine 3F to set the resolution lens to the low position.
2. Check the alignment of the hex socket head bolt **(2)** with the shaft through the cam **(3)**. They should align vertically as shown.
3. If they are not correctly aligned, perform the following adjustment:
   a. Loosen the hex socket head bolt **(2)**.
   b. Turn the sensor plate **(4)** until the bolt is aligned vertically with the shaft through the cam.
   c. Tighten the hex socket head bolt **(2)**.
   d. Run Driver Routine 3F to set the resolution lens to the low position.
   e. Verify the alignment of the sensor plate.

Check

1. Run Driver Routine 3F to ensure that the motor is correctly running.
2. Run Print Pack to verify print quality and that no system reference code is displayed.

Wollaston Prism

Table 829. Wollaston Prism



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Attention:

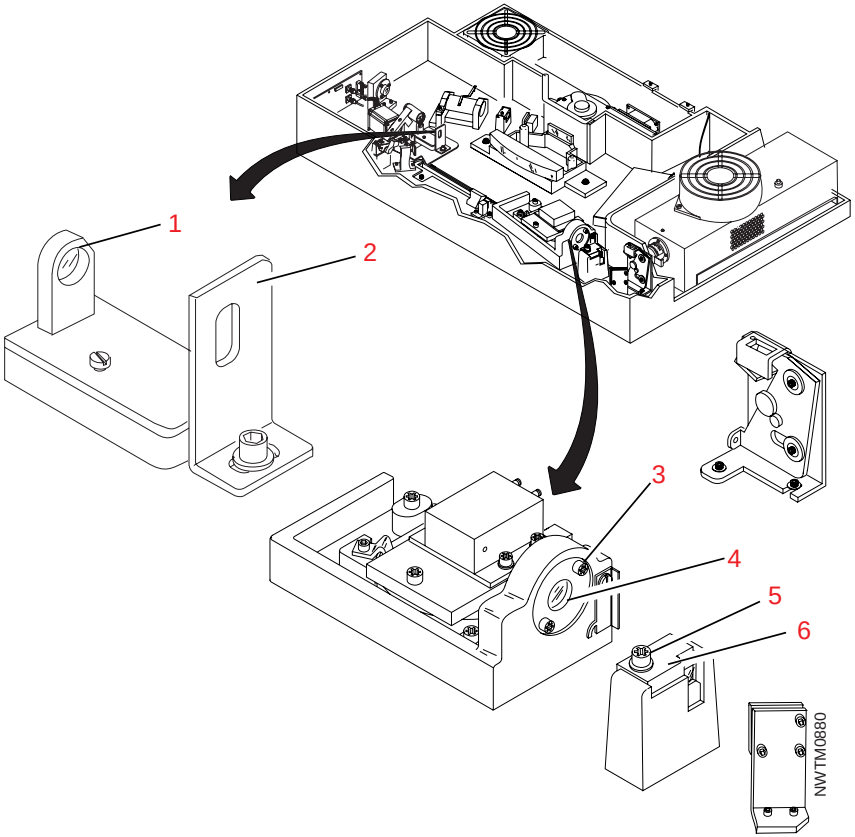
Do not touch the Wollaston prism glass surface with your fingers. Oils from your fingers will contaminate the prism, causing a reduction in beam power.

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Perform the Printhead Access procedure.
4. Scribe the position of the Wollaston prism so that it can be reinstalled in that exact position.
5. Remove screw **(5)**.
6. Remove Wollaston prism **(6)**.

(continued on next page)

Table 829. Wollaston Prism (continued)



Installation

1. Reverse the removal procedure.
2. Ensure that the Wollaston prism is positioned exactly as before.

Check

1. Run Print Pack to verify print quality and that no system reference code is displayed.

Printhead Checks & Adjustments

This section provides procedures for adjusting the printhead using the laser alignment target and laser power tool.

When You Should Use These Procedures

- You have just replaced a laser and are not able to complete the Simplified Laser Adjustment Procedure.
- You are having trouble with the printable area or beam alignment or low printing power
- You are having beam detect errors
- You are concerned about the beam positions at every point in the printhead.

Sequence

The printhead adjustments are all related and you must perform them in the correct sequence. Before you make any adjustments, you must make the checks in the following sequence to locate the source of the problem.

1. Printhead Checks and Adjustments
   a. Zero Beam Alignment
   b. Beam Pattern
   c. Aperture
   d. M2 Mirror
   e. Beam Power
   f. Beam Detect Mirror
2. Print Sample Adjustments
   a. Print Width
   b. Print Skew
   c. Registration
   d. AOM Skew
   e. PQE Stroke Width
   f. Scan Line Spacing

Table 830. Preparation for Printhead Checks and Adjustments

Preparation

To prepare for the printhead checks and adjustments follow the steps below.

- **Step 1** Disable all host attachments. (See the *Operator's Guide.*)
- **Step 2** Shutdown and power off the printer.
- **Step 3** Follow the Printhead Access procedure.
- **Step 4** Set the diagnostic function switch to **3**. (See Exerciser Routines (Position 3).)
- **Step 6** Cover the return mirror with paper.
- **Step 7** Power on the printer. (See Power-On Procedures.)

DANGER

<2> Laser radiation is present when the printer is powered-on.

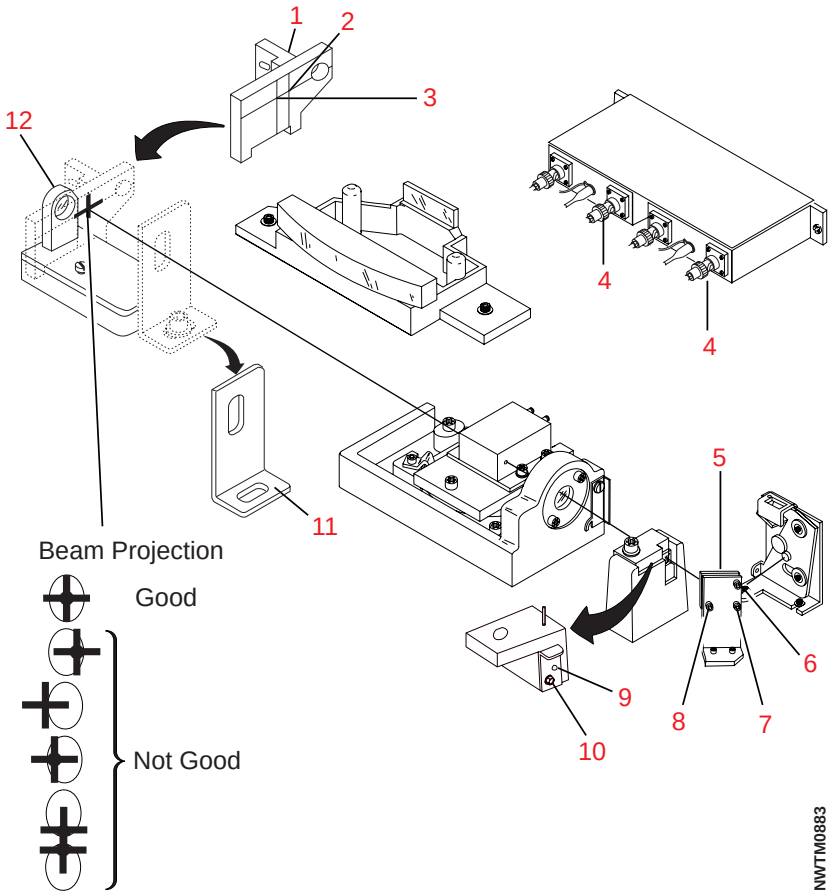
Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

Zero Beam Alignment Check

Table 831. Zero Beam Alignment



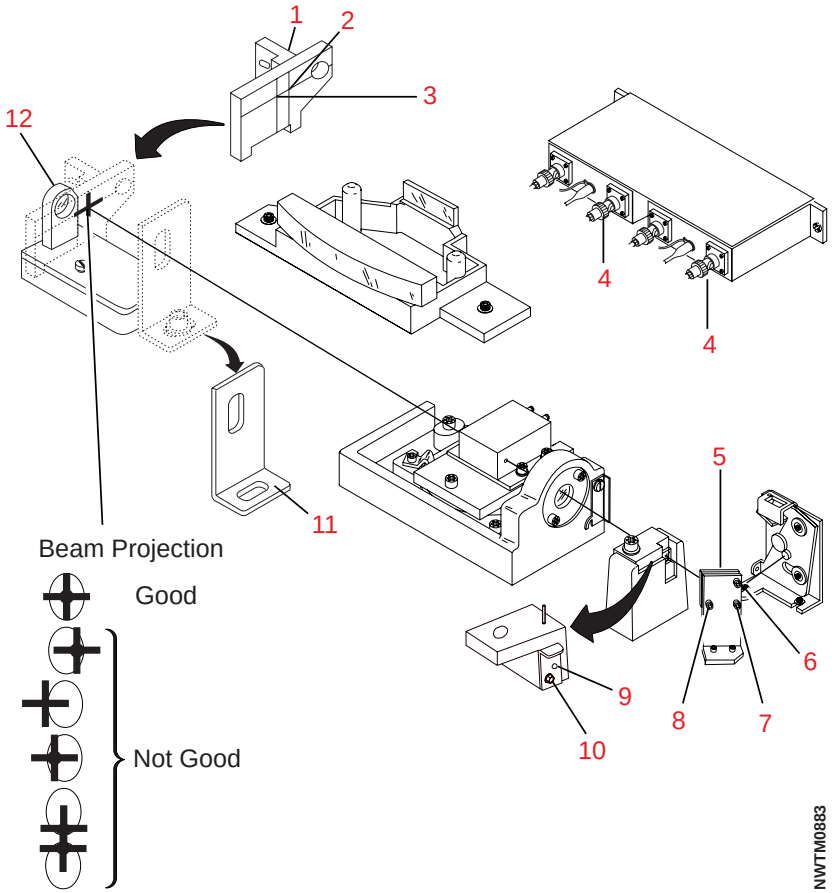
1. Perform all steps under preparation.
2. For ease of adjustment, attach the maintenance panel extension cable to the maintenance panel and place the maintenance panel on top of the printer.

Attention: In the next step, do not adjust the position of the Wollaston prism. Adjust only the position of the aperture that is attached to the Wollaston prism.

3. Loosen the hex socket head bolt **(10)** and adjust the position of the aperture **(9)** that is attached to the Wollaston prism so that the beam passes through the center hole in the aperture.
4. Run Adjustment Routine C1 to project only the two zero beams.

(continued on next page)

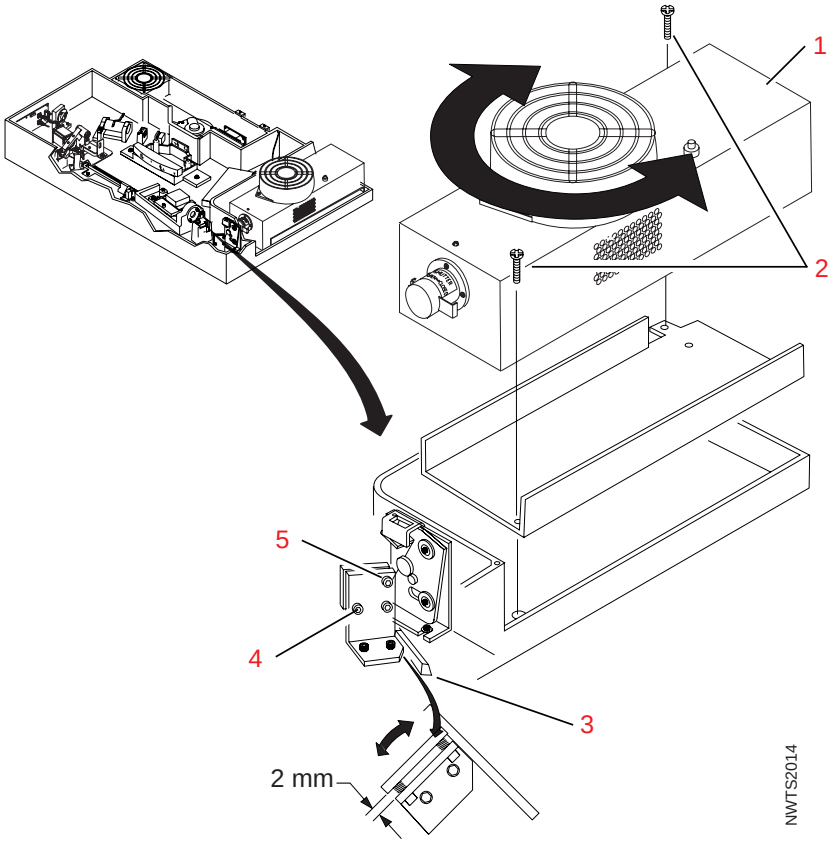
Table 831. Zero Beam Alignment (continued)



5. Scribe the position of the aperture **(11)** so that it can be reinstalled in that exact position.
6. Remove the aperture.
7. Ensure that the resolution switching lens is in the up position. (Run Driver Routine 3F to change the lens position.)
8. Place the laser alignment tool **(1)** in front of the L1 lens **(12)** as shown.
9. Compare the beam projection. The laser beam should be centered on the cross hairs **(2)** (on the right side of the alignment tool) as viewed from the rear of the printer.
   - If the beam projection is good, go to Beam Pattern Check of Printhead Checks and Adjustments.
   - If the beam projection is slightly off center, go to M1 Mirror Adjustment.
   - If the beam projection is not centered on M1 mirror or the black cross hairs of the laser alignment tool, go to Laser Horizontal Adjustment.

Laser Horizontal Adjustment:

Table 832. Laser Horizontal Adjustment

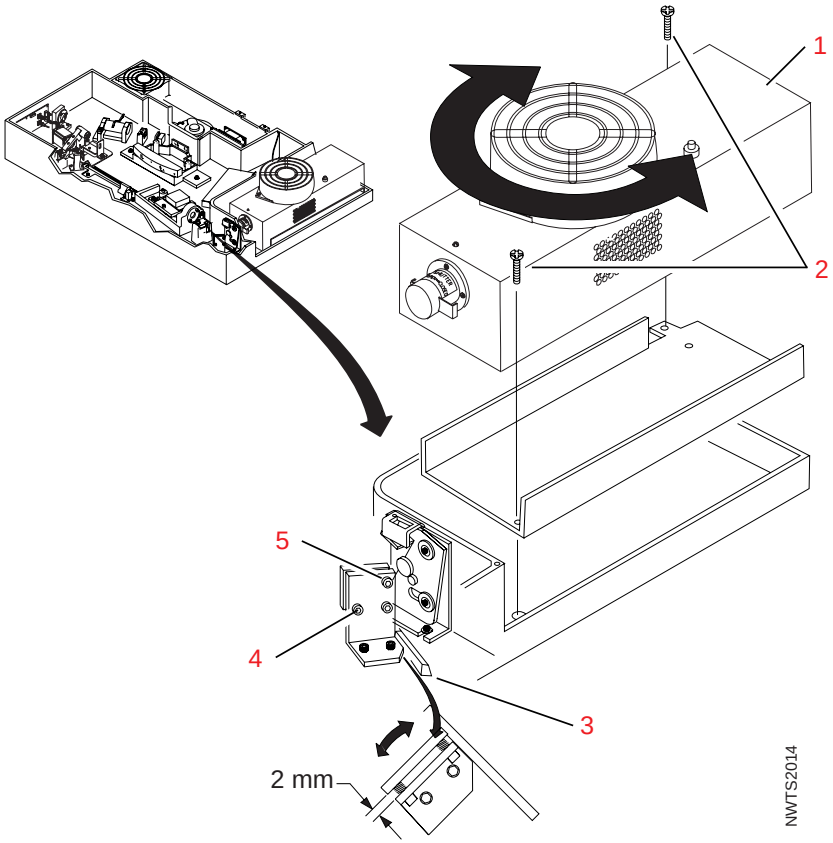


The zero beam alignment is not correct because M1 mirror is not correctly positioned.

1. If the beam projection is close, go to M1 Mirror Adjustment to adjust both horizontal and vertical adjustment of the laser beam.
2. If the aperture is still installed, scribe the position of the aperture so that it can be reinstalled in that exact position. Remove the aperture
3. Ensure that M1 is 2 mm from the base plate. Measure with a 2 mm Allen wrench. If the distance is not close to 2 mm, go to M1 Mirror Adjustment and adjust the distance.
4. Loosen the two screws **(2)**.

(continued on next page)

Table 832. Laser Horizontal Adjustment (continued)



Attention: Whenever you move the laser, ensure that the laser exit opening is firmly seated against the foam seal on the safety shutter housing.

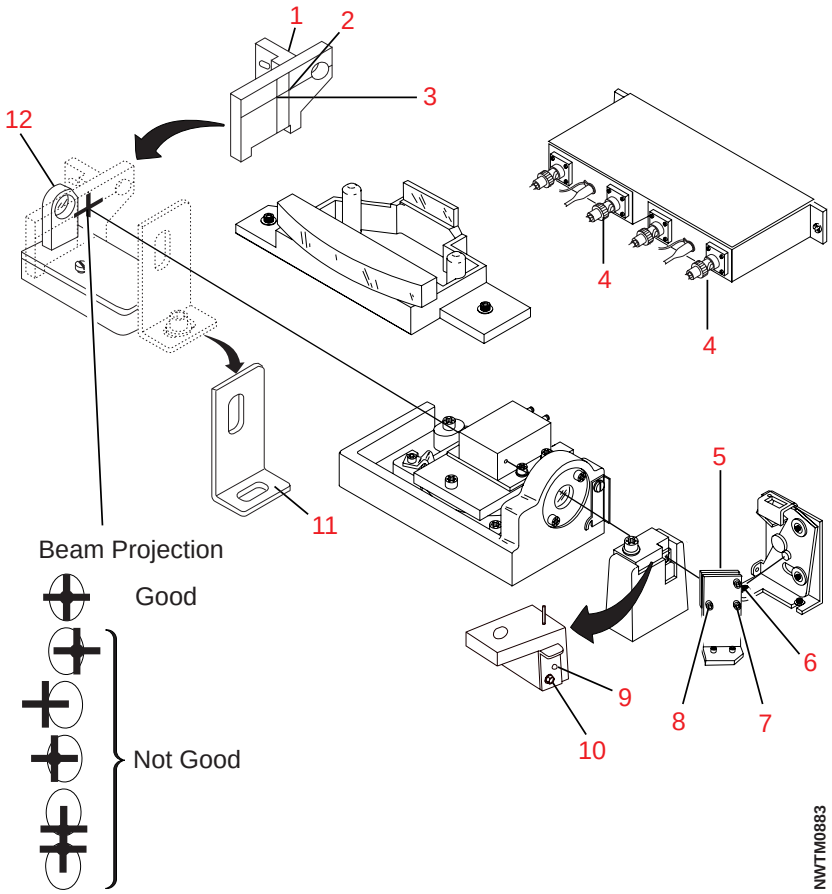
5. Rotate the laser **(1)** as necessary to center the beam on the cross hairs on the right side of the alignment tool. See step 9 under Zero Beam Alignment Check.

   There is no vertical adjustment on the laser. Adjust M1 for vertical beam adjustment.

6. Tighten the screws **(2)** to lock the laser into position. If the beam position changes when the screws are tightened, go to M1 Mirror Adjustment and adjust M1 to adjust the zero beam position.

(continued on next page)

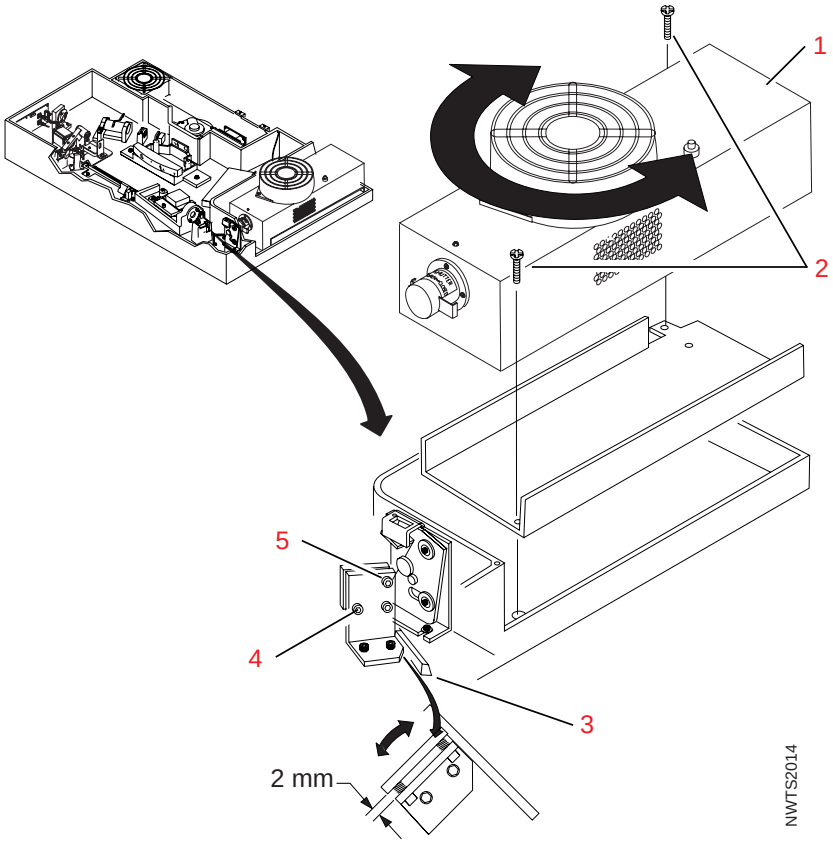
Table 832. Laser Horizontal Adjustment (continued)



7. Compare the beam projection. The laser beam should be centered on the cross hairs **(2)** (on the right side of the alignment tool) as viewed from the rear of the printer.
   - If the beam projection is good, go to Beam Pattern Check in Printhead Checks and Adjustments.
   - If the beam projection is off center, go to M1 Mirror Adjustment.

M1 Mirror Adjustment:

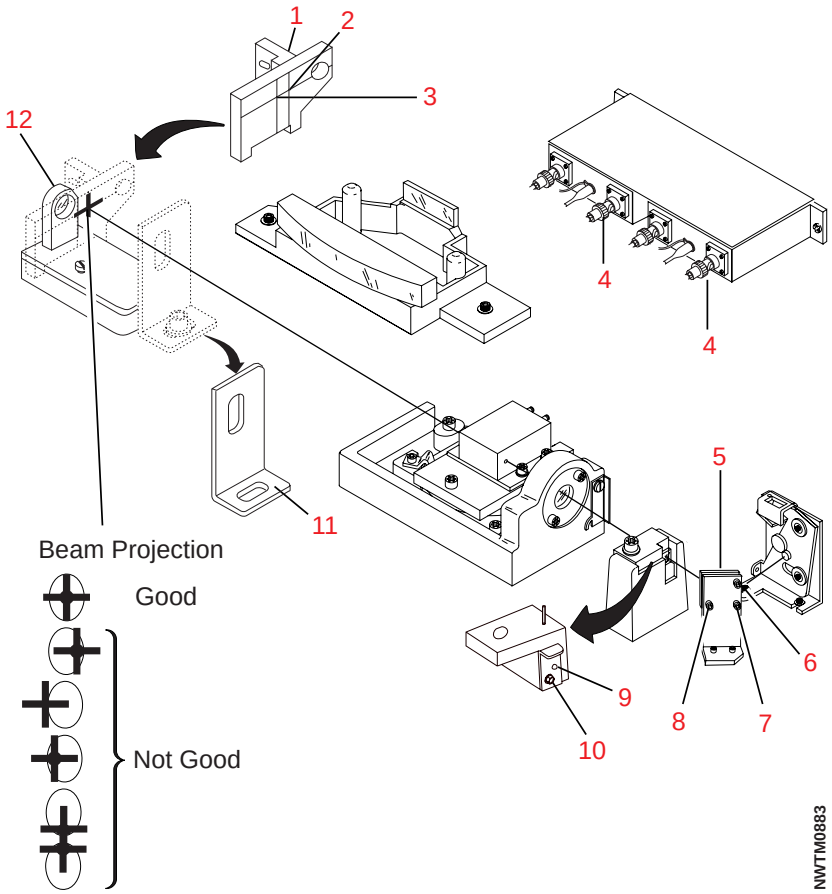
Table 833. M1 Mirror Adjustment



1. Adjust M1 as follows:
   - To move the beam **vertically**, slowly turn screw **(5)**
   - To move the beam **horizontally**, slowly turn screw **(4)**

(continued on next page)

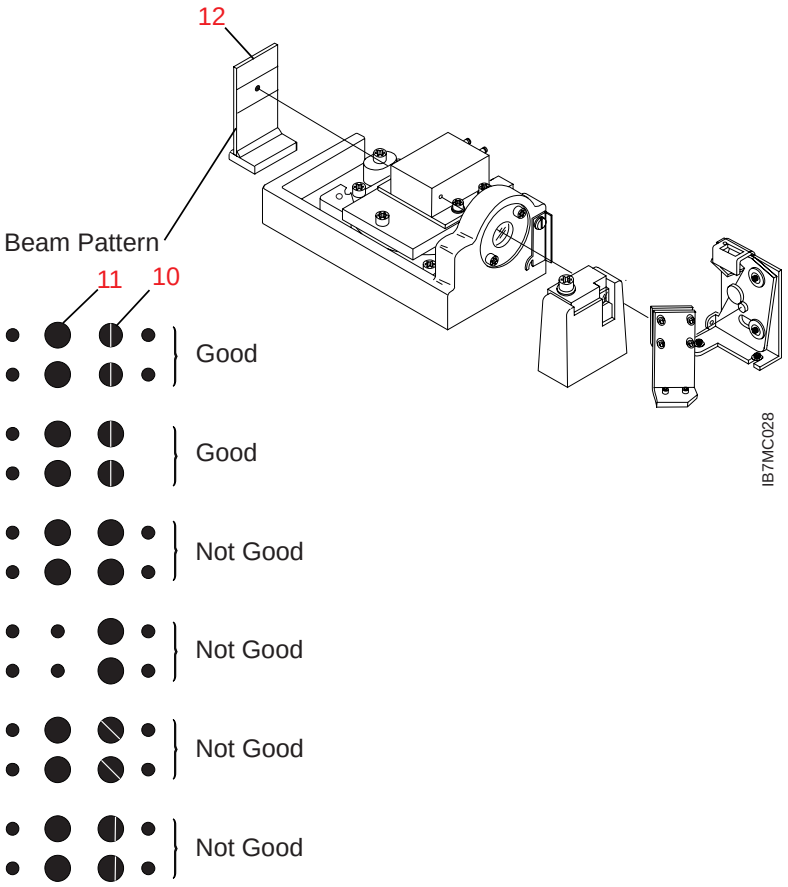
Table 833. M1 Mirror Adjustment (continued)



2. Compare the beam projection. The laser beam should be centered on the cross hairs **(2)** (on the right side of the alignment tool) as viewed from the rear of the printer.
   - If the beam projection is good, go to Beam Pattern Check inPrinthead Checks and Adjustments.
   - If the beam projection is slightly off center, repeat M1 Mirror Adjustment.

Beam Pattern Check

Table 834. Beam Pattern Check



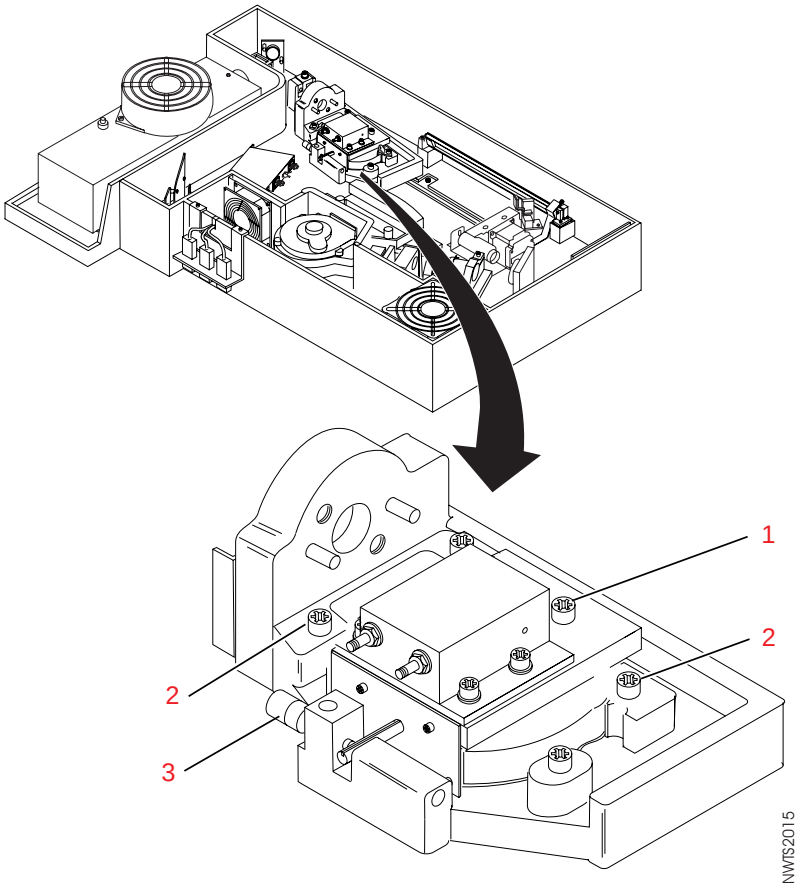
1. Perform all steps under preparation, if not already done.
2. For ease of adjustment, attach the maintenance panel extension cable to the maintenance panel and place the maintenance panel on top of the printer.
3. Place the white magnetic strip on the laser power tool stand **(12)**, and then place the stand between L1 lens and the AO modulator, within an inch of the AO modulator.

   You should see two rows of beams.

   As you slide the stand toward the L1 lens, the two rows of beams increase in size, and merge into one, out of focus, beam. Position the stand to the position for best viewing.
4. Adjustment routine C1 should still be running. If only the zero beams are showing, press **Enter** on the maintenance panel to produce the primary beam as well.
5. Compare the beam pattern. The zero beam **(10)** should be split.
   - If the beam pattern is good, go to Aperture Adjustment in Printhead Checks and Adjustments.
   - If the beam pattern is not good, go to Beam Pattern Adjustment.

Beam Pattern Adjustment:

Table 835. Beam Pattern Adjustment

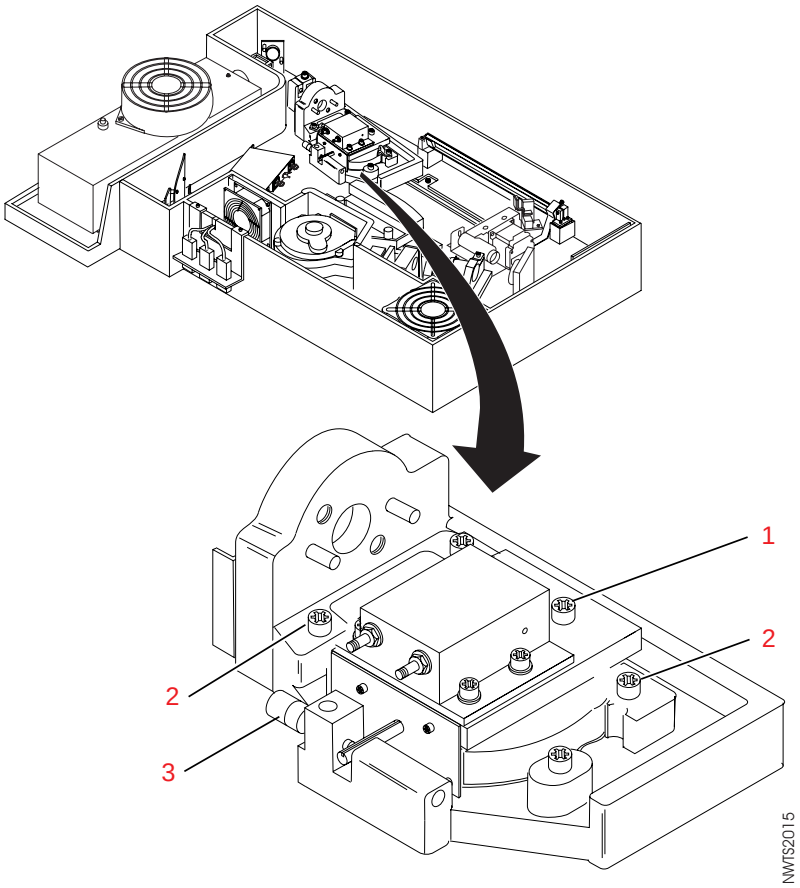


1. Turn the vertical adjustment screw **(1)** until the beams are as close as possible to the “Good” pattern shown in the figure on page 2908.

   If it is not possible to make the beam pattern correct now, adjust for the brightest possible primary beam **(11)** .
2. Loosen, but do not remove the two screws **(2)**.
3. Turn the horizontal adjustment micrometer **(3)** until the beams are as close as possible to the “Good” pattern shown in the figure on page 2908.
4. Adjust for the zero beam **(10)** to split into two spots of equal size. The separation between the spots should be a vertical line. The beam to the right of the zero beam **(10)** may or may not be visible. See the figure on page 2908.
5. Repeat steps 1 and 3, if necessary.

(continued on next page)

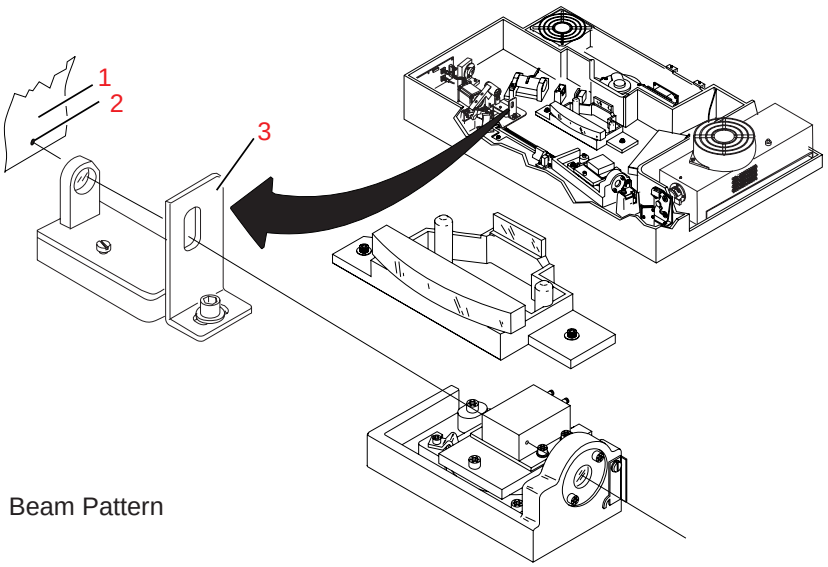
Table 835. Beam Pattern Adjustment (continued)



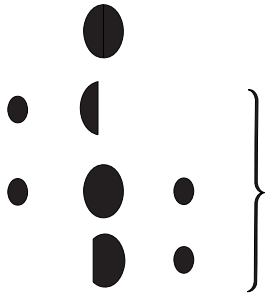
6. When the beam pattern is good, gently tighten the screws **(2)**.
7. Ensure that the beam pattern did not change as the screws were tightened.
8. Press **Enter** on the maintenance panel, so that only the zero beam is present.
9. Remove the laser power tool stand and verify that the zero beam is still correctly aligned.
10. If the zero beam alignment has moved, repeat the following procedures in Printhead Checks and Adjustments until the beam pattern adjustment does not move the zero beam alignment:
    a. Zero Beam Alignment Check
    b. Beam Pattern Check
11. When the beam pattern is correct, go to Aperture Adjustment in Printhead Checks and Adjustments.

Aperture Adjustment

Table 836. Aperture Adjustment



Beam Pattern



Good

Not Good

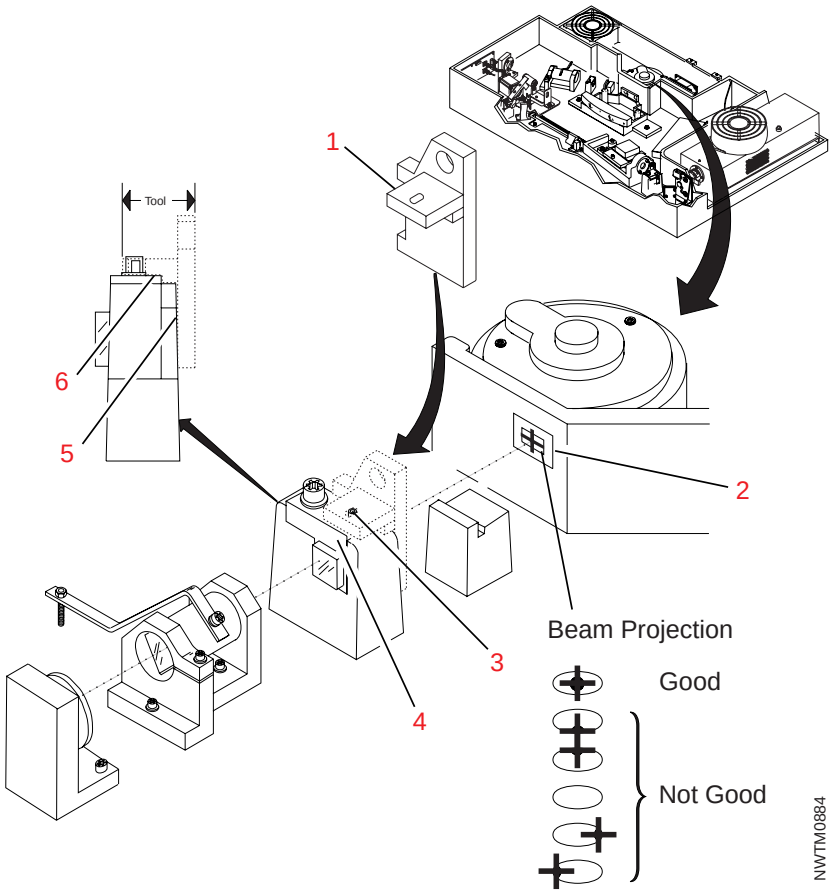
NWTM0881

1. Perform all steps under preparation, if not already done.
2. Adjustment routine C1 should still be running with the primary beams visible.
3. Remove the laser alignment tool.
4. Reinstall the aperture **(3)** in the exact position from which you removed it.
5. Place a piece of white paper **(1)** behind the aperture so that the beam pattern projects on to the paper **(2)**.
6. Adjust the aperture so that the beam pattern looks like the “Good” example shown here.

   The “Good” beam pattern is when the primary beam is centered on the aperture and all other beams are blocked by the aperture.
7. Remove the paper.
8. Go to M2 Mirror Adjustment in Printhead Checks and Adjustments.

M2 Mirror Adjustment

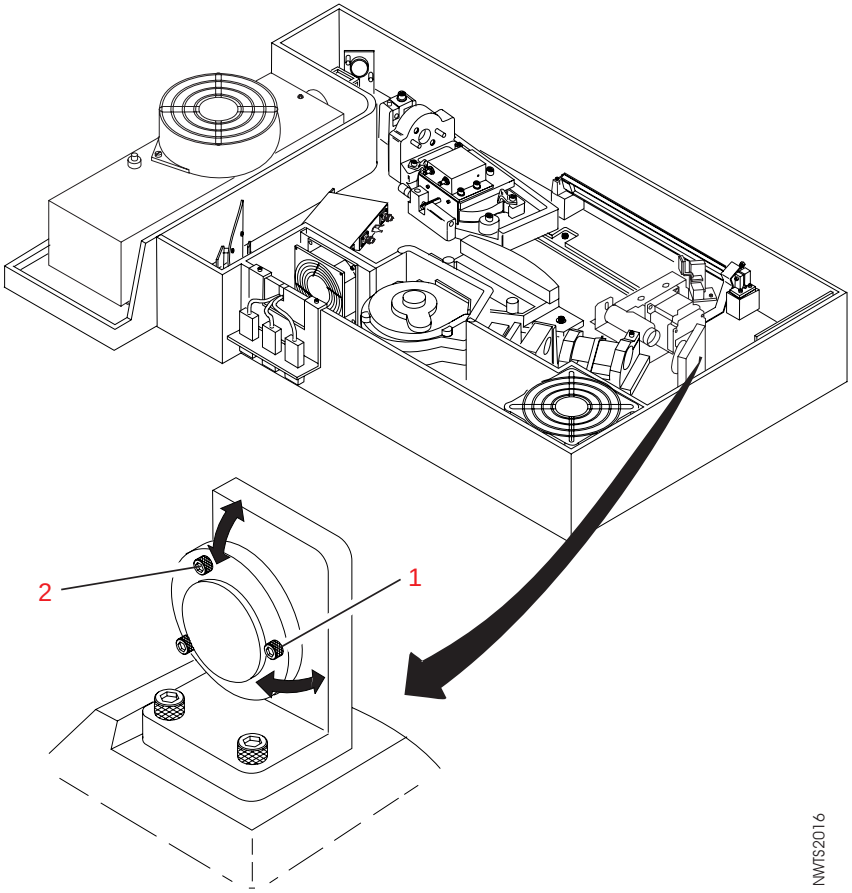
Table 837. M2 Mirror Check



1. Perform all steps under preparation, if not already done.
2. Adjustment routine C0 should still be running with the primary beams visible and scanning the return mirror.
3. Ensure that the resolution switching lens is in the up position (300 DPI). (Run Driver Routine 3F to change the lens position.)
4. Adjust mirror 2 so that the beam is centered on the eye of the return mirror **(2)**.

(continued on next page)

Table 837. M2 Mirror Check (continued)

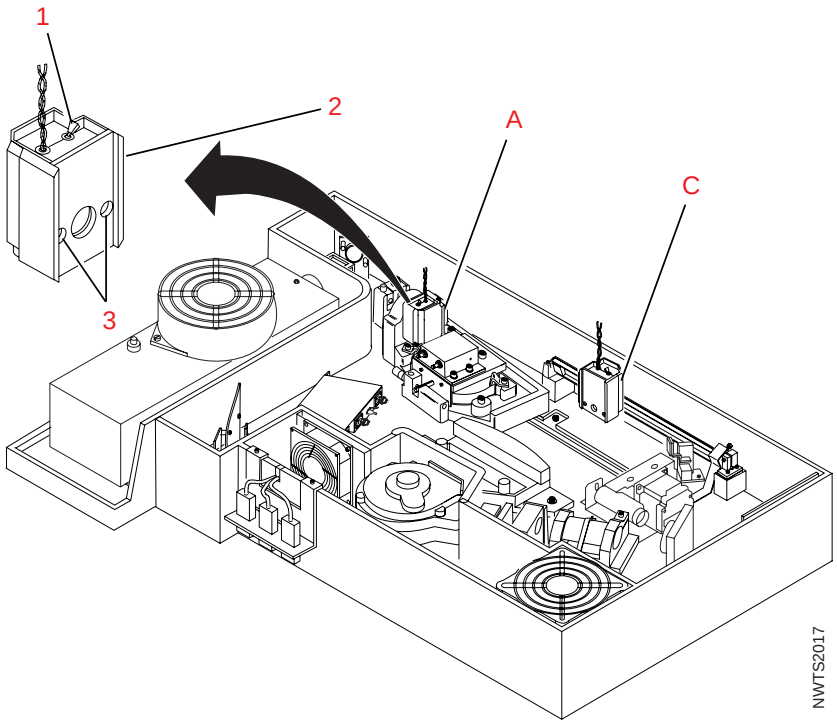


5. Adjust the beams vertically by turning the screw **(1)** until the scanning beam at the return mirror disappears. Note the position of the screw.
6. Adjust screw **(1)** **in the opposite direction** until the scanning beam at the return mirror disappears. Note the position of the screw.
7. Center screw **(1)** between the positions noted in steps 5 and 6.
8. Adjust screw **(2)** until the scanning beam is equally bright at both ends of the return mirror.
9. Repeat the above as necessary.
10. Go to Beam Power Check in Printhead Checks and Adjustments.

Beam Power Check

Table 838. Beam Power Check

Beam Power Measuring Points



<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

1. Perform all steps under preparation, if not already done.
2. If you are not sure that the laser is correctly aligned, perform the following procedures in Printhead Checks and Adjustments:
   a. Zero Beam Alignment Check
   b. M2 Mirror Adjustment
3. Ensure that the resolution switching lens is in the position used by the customer (down=240 DPI, up=300 DPI). (Run Driver Routine 3F to change the lens position.)
4. Run Adjustment Routine C0 to switch on the primary beam without switching on the mirror motor.

   If you see a scanning beam at the return mirror, press **Stop/Start**. Run Adjustment Routine C0 again, pressing **Enter** only once. Wait for the mirror motor to stop scanning. This may take up to two minutes.

(continued on next page)

Table 838. Beam Power Check (continued)

5. Ensure that the printhead cover is installed and the switch on the laser power tool **(1)** is set to **High**. (The **High** setting is 10% of the **Low** setting.
6. Record the power readings at positions **A** and **C**.
   - **A** is located on the pins between the L2 lens and the AO modulator.
   - **C** is located in front of the return mirror.

     The most accurate **C** reading is obtained in the center of the return mirror.
7. Check the following conditions and then use the table here to determine which adjustment procedure to use. (Reference the figure on page 2914.)
   - The power at position **A** is 110 mV or more with the cover on and the power tool switch set to **High**.
   - The power at position **C** is 56 mV or more with the cover on and the power tool switch set to **High**.

A **110 mV or more**	**C** **56 mV or more**	**Go To...**
No	—	Go to Power Adjustment A.
Yes	No	Go to AO Modulator Adjustments. If this procedure has been performed, and the power at **C** is still too low, go to Power Adjustment C.
Yes	Yes	Go to AO Modulator Adjustments. If this procedure has been performed, go to Beam Detect Mirror Check.

Power Adjustment A:

Table 839. Power Adjustment A

The beam power at **A** is less than 110 mV . (Reference the figure on page 2914).The problem is one or more of the following:

- Bad laser
- Beam path obstruction
- Dirty or damaged beam splitter, L2 lens, Wollaston prism, M1 mirror, or laser safety filter mechanism

Attention: Do not remove lenses, prisms, or a mirror from the printhead to examine or to clean them.

Perform the following:

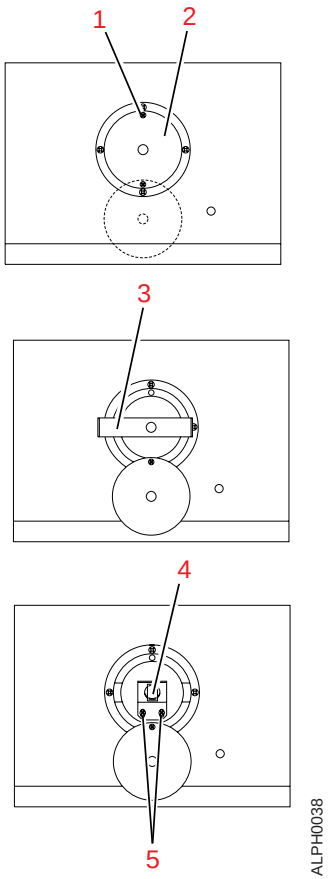
1. Check for obstructions in the beam path.
2. Check the lens shutter and the foam gasket for clipping of the beam.
3. Check the L1 lens, L2 lens, Wollaston prism, the M1 mirror, resolution switching lens, and the laser safety filter for dirt or damage without removing them from the printhead.

Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

4. Clean any dirty parts.
5. If you have not yet solved the problem, power-off the printer and remove the Laser.

(continued on next page)

Table 839. Power Adjustment A (continued)



Attention: The corners of the laser can scratch the cover paint. Use care.

6. With the laser on a suitable work surface, remove screw **(1)** from the cover **(2)**.
7. Remove the sliding shutter **(3)**.
8. Remove the two screws **(5)** holding the beam splitter **(4)** in place.
9. Carefully clean and dry both sides of the beam splitter using cotton swabs and isopropyl alcohol.
10. Reinstall the beam splitter, biasing the two screws toward the top of the elongated holes in the support.
11. Reinstall the sliding shutter with the hole closer to the right end of the shutter than to the left end.
12. Close the rotating cover, and reinstall the cover screw.
13. Tighten the upper and the lower cover screws.
14. Reinstall the Laser.
15. Perform the Simplified Laser Adjustment Procedure.
16. Measure the power at **A** again. (Reference the figure on page 2914).
17. If the power is greater than 110 mV, go to step 5 under Beam Power Check.
18. If the low power problem still exists, replace Laser.

Power Adjustment C:

(Reference the figure on page 2914). The beam power at **A** is good but the beam power at **C** is not, and performing the AO Modulator Adjustments did not correct the problem. The problem is most likely the AO modulator or the AO driver. However, the problem could be the L1 lens, the M2 mirror, the dove prism, the CYL1 lens, the mirror motor, the aperture, the resolution switching lens, or the F-Theta lens.

Perform the following:

1. Using the straight edge of a white sheet of paper, hold it up to the right edge and then the left edge of the AO modulator window (laser beam entrance window).
2. Check the window on the other side of the AO modulator (laser beam exit window).
3. Verify that the laser is not being clipped by the edges of these windows.
4. If the beam is being clipped, perform the AO Modulator Adjustments.
5. Insert a piece of paper into the beam path, before and after each component. See Two Beam 240/300 Printhead Components. Check the beam projection on the paper to isolate any component that is clipping the beam. If the component is a lens or a prism, return to Zero Beam Alignment Check and try to realign the laser. Otherwise, adjust the component if it is the aperture or one of the mirrors.

Attention: Do not remove lenses, prisms, or a mirror from the printhead to examine or for cleaning.

Attention: Do not us a dry wipe or a dry swab to clean printhead components. Any wipes or swabs must be very soft and lint-free. Use only isopropyl alcohol to remove fingerprints or oil. Most of the lenses and mirrors have a special coating that can easily be damaged by solvents or abrasion from a dry swab.

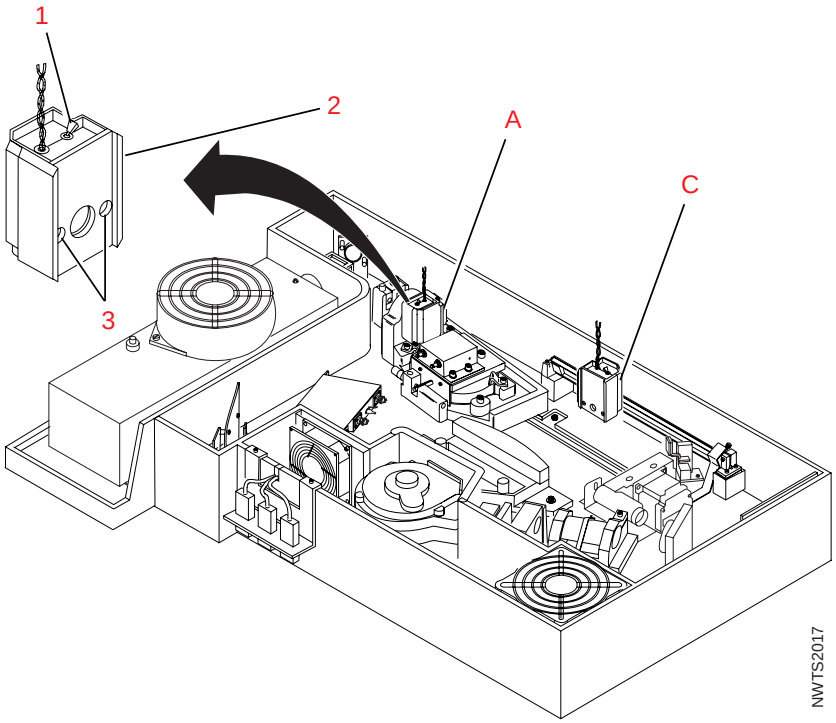
6. Closely examine and clean the following components without removing them:
   - L1 lens
   - M2 mirror
   - Dove prism
   - CYL1 lens
   - Mirror motor windows
   - Resolution switching lens
   - F-Theta lens

Attention: If any component is replaced in the next step, scribe the position of the component so that it can be reinstalled in that exact position.

7. Replace damaged components.
8. If the low power at position **C** is still not greater than 28 mV, replace the AO modulator, and then return to step 5 under Beam Power Check in Printhead Checks and Adjustments.(Reference the figure on page 2914).

AO Modulator Adjustments:

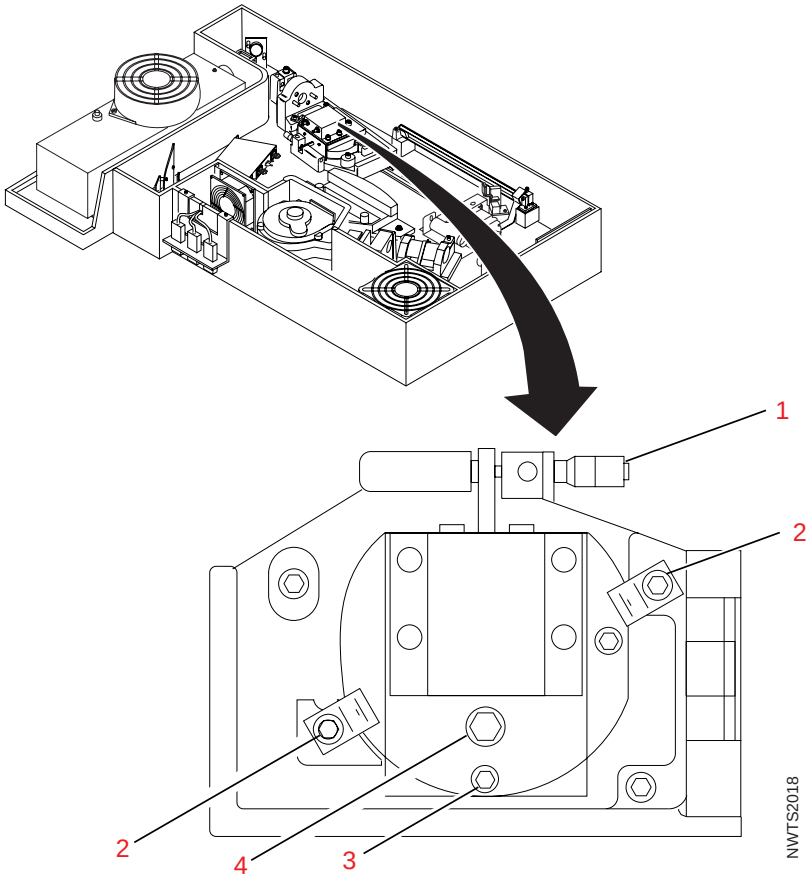
Table 840. AO Modulator Adjustments



1. Cover the return mirror with paper.
2. Set the switch on the power tool to **Low**.
3. Ensure that the power adjustment potentiometers on both AOM drivers are peaked for maximum power. See AOM Driver Power Peaking and Matching Adjustment.
4. Run Adjustment Routine C0 to switch on the primary beams without running the scanning mirror motor.
5. Place the power tool at position **C** is located in front of the return mirror. The most accurate **C** reading is obtained in the center of the return mirror.
6. Ensure that the eye of the power tool is centered on the beam projection at position **C**.

(continued on next page)

Table 840. AO Modulator Adjustments (continued)



7. Loosen the locking screw **(4)**.
8. Adjust screw **(3)** to obtain maximum power at **C**(Reference the figure on page 2914).
9. Tighten the locking screw **(4)**.
10. Loosen the two screws **(2)**.
11. Adjust the micrometer **(1)** to obtain maximum power at **C**.
12. Tighten the two screws **(2)**.
13. Ensure that maximum power is not decreased when the screws **(2)** and **(4)** are tightened.
14. Set the switch on the laser power tool to **High**.
15. Run Adjustment Routine C8 to switch on AM202 (upper beam).
16. Ensure that the eye of the power tool is centered on the beam projection at position **C**.

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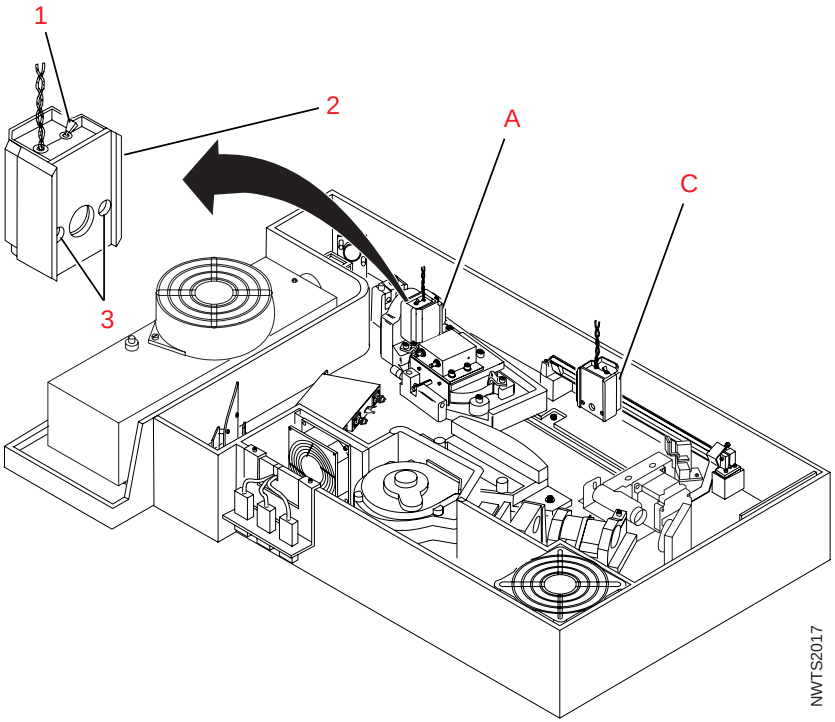
Table 840. AO Modulator Adjustments (continued)

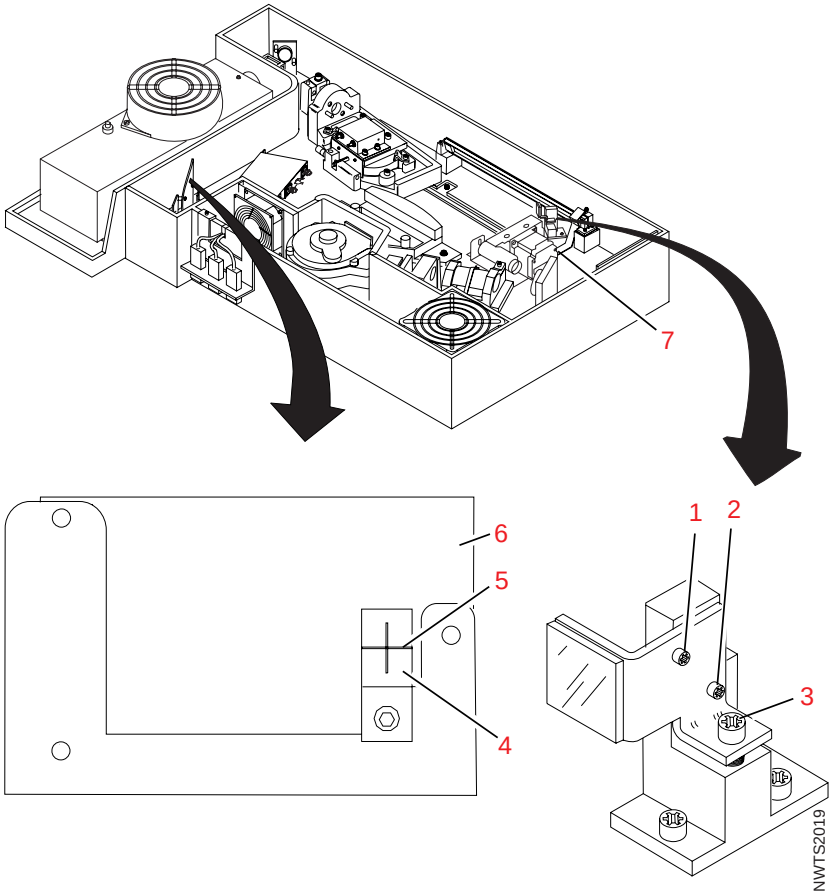


17. Measure and record the beam power at position **C** with the printhead cover on.
18. Run Adjustment Routine C9 to switch on AM203 (lower beam).
19. Ensure that the eye of the power tool is centered on the beam projection at position **C**.
20. Measure and record the beam power at position **C** with the printhead cover on.
21. If the beam power measurements in steps 17 and 20 are greater than 28 mV and within 3 mV of each other, go to step 5 under Beam Power Check, if not, continue here with step 22.
22. Adjust the potentiometers on the AOM drivers to obtain beam power readings greater than 28 mV and within 3 mV of each other. See AOM Driver Power Peaking and Matching Adjustment.
23. If one of the AOM drivers can not be adjusted to reach 28 mV, replace the AOM driver.

    If neither of the AOM drivers can not be adjusted to reach 28 mV continue here with step 24; **do not replace the AOM drivers**, continue with this procedure.
24. Reconnect the AOM driver cables and go to step 5 under Beam Power Check.

Beam Detect Mirror Check

Table 841. Beam Detect Mirror Check



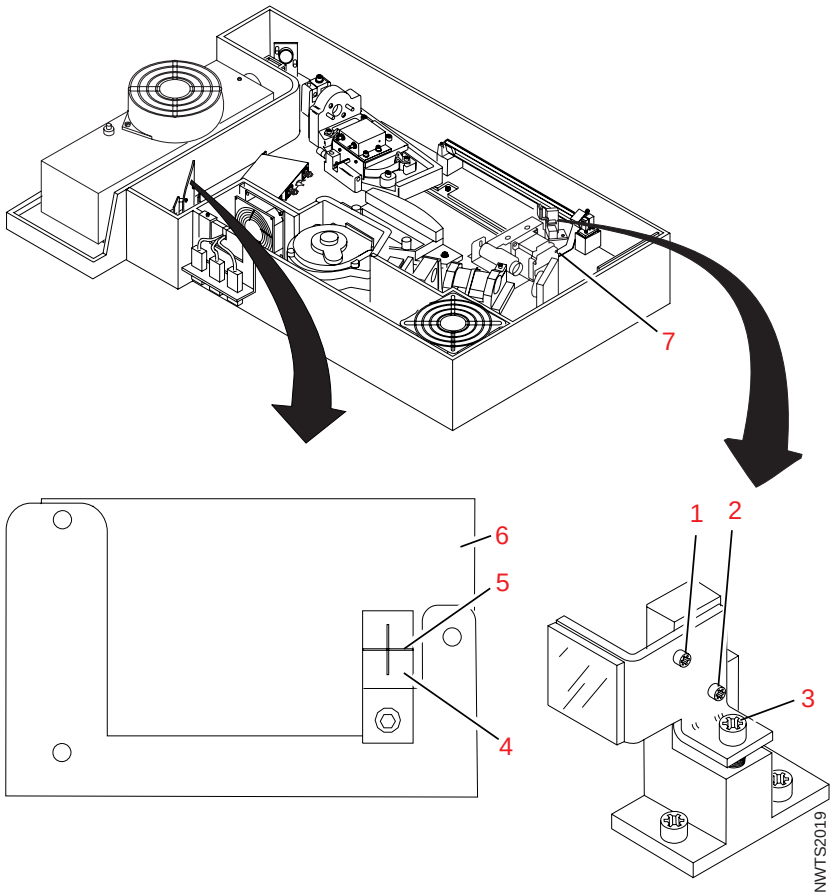
Perform this check with the resolution switching lens in **both** resolution switching lens positions (lens down for 240 DPI and lens up for 300 DPI).

Run Driver Routine 3F to move the resolution switching lens.

1. Run Adjustment Routine C0. If the scanning mirror is not running, press **Enter** on the maintenance panel to switch on the mirror motor.
2. Observe the vertical beam vertical alignment **(5)**. The beam should be centered vertically on the white line of the sensor cover **(4)**.
   - If the beam is good at both resolutions, the alignment procedure is complete. If additional adjustments are necessary, go to Print Sample Adjustments.
   - If the beam alignment is not good, go to Beam Detect Mirror Adjustment.

Beam Detect Mirror Adjustment:

Table 842. Beam Detect Mirror Adjustment



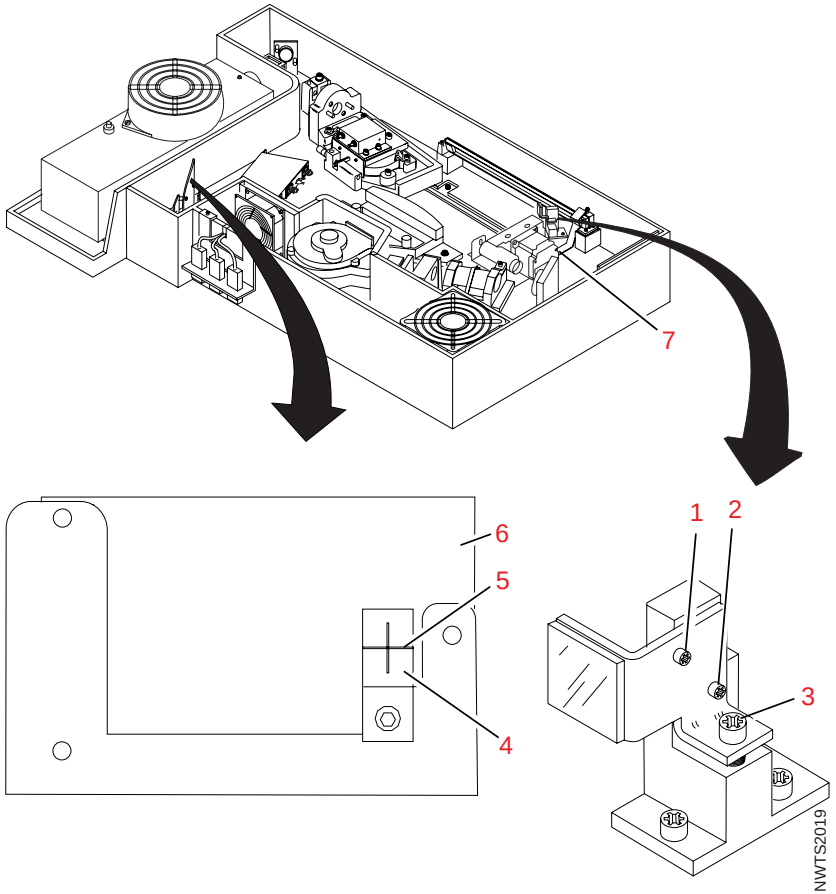
1. Perform this check with the resolution switching lens up for 300 DPI.

   Run Driver Routine 3F to move the resolution switching lens.
2. Loosen the clamping screws **(1)** and **(2)** on the beam detect mirror assembly.
3. Adjust screw **(3)** until the beam is centered on the white line of the beam detect sensor cover **(4)**, located on the beam detect card assembly.
4. Tighten screws **(1)** and **(2)**. Ensure that the beam does not move as the screws are tightened.
5. Move the resolution switching lens down for 240 DPI.

   Run Driver Routine 3F to move the resolution switching lens.
6. Observe the beam vertical alignment on the beam detect sensor. The beam should be centered vertically on the white line **(5)** of the sensor cover.
7. If the beam alignment is not good, adjust the position of the resolution switching lens as follows:
   a. Loosen the three screws at the bottom of the resolution switching lens mounting bracket and adjust the position of the lens horizontally until the beam is centered on the white line **(5)** of the beam detect sensor cover **(4)**, located on the beam detect card assembly.
   b. Gently squeeze the two axle support brackets and tighten the mounting screws. Ensure that the beam does not move as the screws are tightened.
   c. Run Driver Routine 3F to ensure that the resolution lens still freely moves.

Completing the Primary Checks

Table 843. Completing the Primary Checks



1. Remove the paper from the return mirror and any foreign objects that may be in the printhead assembly.

Attention: Vibrations that can affect print quality (banding), can be transmitted from the printhead casting to the return mirror through the return mirror set screw **(7)** and the dove prism set screw.

2. Ensure that the return mirror set screw **(7)** and the dove prism set screw are not touching the printhead casting.
3. Replace the printhead cover.
4. Go to Print Sample Adjustments for additional adjustments.

Print Sample Adjustments

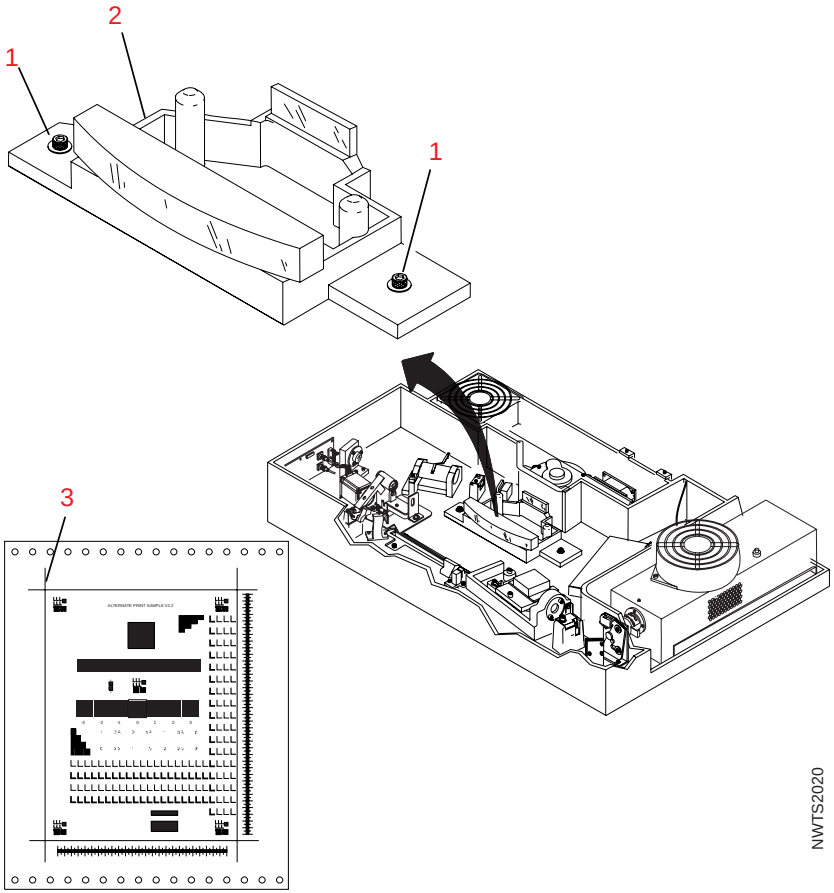
These procedures assume that the printhead is correctly aligned. (See Printhead Checks and Adjustments.)

Attention: The Print Sample Adjustments are all related and must **all** be performed in the sequence listed.

1. Print Width
2. Print Skew
3. Registration
4. AOM Skew
5. PQE Stroke Width
6. Scan Line Spacing

Print Width

Table 844. Print Width



DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

DANGER

<22> You will need a wrench and a screwdriver to do this procedure. These tools can reflect the laser beam. Whenever these tools are used in the printhead, ensure that the printer is powered off.

These procedures assume that the printhead is correctly aligned. See Printhead Checks and Adjustments.

Check

1. Ensure that forms 12 inches or wider are loaded.
2. Print an Alternate Print Sample.
3. Measure the total length of the long line **(3)** in the scan direction. If it is not exactly 11.0 inches go to Print Width Adjustment.

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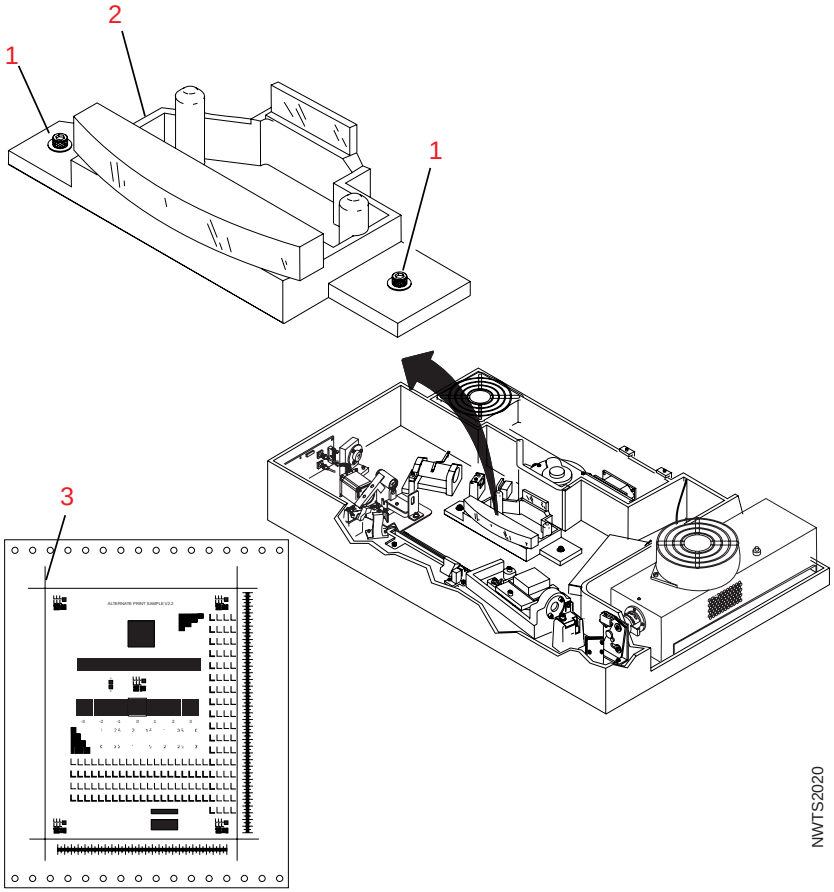
Table 844. Print Width (continued)



Print Width Adjustment

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the printhead cover.
3. Scribe the position of the F-Theta lens **(2)** so that it can be reinstalled in that exact position.
4. Loosen the two screws **(1)**.
5. Adjust the F-Theta lens **(2)** to change the line length as follows:

   Attention: Hold the F-Theta lens **(2)** against the machined surface of the printhead base to ensure that the F-Theta lens does not rotate.

   - To shorten the line, move the F-Theta lens toward the return mirror (to the right as viewed from the front of the printer).
   - To lengthen the line, move the F-Theta lens away from the return mirror (to the right as viewed from the front of the printer).

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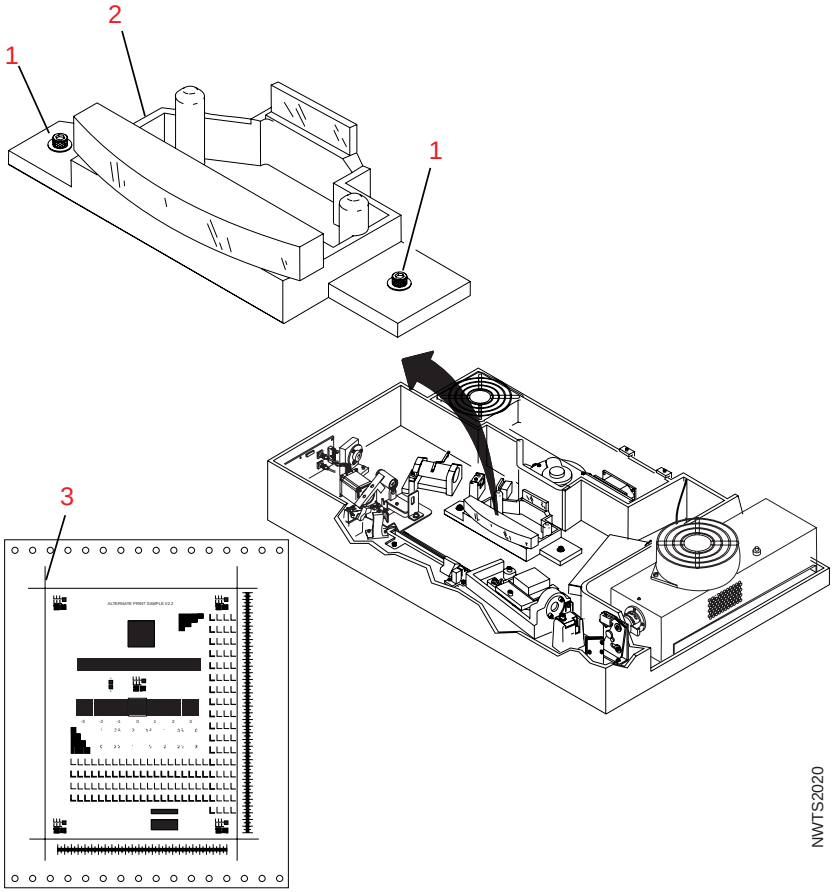
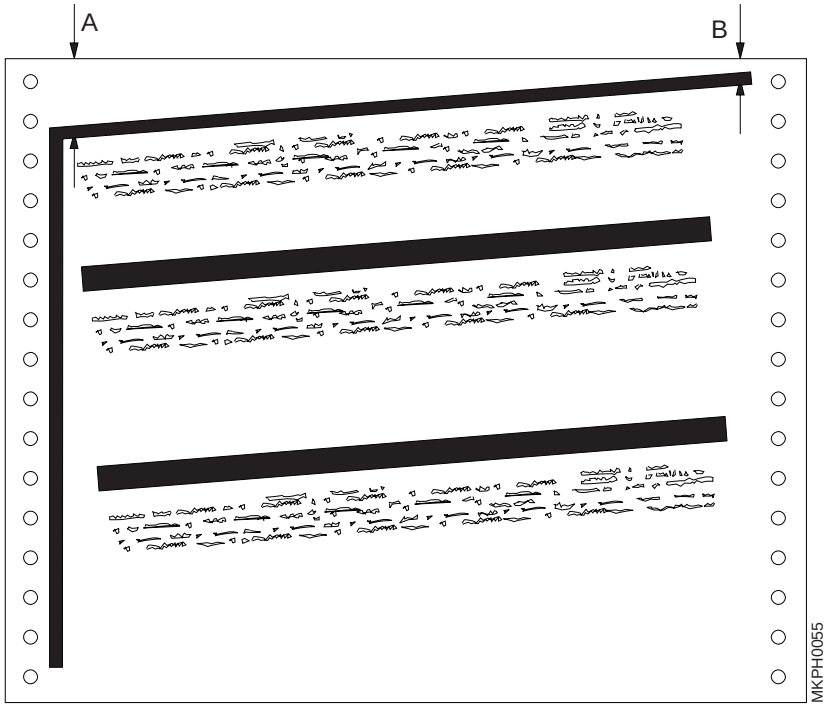
Table 844. Print Width (continued)



6. Tighten the two screws **(1)**.
7. Place the printhead cover on the printhead; **do not fasten it** with screws at this time.
8. Power-on the printer.
9. Run the Alternate Print Sample again and check the line length.
10. Run Text 1 Print Sample and verify that the three copy marks at the perforation are printed.
11. Repeat this procedure until the line length is exactly 11.0 inches.
12. If the line length can not be adjusted to 11.0 inches, replace the mechanism interface card (MIC) and repeat the procedure.
13. If the print width still can not be adjusted to 11.0 inches, the laser spot size may need to be adjusted. Call your next level of support.

Print Skew

Table 845. Print Skew



The scanned lines are not parallel with the perforations on the form.

Call your next level of support before making this adjustment.

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

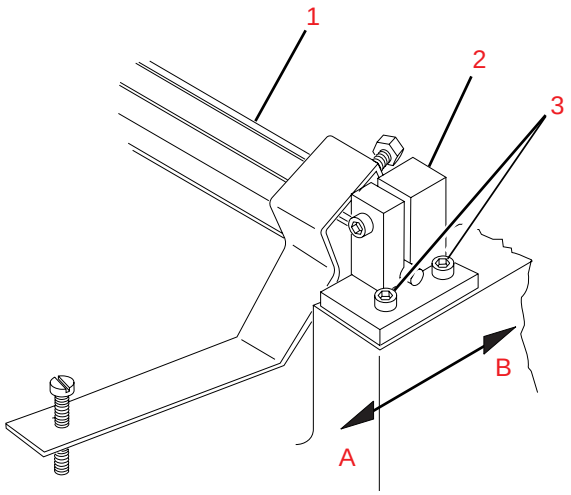
This procedure assumes that the printhead is correctly aligned. See Printhead Checks and Adjustments.

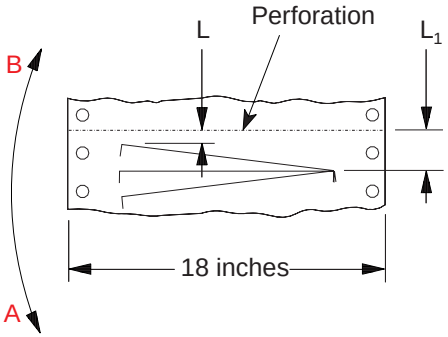
Check

1. Run Primary Print Sample to print on the widest available form.
2. Measure the distance from the folding perforation to the leading edge of the wide black bar that runs the width of the print. Measure the distance at the front and rear of the printer. See points **A** and **B**.
3. If the difference between the two measurements is greater than 0.2 mm over 14 inches, go to Return Mirror Adjustment.

Return Mirror Adjustment:

Table 846. Return Mirror Adjustment

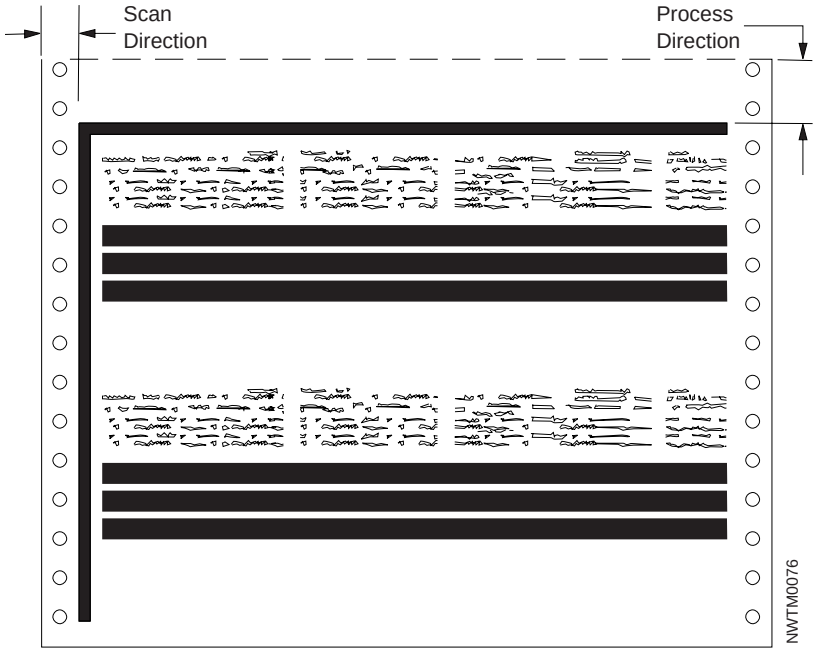




1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Remove the printhead cover.
4. Loosen the two screws **(3)**.
5. Move the return mirror **(1)** as follows:
   - To rotate the print in the **CCW** direction, move the front end of the return mirror **(2)** to the left (**A** direction).
   - To rotate the print in the **CW** direction, move the front end of the return mirror **(2)** to the right (**B** direction).
6. Place the printhead cover on the printhead; **do not fasten it** with screws at this time.
7. Power-on the printer.
8. Run the Primary Print Sample again and check the print skew.
9. Repeat this procedure as necessary.
10. Run the Alternate Print Sample and check the Print Width.
11. Repeat this procedure as necessary.
12. Ensure that the 2 screws **(3)** are tightened.
13. Recheck the Print Skew, Print Width, and Registration.
14. Go to Registration.

Registration

Table 847. Registration



The printed image is not in registration in either, or both, the horizontal (scan direction) or the vertical (process direction) direction.

DANGER

<2> Laser radiation is present when the printer is powered-on.

Avoid direct exposure to the laser beam.

Keep all reflecting objects such as watches, jewelry, or shiny tools out of the path of the laser beam.

Do not push the laser filter slide while the printer is powered-on.

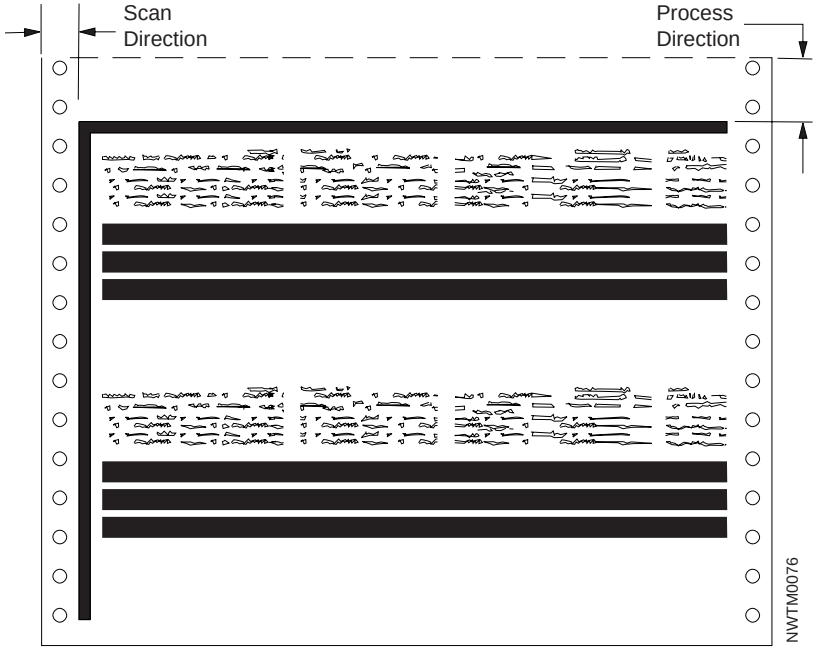
Registration must be checked and adjusted separately for each resolution.

Factors Affecting Registration

- Operator adjustment (**Adjust Print**) values
- Upper tractor timing
- Return mirror position
- Variation in the forms dimensions
- Image skew
- Print width
- Acceleration and deceleration of the forms
- Registration of a preprinted image on forms.

(continued on next page)

Table 847. Registration (continued)



Special Instructions

This section addresses only the return mirror position. Use MAP 1011: Registration Or Skew to eliminate other registration problems.

Special Tools

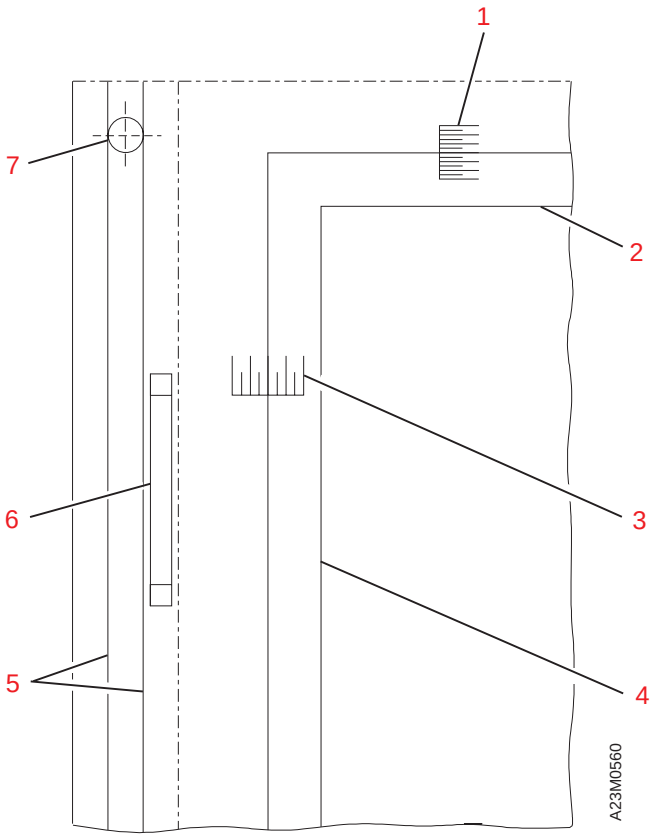
Registration template (PN 04H0739) (if available)

Check

1. Load the customer's most critical form.
2. Use the **Adjust Print** key on the operator's panel to ensure that both the horizontal adjustment and the vertical adjustment are set to **0** for the form that you are using for registration adjustment. See "Adjusting Registration" in the *Operator's Guide*.
3. If you have not performed the Print Width check, do so now.
4. Run Text 1 Print Sample and verify that the three copy marks at the perforation are printed.
5. Run Primary Print Sample.
6. Select a fused print sample and perform the registration checks.
   - If you are using a registration template to make this check, go to Checking Registration Using the Template.
   - If a template is not available, go to Checking Registration Using a Scale.

(continued on next page)

Table 847. Registration (continued)

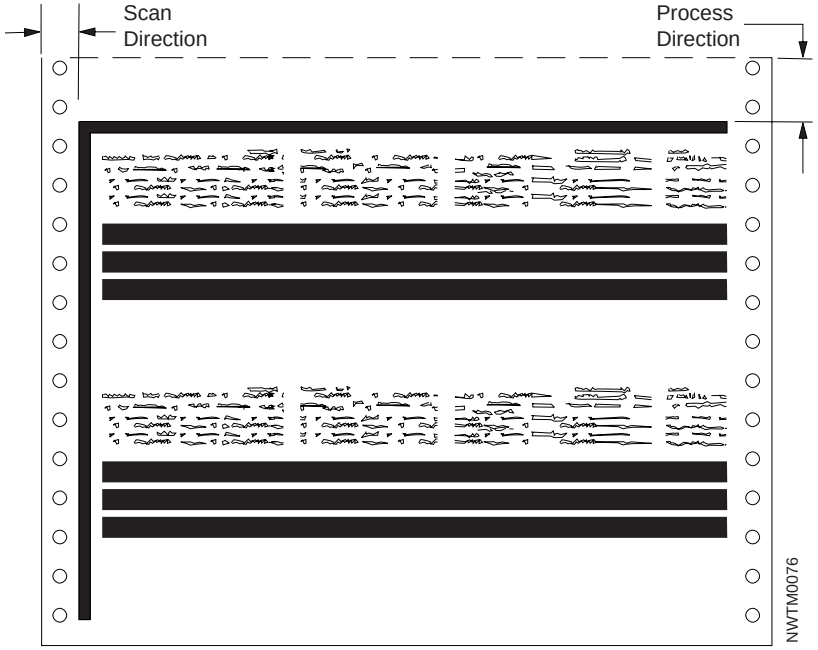


Checking Registration Using The Template

7. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
8. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
9. If the horizontal bar on the print sample does not align with the horizontal bar **(2)** on the template, a process direction adjustment is required. Go to Process Direction (Vertical) Adjustment.
10. If the vertical bar on the print sample does not align with the vertical bar **(4)** on the template, a Scan Direction (Horizontal) Adjustment is required.

(continued on next page)

Table 847. Registration (continued)



Checking Registration Using A Scale

11. Measure to the same point each time you print Primary Print Samples.
    - The scan (horizontal) print-start position, is measured from the edge of the paper.
    - The process (vertical) print-start position, is measured from the perforation at the top of the form.

Check the Scan (Horizontal) Print-Start Position

12. Measure from the vertical bar to the edge of the paper for 23.3 ±1.2 mm (0.920 ±0.050 in.).

    If a scan (horizontal) direction adjustment is required, go to Scan Direction (Horizontal) Adjustment.

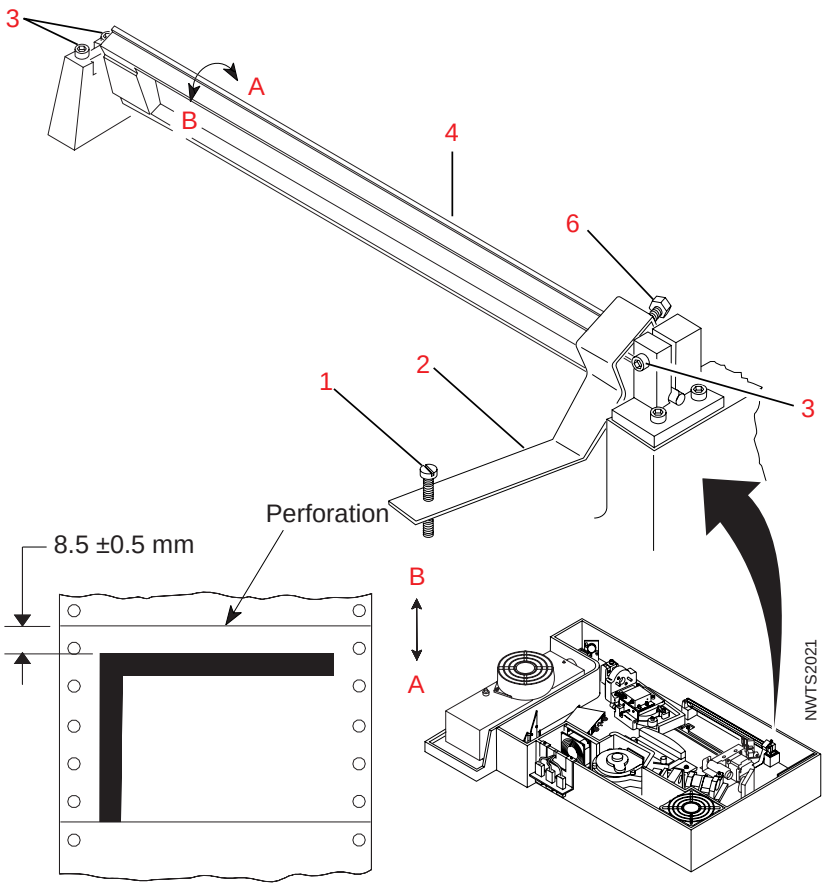
Check the Process (Vertical) Print-Start Position

13. Measurement from the horizontal bar on the print sample to the perforation at the top of the form for 8.5 ±1.2 mm (0.340 ±0.050 in.).

    If a process (vertical) direction adjustment is required, go to Process Direction (Vertical) Adjustment.

Process Direction (Vertical) Adjustment:

Table 848. Process Direction (Vertical) Adjustment

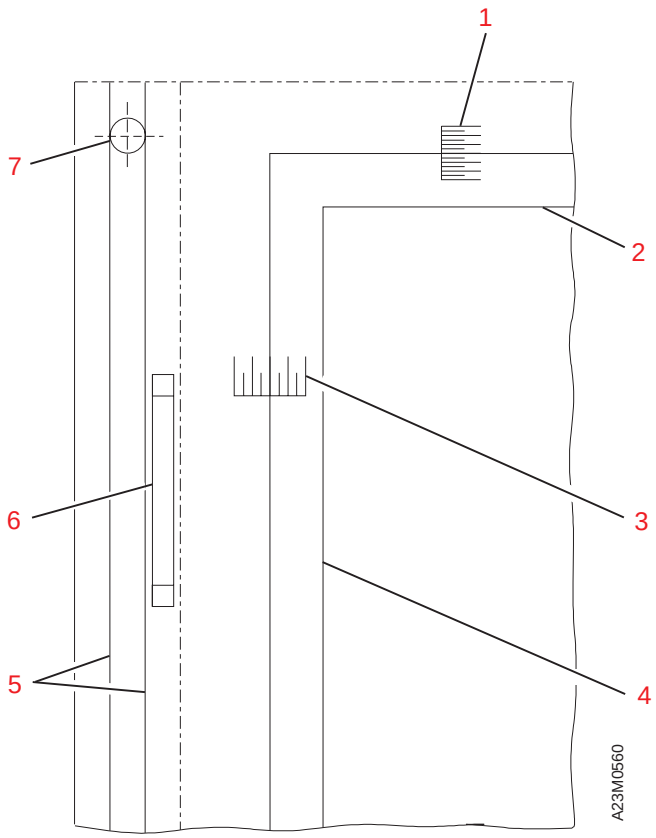


1. Log on in the **Customer Engineer** (service) mode.
2. Load the customer's most critical form.
3. Record the existing **Process Factory Adjust** values.

   From the **Configuration** pull-down menu, select **Configure Printer** and scroll down to **Process Factory Adjust**.
4. Try to correct the process (vertical) registration by altering the **Process Factory Adjust** value.

   The valid range of values is **0** to **60**. (Reference the Process Factory Adjust Values Table.) Any number from **0** to **60** can be entered, but only even numbers will change the registration. Each change of the value by 1 adjusts the image position by 1 pel.

   - Increasing the value moves the image in the **A** direction.
   - Decreasing the value moves the image in the **B** direction.
5. If a template is available, go to Determining the Amount of Adjustment Using the Template.
6. If a template is not available, go to Determining the Amount of Adjustment Using a Scale.



Determining the Amount of Adjustment Using the Template

7. To determine the amount of adjustment required, use the scale **(1)** on the template. Each increment on the scale is equal to 5 print adjust units. Keep the template and print aligned as follows:
   a. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
   b. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
8. Count the number of increments that the printed bar is off from the correct registration and multiply this value by 5.
   - If the printed bar is too close to the perforation, add the value to the existing **Process Factory Adjust** value and enter this total as the new value.
   - If the printed bar is too far from the perforation, subtract the value from the existing **Process Factory Adjust** value and enter this total as the new value.
   - Go to step 11.

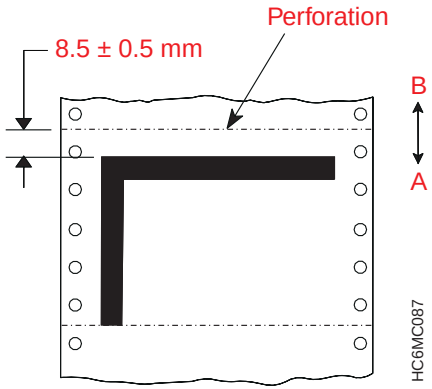
(continued on next page)

Table 848. Process Direction (Vertical) Adjustment (continued)

PFA Value	Pels	240 DPI (mm)	300 DPI (mm)
0	−15	−1.6	−1.3
5	−10	−1.0	−0.8
10	−5	−0.5	−0.04
15	**0**	**0**	**0**
20	5	0.5	0.4
25	10	1.0	0.8
30	15	1.6	1.3
35	20	2.1	1.7
40	25	2.6	2.1
45	30	3.1	2.5
50	35	3.7	3.0
55	40	4.2	3.4
60	45	4.7	3.8

Determining the Amount of Adjustment Using a Scale.

9. Determine the **Process Factory Adjust** (PFA) value required by measuring the amount and direction that the image must be moved to obtain the correct process (vertical) print-start position of 8.5 ±0.5 mm (0.340 ±0.020 in.) from the perforation at the top of the form.



10. The table shows the relationship between **Process Factory Adjust** values and the distance the image is moved from the default position.

    The default value is 15. For either resolution (240 DPI or 300 DPI) a value of 15 will not move the image.

    - Negative **Pels** and **mm** values indicate how much closer to the leading edge of the form the image is moved.
    - Add or subtract the number of pels that the image must move from the existing value.
    - Enter this new value using the **Configure Printer** operation.

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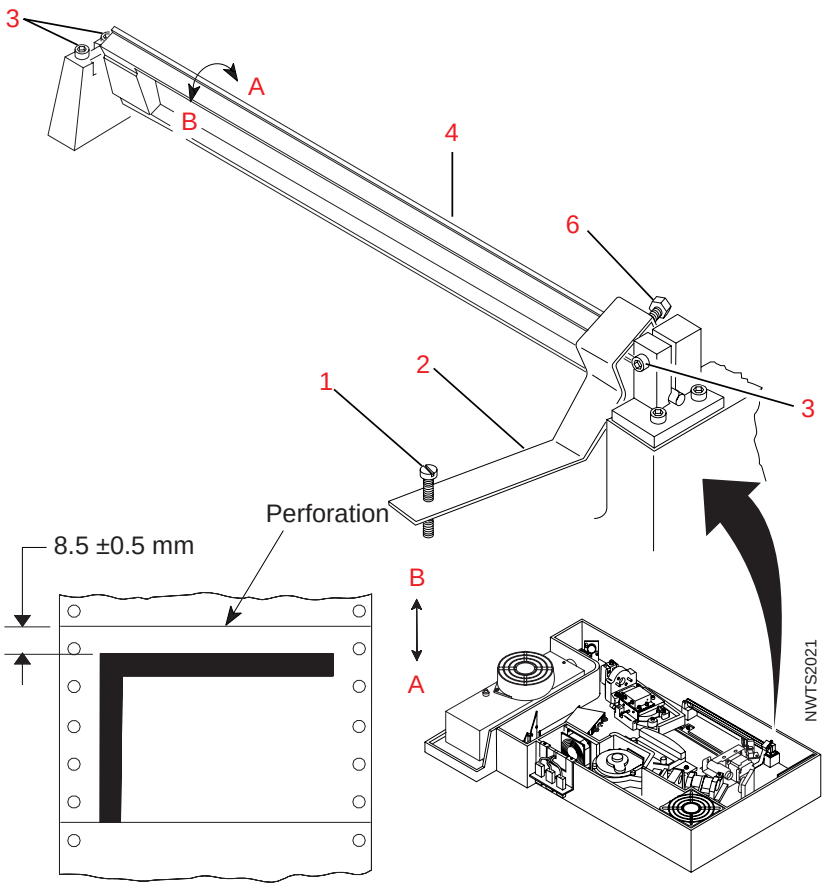


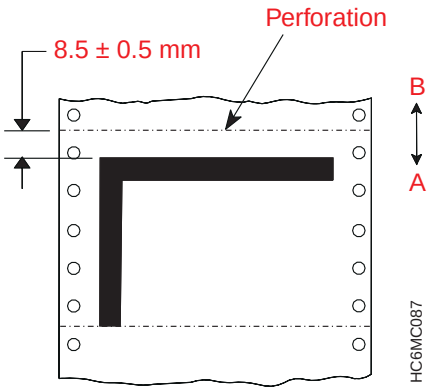
11. If necessary, review the instructions under “Configuring the System” in *Operator’s Guide*.

Note: A Restart is not required for the new **Process Factory Adjust**.

12. If you cannot obtain the correct adjustment, set the **Process Factory Adjust** configuration value to **15**, and continue with this procedure.
13. Perform the Upper Tractor Timing adjustment procedure.
14. Request the system operator to stop activity on the printer. Disable all host attachments.
15. Remove the printhead cover.
16. Turn the adjusting screw **(1) CW** until it is finger tight against the bottom of the printhead.
17. Loosen the screws **(3)** so that the return mirror can be moved with some resistance.
18. Gently press on the end near the adjusting screw **(1)** to hold the screw against the base of the printhead.

    This procedure works best when you always turn the screw in the **CW** direction (move the print down the page). If you go past the desired point, turn the screw **CCW** slightly and try again.
19. Turn screw **(1) CW** to move the print in the **A** direction, down the page.
20. Turn screw **(1) CCW** to move the print in the **B** direction, up the page.
21. Gently press on the lever near the adjusting screw **(1)** and tighten screws **(3)**.

Table 848. Process Direction (Vertical) Adjustment (continued)



22. Return the printhead cover to its operating position. It is not necessary to reinstall all the fastening screws.
23. Run Primary Print Sample and recheck the vertical registration. Adjust for a process (vertical) print-start position of 8.5 ±0.5 mm (0.340 ±0.020 in.) from the perforation at the top of the form.
24. Repeat steps 17 through 23 as necessary.
25. Return the printhead to the operating condition.

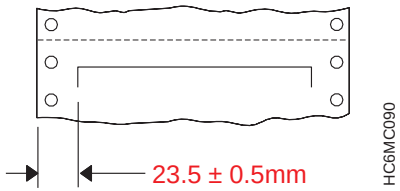
Scan Direction (Horizontal) Adjustment:

Table 849. Scan Direction (Horizontal) Adjustment

1. Log on in the **Customer Engineer** (service) mode.
2. Load the customer's most critical form.
3. Record the existing **Scan Factory Adjust** values.

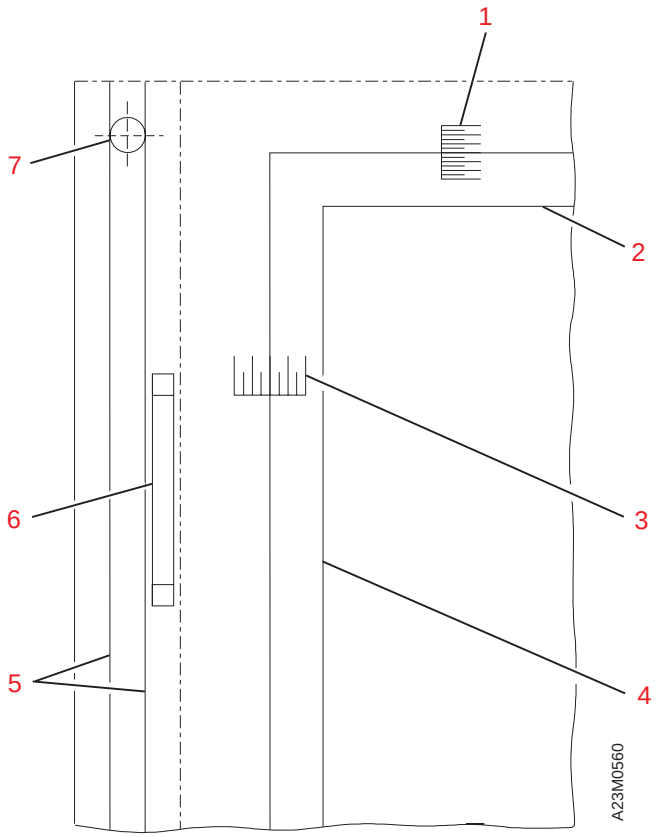
   From the **Configuration** pull-down menu, select **Configure Printer** and scroll down to **Scan Factory Adjust**
4. Try to correct the scan (horizontal) registration by altering the **Scan Factory Adjust** value.

   The valid range of values is **0** to **100**. (Reference Scan Factory Adjust Values Table). Any number from **0** to **100** can be entered, but only the numbers listed in the table will change the registration. Each change of the value by 1 adjusts the image position by 2 pels.
   - Increasing the value moves the image closer to the rear of the printer.
   - Decreasing the value moves the image closer to the front of the printer.
5. Adjust for a scan (horizontal) print start position of 23.3 ±0.5 mm (0.920 ±0.020 in.).



6. If a template is available, go to step Determining the Amount of Adjustment Using the Template.
7. If a template is not available, go to Determining the Amount of Adjustment Using a Scale.

Table 849. Scan Direction (Horizontal) Adjustment (continued)



Determining the Amount of Adjustment Using the Template

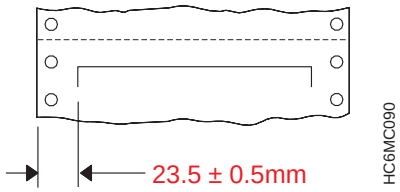
8. To determine the amount of adjustment required, use the scale **(3)** on the template. Each increment on the scale is equal to 5 print adjust units. Keep the template and print aligned as follows:
   a. Align the small circle **(7)** at the top of the registration template with the first tractor hole (at the leading edge of the form) on the printed form.
   b. While you keep the circle and tractor hole aligned, move the template so that all tractor holes fall inside the set of parallel lines **(5)**.
9. Count the number of increments that the printed bar is off from the correct registration and multiply this value by 5.
   - If the printed bar was too close to the perforation, add the value to the existing **Scan Factory Adjust** value and enter this total as the new value.
   - If the printed bar was too far from the perforation, subtract the value from the existing **Scan Factory Adjust** value and enter this total as the new value.
   - Go to step 12.

Table 849. Scan Direction (Horizontal) Adjustment (continued)

SFA Value	Pels	240 DPI (mm)	300 DPI (mm)
0	−80	−8.4	−6.8
5	−70	−7.4	−5.9
10	−60	−6.3	−5.1
15	−50	−5.3	−4.2
20	−40	−4.2	−3.4
25	−30	−3.1	−2.5
30	−20	−2.1	−1.7
35	−10	−1.0	−0.8
40	**0**	**0**	**0**
45	10	1.0	0.8
50	20	2.1	1.7
55	30	3.1	2.5
60	40	4.2	3.4
65	50	5.3	4.2
70	60	6.3	5.1
75	70	7.4	5.9
80	80	8.4	6.8
85	90	9.5	7.6
90	100	10.6	8.5
95	110	11.6	9.3
100	120	12.7	10.2

Determining the Amount of Adjustment Using a Scale.

10. Determine the **Scan Factory Adjust** (SFA) value required by measuring the amount and direction that the image must be moved to obtain the correct scan (horizontal) print-start position of 23.3 ±0.5 mm (0.920 ±0.020 in.) from the edge of the form.



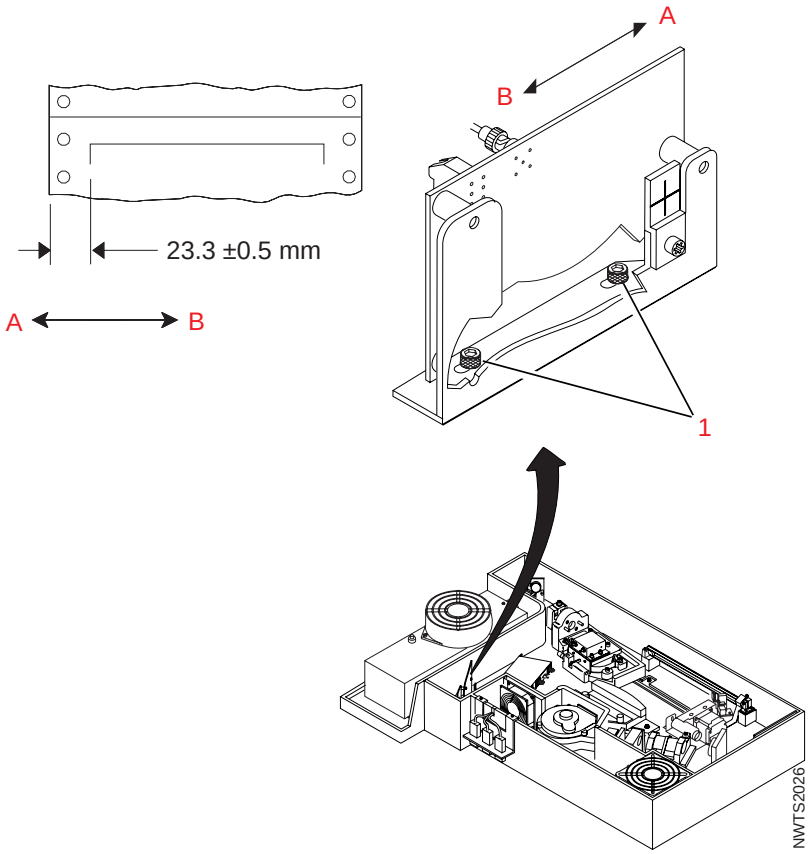
11. The table shows the relationship between **Scan Factory Adjust** values and the distance the image is moved from the default position.

    The default value is 40. For either resolution (240 DPI or 300 DPI) a value of 40 will not move the image.

    - Negative **Pels** and **mm** values indicate how much closer to the left edge of the form the image is moved.
    - Add or subtract the number of pels that the image must move from the existing value.
    - Enter this new value using the **Configure Printer** operation.

(continued on next page)

Table 849. Scan Direction (Horizontal) Adjustment (continued)



12. If necessary, review the instructions under “Configuring the System” in *Operator’s Guide*.

Note: A Restart is not required for the new **Scan Factory Adjust**.

13. If you cannot obtain the correct adjustment, set the **Scan Factory Adjust** configuration value to **40**, and continue with this procedure.
14. Remove the printhead cover.
15. Loosen, but do not remove, the two socket head screws **(1)** on the BD131 mounting base.
16. To move the print in the **A** or the **B** directions, move the BD131 an equal amount in the direction shown.
17. If the scan is not centered on the beam detect sensor, adjust the beam detect mirror. See Beam Detect Mirror Adjustment.
18. Return the printhead to its operating position. It is not necessary to reinstall the fastening screws yet.
19. Run Primary Print Samples and check the horizontal registration again.
20. Repeat this procedure from step 1as necessary.
21. When complete tighten the two screws **(1)**.
22. Return the printhead to the operating condition.

AOM Skew Adjustment

Table 850. AOM Skew Adjustment

Attention: You must check and adjust the beam offset separately for each resolution used on the printer. Perform the adjustment for one resolution. Then change to the other resolution and repeat the check and adjustment. Refer to the *Operator's Guide* for information on how to change resolution.

1. Perform this procedure for both printer 1 and printer 2.
2. Load 12-inch wide paper into the printer.
3. Set contrast on the printer control panel to **7**.
4. Disable host attachments.
5. If the microcode level is lower than v8.2, **Adjust Print** values must be set to **0**. Perform the following:
   a. Select **Configure** , and then **Adjust Print**.
   b. Ensure that the correct form is selected.
   c. In the **Side to Adjust** field
      - Select each duplex option, one at a time.

        For each **Side to Adjust** option, record the current horizontal and vertical print adjust values. Then set both values to **0**.

   d. Select **OK**.
6. Select **Analyze**, **Service Actions**, and then **CE password**.
7. Run 100 Alternate Test Prints.

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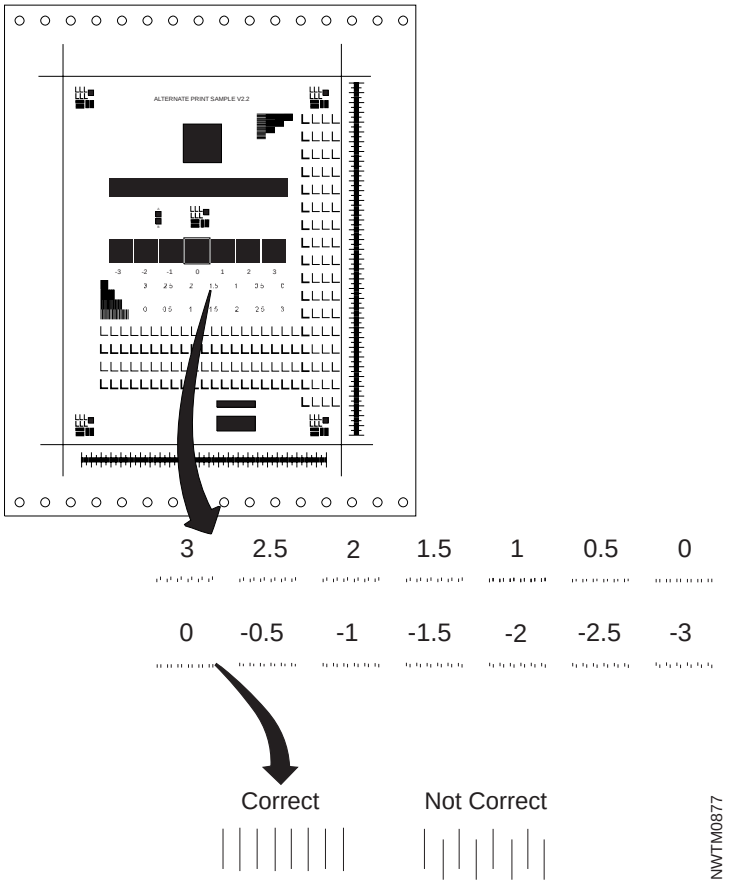
Table 850. AOM Skew Adjustment (continued)



8. Use a loupe or other magnifying glass to observe the unfused prints at the buffer arm area. The alignment marks should be aligned in the "**0**" position.

Note: Beam 1 is the reference beam and all the other beams are aligned to it. Every other beam in the alignment mark rows is beam 1. The other beam is beam 2.

9. If the alignment marks are not aligned in the "**0**" position, locate the position (3 to -3) where the beams appear to be most closely aligned. Record that position for beam 2.
10. Do not log off from the **Customer Engineer** window.
11. Select **Configure**, then **Configure Printer**. Page down to **Beam 2 Offset Adjustment**. Note that **Beam 1** is grayed out, because beam 1 is the reference beam and is not adjusted.

Note: A setting of **8.0** is the default setting.

12. Add or subtract the appropriate numbers to the beam offset adjustment value to bring the correctly aligned marks into the "**0**" position.

Note: The beam 2 lines on the Alternate Test Master are ½ pel shorter than the beam 1 lines for −2.5, −1.5, −0.5, 0.5, 1.5, and 2.5. Do not attempt to line up the edges of the lines. Instead, center the lines.

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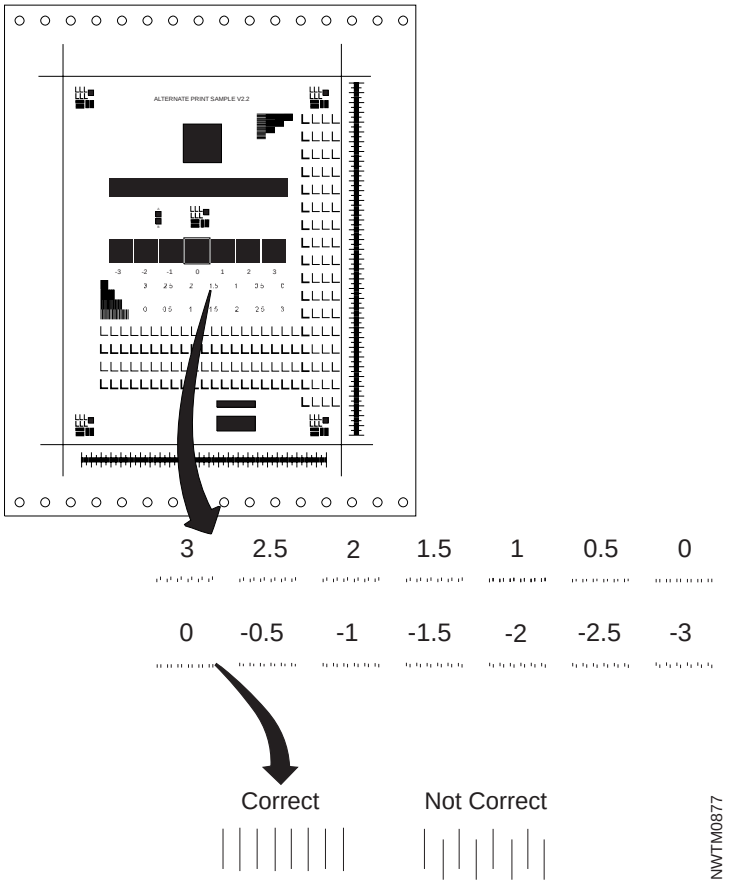
Table 850. AOM Skew Adjustment (continued)



Example 1:

If the correctly printed pattern for beam 2 were in the **2.5** position, you would add **2.5** to the existing beam offset for beam 2.

Example 2:

If the correctly printed pattern for beam 2 were in the **−1.5** position, you would subtract **1.5** to the existing beam offset for beam 3.

13. Select the beam 2.
14. Enter the appropriate number (added or subtracted) to or from the existing number to bring the corrected-position white spaces into the "**0**" position.
15. After you have entered the desired number, select **OK** on the Printer Configuration screen to save the changes.
16. Print 10 Alternate Print Samples and check the alignment of the groups of marks again. If they are not exactly in the "**0**" position, you can change the offset adjustment in 1/10 pel increments to get the alignment exact.

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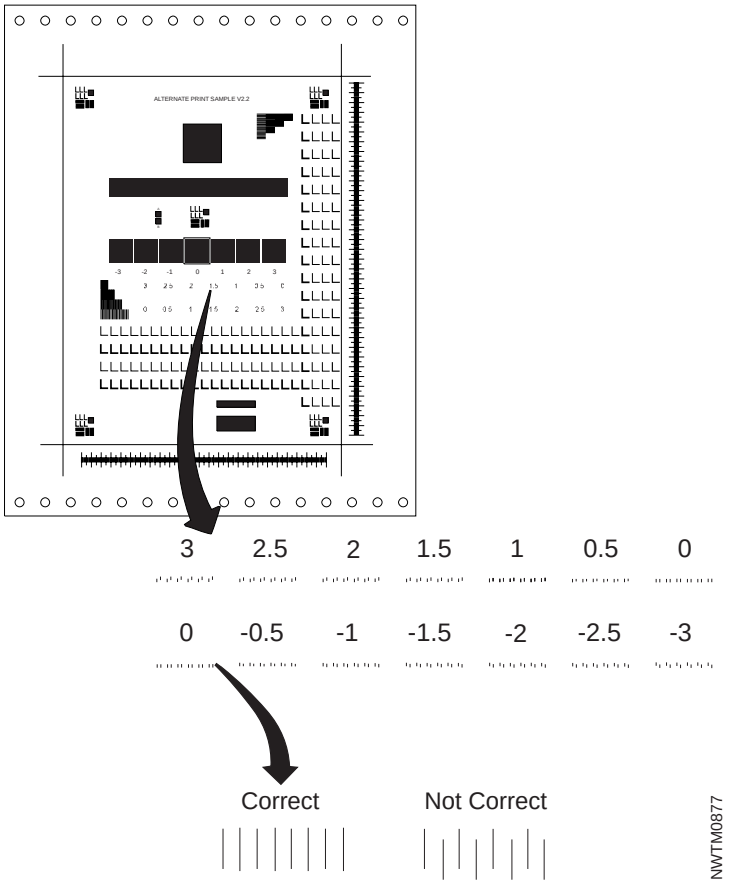
Table 850. AOM Skew Adjustment (continued)

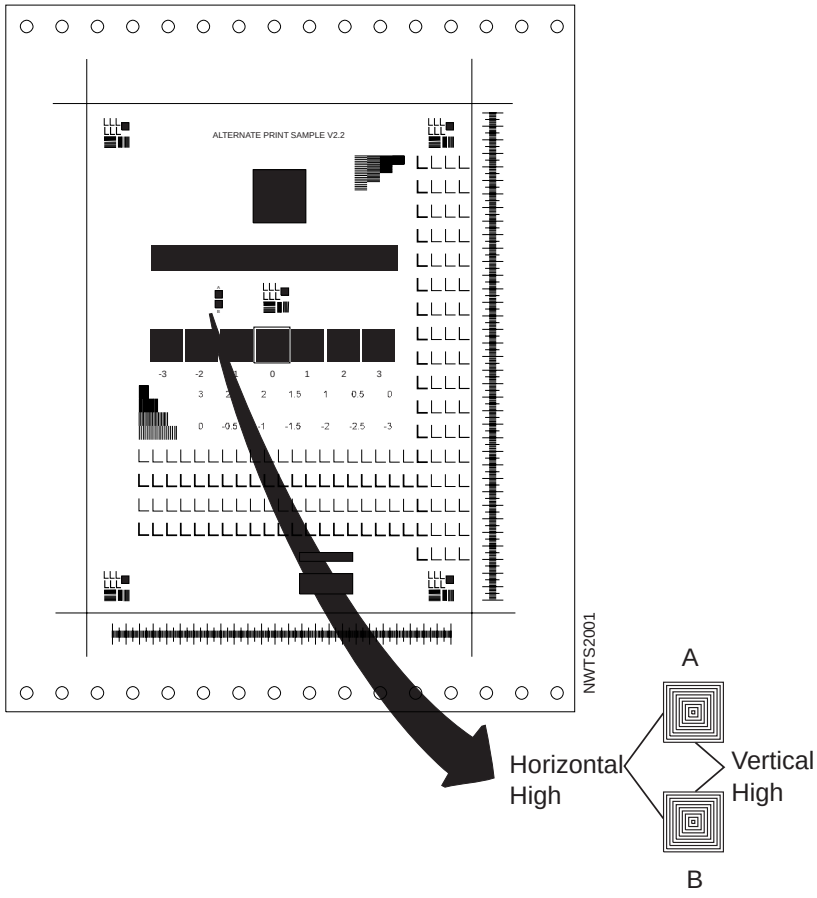


17. The "**0**"checkerboard is very sensitive to AOM skew error. Adjust until the squares are evenly spaced diagonally.
18. When you are satisfied that the alignment marks are correct for the alignment marks that you chose, verify by checking the other set of marks.
19. Repeat steps 8 through 18for the second printer.
20. Select the contrast back to normal.
21. Restore all the horizontal and vertical **Print Adjust** values to the values recorded in step 5c.
22. Go to PQE Stroke Width.

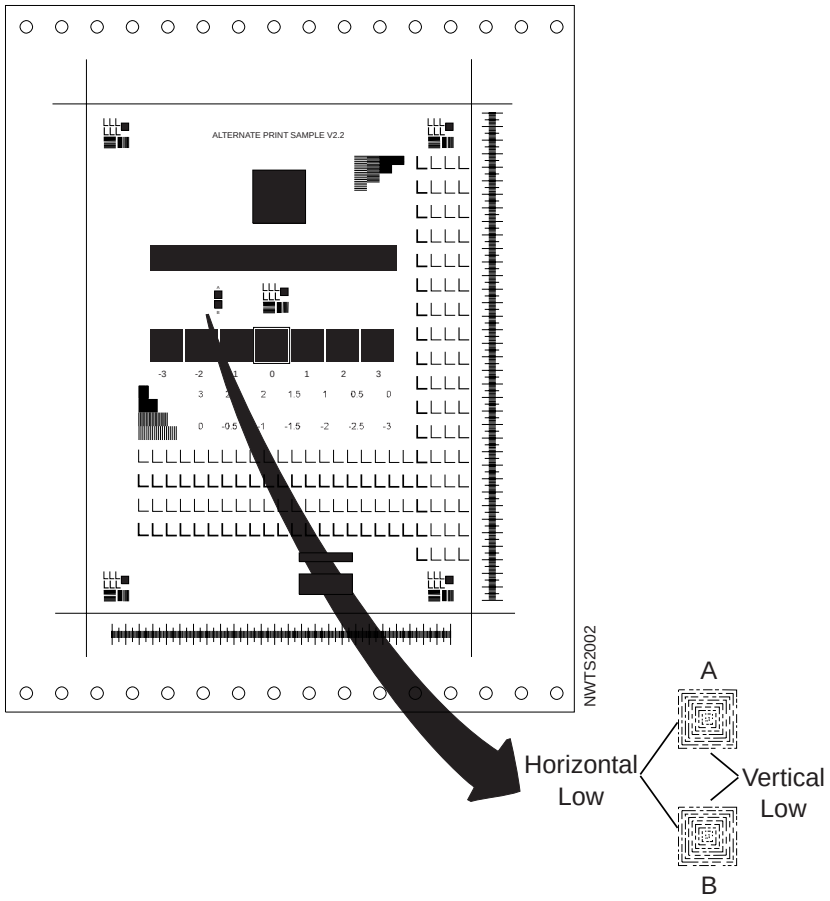
PQE Stroke Width

Horizontal High and Low Adjustment:

100% **Boldness extremes** Sample



0% **Boldness extremes** Sample



This procedure assumes that the printhead is correctly aligned. See Printhead Checks and Adjustments.

Controller microcode level 2.0 or higher must be installed.

1. Power-on the printer.
2. Load 8½ inch wide paper into the printer. This makes it easier to observe the boldness extremes test prints in the printer.
3. Set **Contrast** on the printer control panel to **7**.
4. Select **Analyze** on the Display/Touch Screen.
5. Select **Service Actions** on the menu that appears.
6. If you have not already entered your password as a customer engineer, the **Password** window appears.
   Select **Customer Engineer** in the **Password** window. Use the keyboard that appears to select your password, and then select the **OK** key. When your password is accepted, the **Service Actions** window reappears.
7. Select **Configure Printer**, and then **Dual Simplex Mode**.
8. Select **Diagnostics** on the **Service Actions** menu.

Note: If a preventive maintenance (PM) item is due, the PM window appears. Temporarily bypass the maintenance item and close the PM window to complete the stroke width adjustment. After this adjustment, perform the appropriate PM procedures.

9. Select **Print Quality Enhancement** (PQE) on the menu that appears. The **Print Quality Enhancement** window appears.
10. Verify that the **Current vector** is **1** for both beams.
11. Set the **PQE boldness** for both beams to **50%**.
12. Using the zero beam, set the **Horizontal high** value to **63**.
13. Using the zero beam, set the **horizontal low** and the **vertical low** values to **15**.
14. Select **Print** and then **Boldness extremes** from the **PQE adjust** screen, and print the **Boldness extremes** test pages (Reference the figures on page 2949).
15. NPRO this print sample through the printer and save the 100% boldness sample (the first page printed). This is the horizontal high reference sample.
16. Using the zero beam, set the **Horizontal high** and the **Vertical high** values to **45**.
17. Using the zero beam, reduce the **Horizontal high** value entered by two units.

18. Print the **Boldness extremes** samples again.
19. At the tension arm, compare the 100% boldness sample to the lightest squares pattern on the horizontal high reference sample printed in step 15.
20. Using the zero beam, reduce the **Horizontal high** value entered by two units and print the **Boldness extremes** samples again.

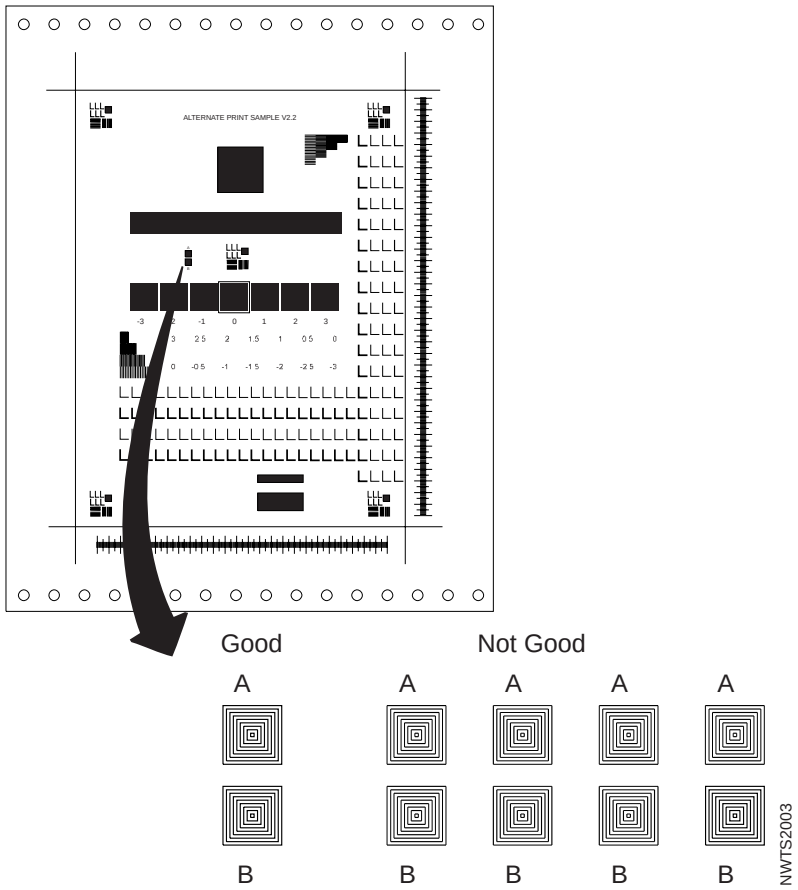
    Continue reducing the value and printing samples until the horizontal lines of the squares on the 100% boldness sample just start to lighten in appearance compared to those on the horizontal high reference sample printed in step 15.
21. Using the zero beam, increase the **Horizontal high** value by two units.
22. Using the zero beam, adjust the **Horizontal low** value until the horizontal lines of the squares on the 0% boldness sample (second **Boldness extremes** page) just disappear.

Note: This can be done at the same time as the **Horizontal high** adjustment.

23. When the point where the horizontal lines in the square pattern just disappears, enter a value one unit larger for the **Horizontal low** value for each beam.

Stroke Width Balancing:

Table 851. Stroke Width Balancing

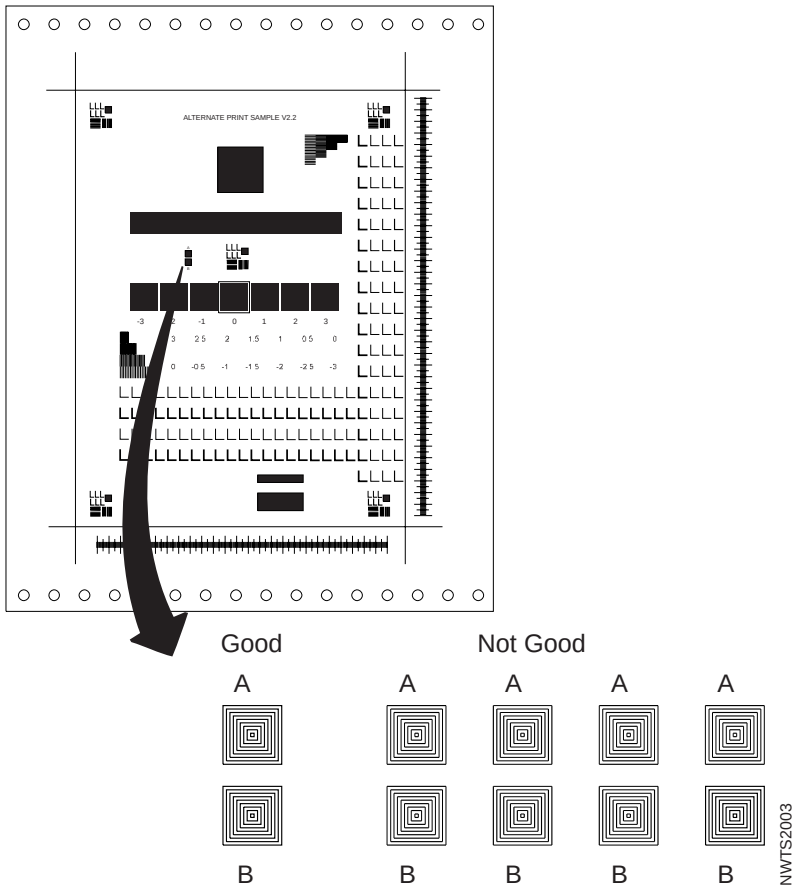


The stroke width between vertical and horizontal printing must match.

1. Using the 0% boldness page, adjust the vertical low values using the zero beam until the vertical lines in the squares pattern just disappear.
2. Print Alternate Print Samples at 50% boldness for the remaining part of this procedure. Do not use the boldness extremes sample previously used.
3. Select **Beam 0** and adjust the vertical high values so that the appearance of the vertical lines in the squares pattern match the horizontal lines.
4. Select **Beam 1** and **Beam 2** and adjust the horizontal high values so that the appearance of all the squares for each beam are the same.

Engine Boldness Balancing:

Table 852. Engine Boldness Balancing

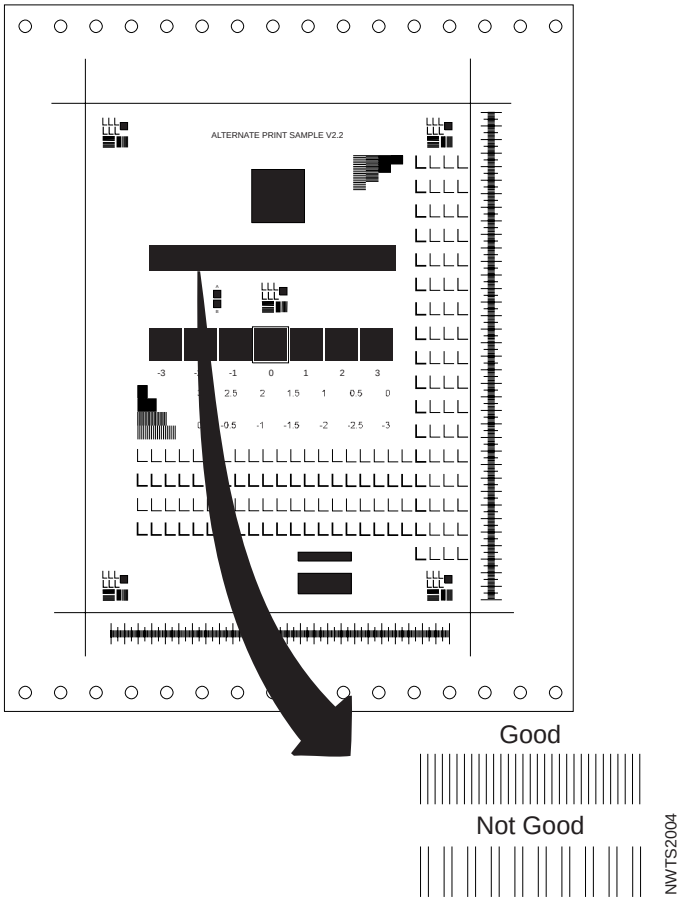


The printing appearances between the two printers in a duplex system must match.

1. Use the Alternate Print Samples at 50% boldness printed in step 2 under Stroke Width Balancing for this procedure, not the boldness extremes.
2. Adjust the PQE boldness of the lighter printer so that the squares patterns of both printers match.
3. Select **Save** to save the PQE values.
4. Exit the **Service** screens.

Scan Line Spacing Check:

Table 853. Scan Line Spacing Check



1. Power-on the printer.
2. Run test prints to verify that no system reference codes are displayed and that print quality is good.
3. Print several pages of the Alternate Print Samples.
4. View the scan lines for equal spacing between lines.
5. If the spacing between lines is not equal, call your next level of support. The laser beams are not correctly spaced.

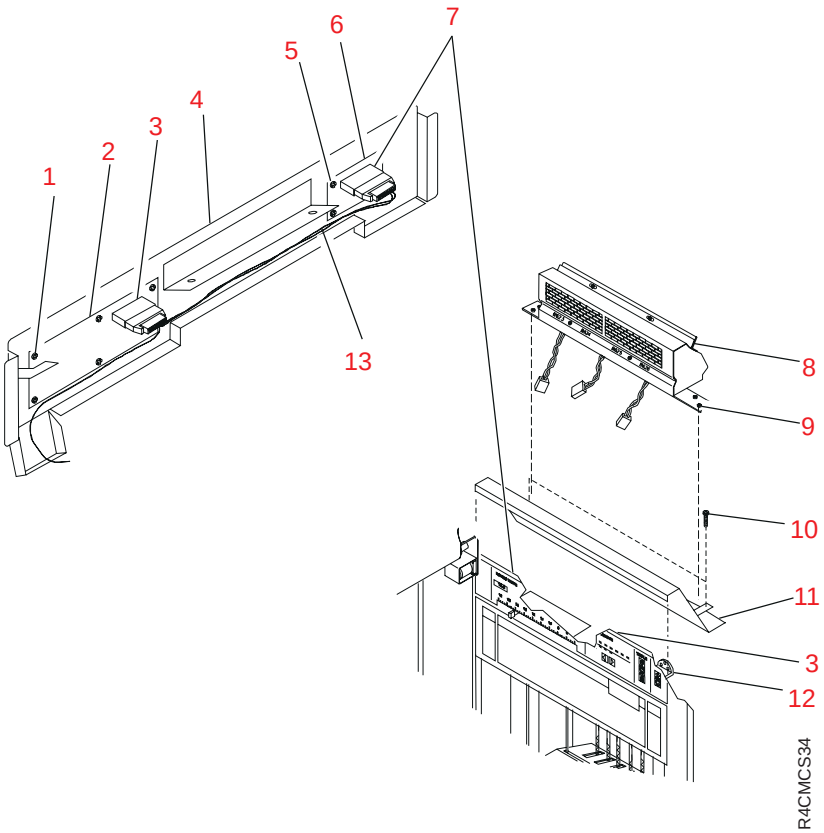
Stacker

Stacker Control Panel (SW511) and Forms Width Display (LD091) 2957
Stacker Cooling Blower (B703) 2959
Forms Length Sensor Board (FL061) 2960
Forms Length Mechanism and Sensor Adjustment 2961
Stacker Forms Width Guide Adjustment 2964
Stacker Gate Interlock Switch (S712) 2967
Stacker Gate Safety Switches (S713 and S714) 2968
Stacker Height Sensors - Left PL703/Q703 2970
Stacker Height Sensors - Right PL702/Q702 2973
Stacker Inner Cover 2976
Stacker Jam Sensor - PL701/Q701 2978
Left Finger Belt Motor (M701) & Drive Belt 2984
Left Finger Belts 2986
Right Finger Belt Motor (M702) and Drive Belt 2990
Right Finger Belts 2992
Stacker Length Belts 2995
Stacker Length Drive Motor (M707) and Drive Belt 2997
Stacker Length Rotary Board (FL041) 3001
Pendulum Motor (M704) and Drive Belt 3004
Pendulum Position Sensor (S619) 3007
Pendulum Static Discharge Brush 3009
Stacker Rear Cooling Fan (B603) 3010
Stacker Table Drive Belts 3011
Stacker Table Motor (M803) 3013
Stacker Table Lower Limit Sensor (S701) 3015
Stacker Table Upper Limit Sensor (S704) 3017
SCxxx - Stacker Control Card 3019
SC061/SC091 Card EPROM Module 3020

SC0101/SC0103 Card EPROM Module 3021

Stacker Control Panel (SW511) and Forms Width Display (LD091)

Table 854. Stacker Control Panel (SW511) and Forms Width Display (LD091)



CAUTION:
<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

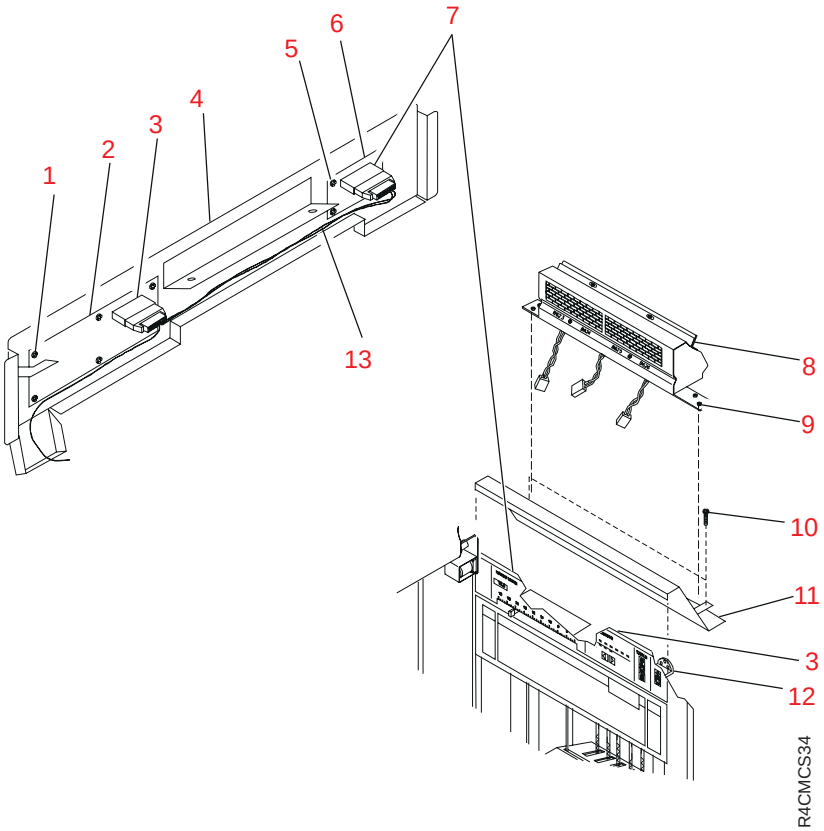
Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While working in this area, cover the oiler belt gate.

Removal

1. Set forms length to 7 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker end cover.
6. Open and lock the oiler belt gate.
7. Open the stacker gate.
8. Remove the four screws **(9)** and lift the fan assembly **(8)** and disconnect connectors PJ687, PJ688, PJ689, PJ690. Remove the fan assembly **(8)**.
9. Loosen the two screws **(10)**, remove the stacker panel shield **(11)**.
10. Remove the stacker switch cover.
11. Remove the three screws **(12)** and lift the stacker panel **(4)** and disconnect connectors PJ605 **(7)** and PJ728 **(3)**, remove the stacker panel.

(continued on next page)

Table 854. Stacker Control Panel (SW511) and Forms Width Display (LD091) (continued)



Stacker Control Panel (SW511)

Remove the six nuts **(1)**, remove the SW511 **(2)**.

Forms Width Display (LD091)

Remove the four nuts **(5)**, remove the LD091 **(6)**.

Installation

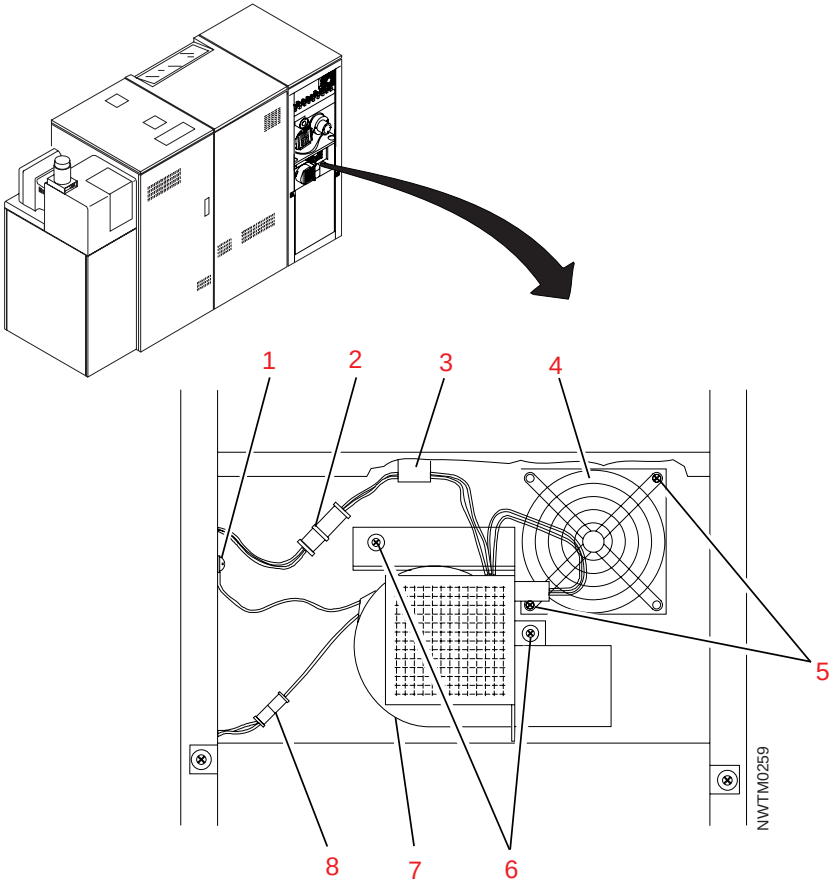
Reverse the removal procedure.

Check

1. Run Driver Routine 39 to test the LD091.
2. Run Driver Routine 7E to test the SW511.
3. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
4. Run Print Pack to check print quality.

Stacker Cooling Blower (B703)

Table 855. Stacker Cooling Blower (B703)



Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right rear cover.
4. Disconnect connectors PJ746 **(2)**, and PJ747 **(8)**.
5. Remove the cable harness from the cable clamp **(3)**.
6. Remove the screw **(1)** to disconnect the ground wire.
7. Remove the two screws **(6)**, remove the blower assembly **(7)**.

Installation

Reverse the removal procedure.

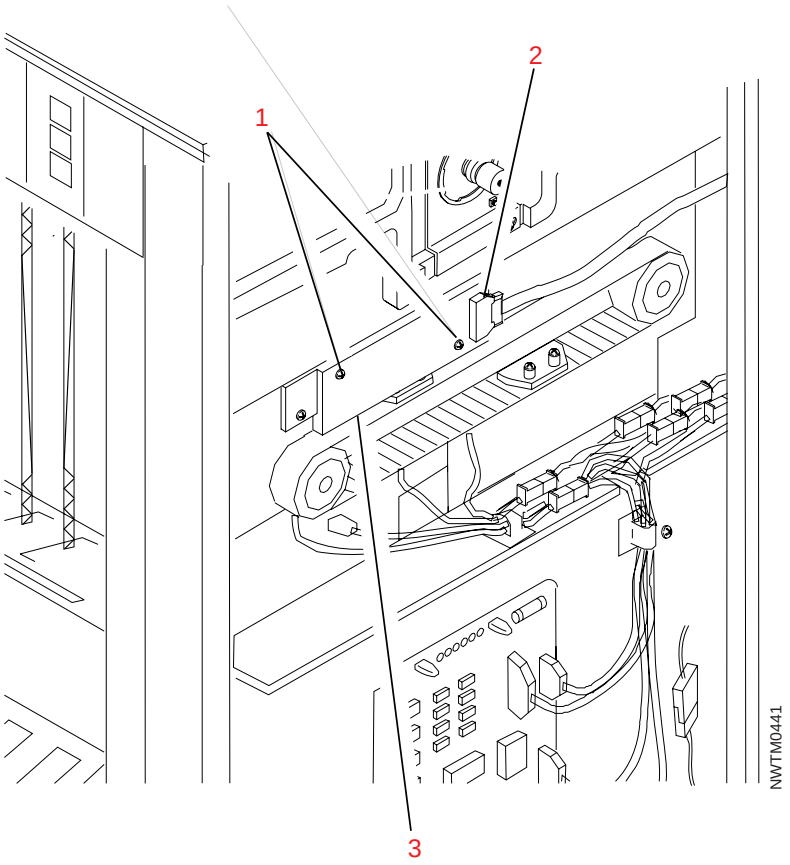
Check

Run Driver Routine 32 to ensure that the stacker cooling blower works correctly.

Run Print Pack to check print quality.

Forms Length Sensor Board (FL061)

Table 856. Forms Length Sensor Board (FL061)



Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Set forms length to 7 inches.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Shutdown and power off the printer.
4. Open the printer left front cover.
5. Disconnect connector PJ830 **(2)**.
6. Remove the two screws **(1)** and remove the sensor board **(3)**.

Installation

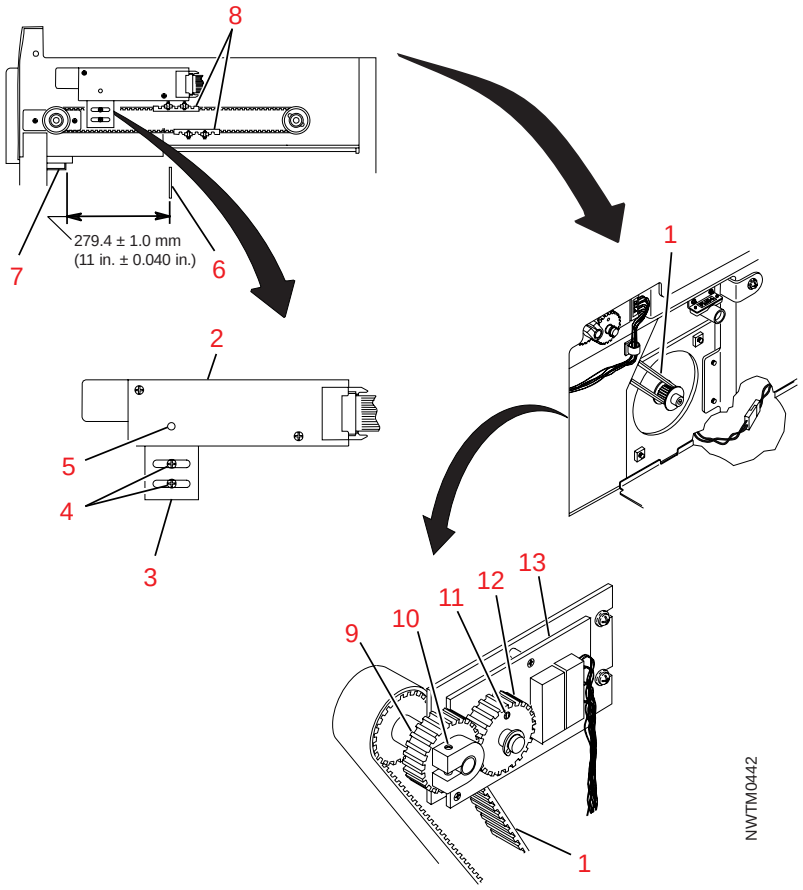
1. Reverse the removal procedure.
2. Perform steps 1 through 12 under Forms Length Mechanism and Sensor Adjustment.

Check

1. Run Driver Routines 3C and 3D to test the forms length sensor operation.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Forms Length Mechanism and Sensor Adjustment

Table 857. Stacker Forms Length Belts



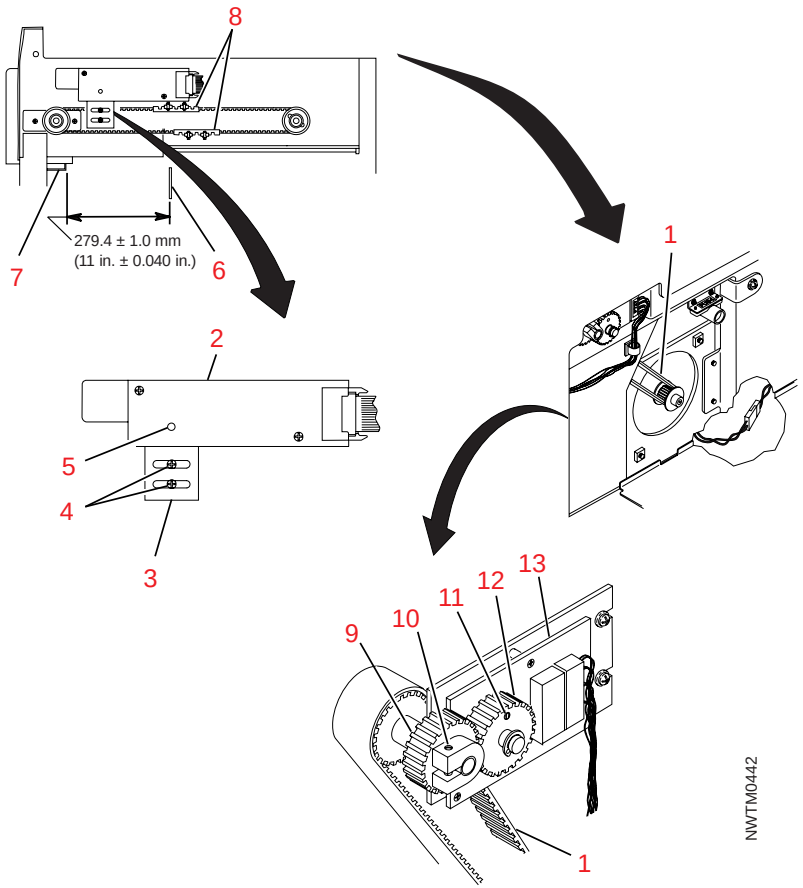
Stacker Forms Length Drive Belts

1. Set the forms length to 11 inches.
2. Lower the stacker table.
3. Adjust the front left belt clamp **(8)** to the center of its adjustment slots.
4. Loosen the front right, rear right, and rear left belt clamps **(8)**.
5. Adjust the clamps **(8)** on the forms length belts so that the distance between the right forms guide **(6)** (at the back of the stacker), and the left forms guide **(7)** (on the stacker gate), is 279.4 mm ±1.0 mm (11.0 in. ±0.040 in.).

   Ensure that the inner and outer forms guides are parallel by measuring from the front and rear of the inner and outer forms guides to a suitable machine frame location.

(continued on next page)

Table 857. Stacker Forms Length Belts (continued)

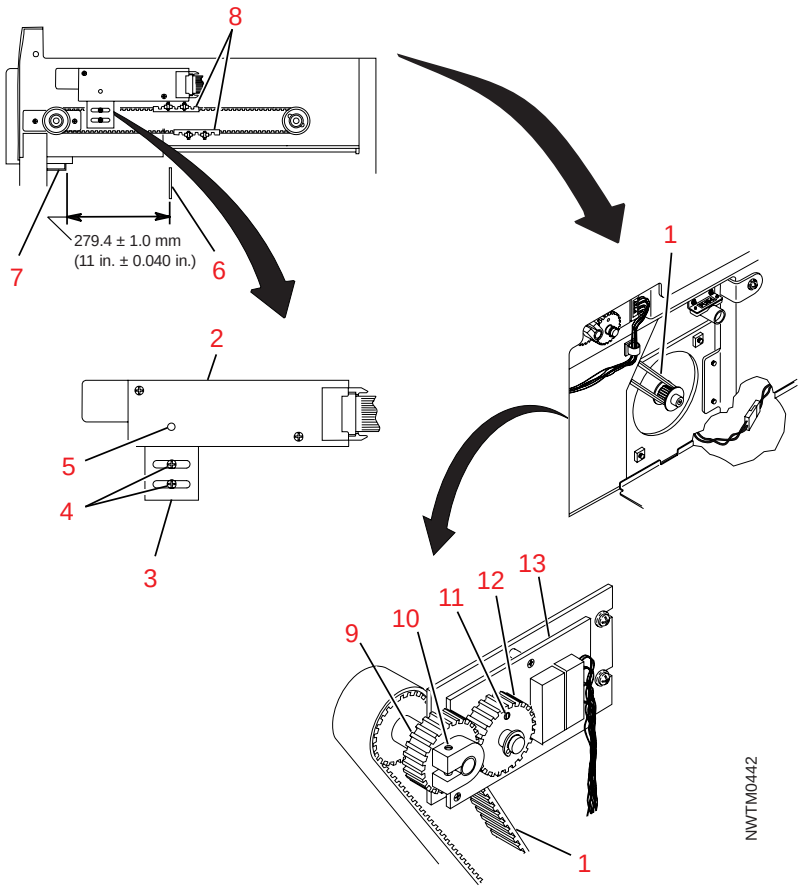


Forms Length Sensor Board (FL061)

6. Set the forms length to 14 inches.
7. A small red mark should be visible through the hole **(5)** in the forms length sensor board (FL061) **(2)**. (You may need a light to see the mark.) If the red mark is not visible, adjust the magnet mounting plate.
8. Loosen the two screws **(4)** and position the magnet mounting plate **(3)** so that the red mark is centered in the hole **(5)** of the sensor board (FL061).

(continued on next page)

Table 857. Stacker Forms Length Belts (continued)



Stacker Length Rotary Board (FL041)

9. Set the forms length mechanism to 11 inches.
10. Install the driven gear **(12)** so that the epoxy-filled hole **(11)** is located at the top.

Note: The back of the driven gear **(12)** has a magnet placed so that it will activate the upper sensor on the forms length rotary sensor board **(13)** when the magnet is at the top.

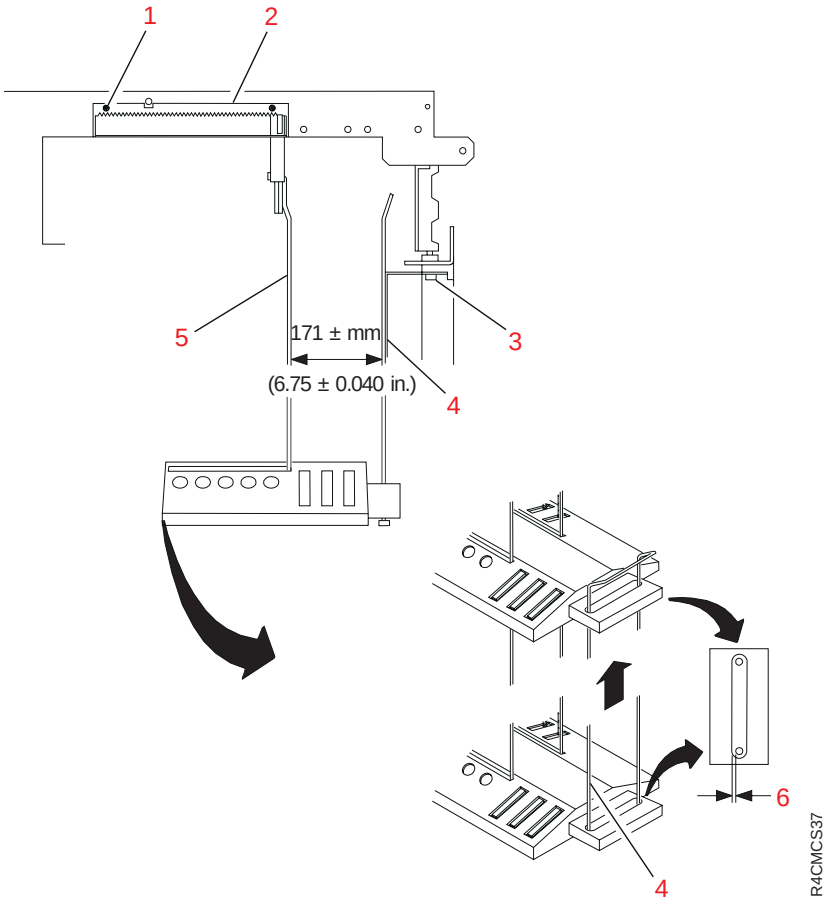
11. Power on the printer.
12. Run Driver Routine 3C at least five times to check for failures. If an error is detected, repeat step 9 and fine tune the position of the gear **(12)** (magnet) relative to the forms length rotary sensor board **(13)** by loosening the screw **(10)** and turning the drive gear **(9)** so that the magnet located behind the epoxy filled hole **(11)** on the driven gear **(12)** is located at the top.

Check

1. Run Driver Routines 3C and 3D to ensure that the forms length mechanism and the sensors work correctly.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Forms Width Guide Adjustment

Table 858. Stacker Forms Width Guide

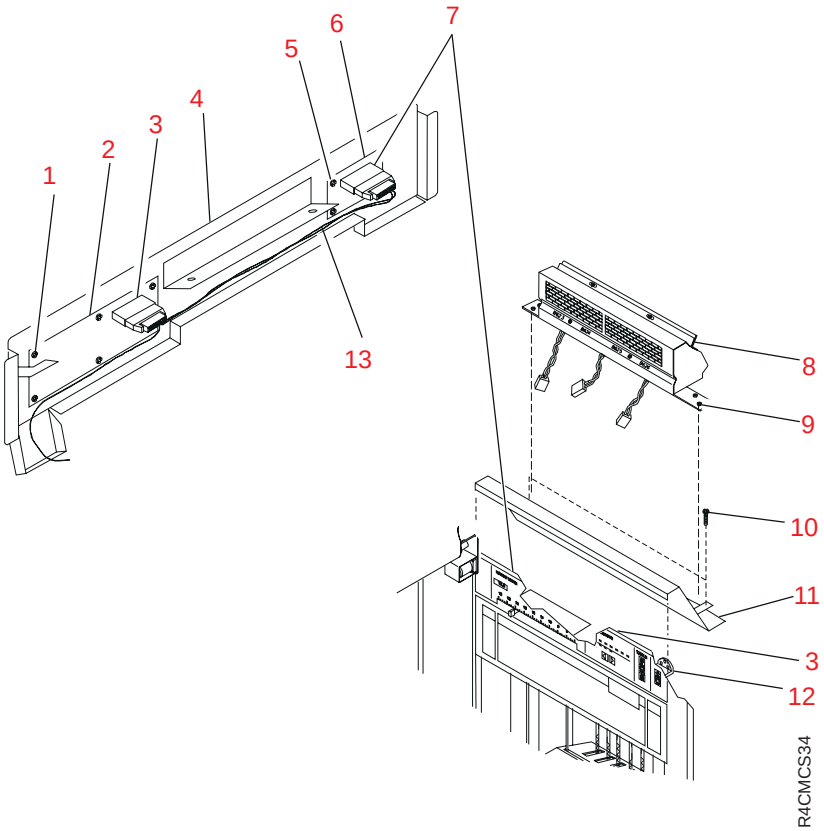


Adjustment

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Open the printer left front cover.
3. Lower the stacker table and measure the distance **(6)** between the front forms width guide **(4)** and the opening in the stacker table.
4. Raise the stacker table to a position approximately four inches from the top. Loosen the two screws **(3)** and adjust the front forms width guide so the distance **(6)** is equal to that measured in step 3. This ensures that the front forms width guide **(4)** is perpendicular to the stacker frame.
5. Shutdown and power off the printer.
6. Open the stacker end cover.
7. Open and lock the oiler belt gate.
8. Open the stacker gate.

(continued on next page)

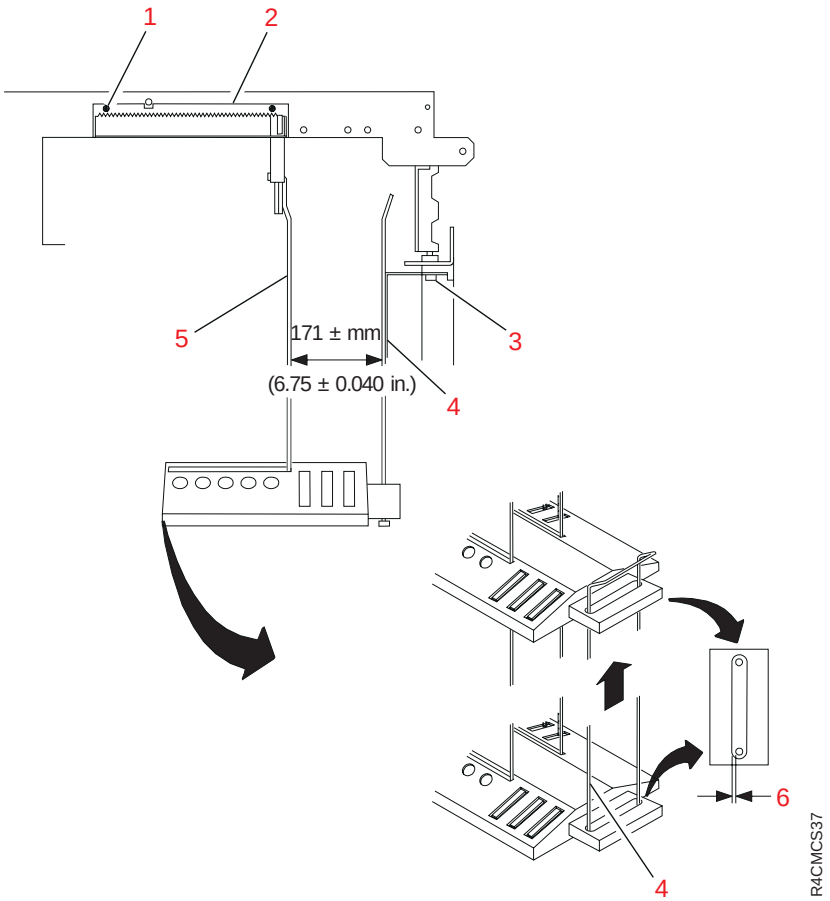
Table 858. Stacker Forms Width Guide (continued)



9. Remove the four screws **(9)** and lift the fan assembly **(8)** and disconnect connectors PJ687, PJ688, PJ689, PJ690. Remove the fan assembly **(8)**.
10. Loosen the two screws **(10)**, remove the stacker panel shield **(11)**.
11. Remove the stacker switch cover.
12. Remove the three screws **(12)** and lift the stacker panel **(4)** and disconnect connectors PJ605 **(7)** and PJ728 **(3)**, remove the stacker panel.

(continued on next page)

Table 858. Stacker Forms Width Guide (continued)



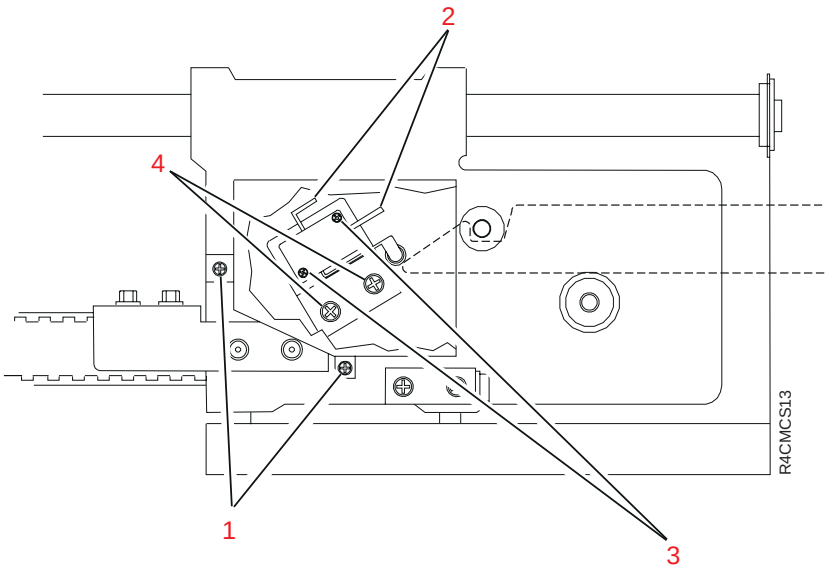
13. Move the stacker forms width guide **(5)** to the front notch in the stop **(2)**, loosen the two screws **(1)** and slide the stop **(2)** so the gap between the front forms width guide **(4)** and the stacker forms width guide **(5)** is 171.0 mm ±1.0 mm (6.75 in. ±0.040 in.).
14. Reverse steps 5 through 12.

Check

1. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
2. Run Print Pack to check print quality.

Stacker Gate Interlock Switch (S712)

Table 859. Stacker Gate Interlock (S712)



Removal

1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Remove the two screws **(1)**, remove the interlock switch cover.
7. Disconnect the two connectors **(2)**.
8. Remove the two screws **(3)**, remove the switch.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Gate Interlock adjustment.

Adjustment

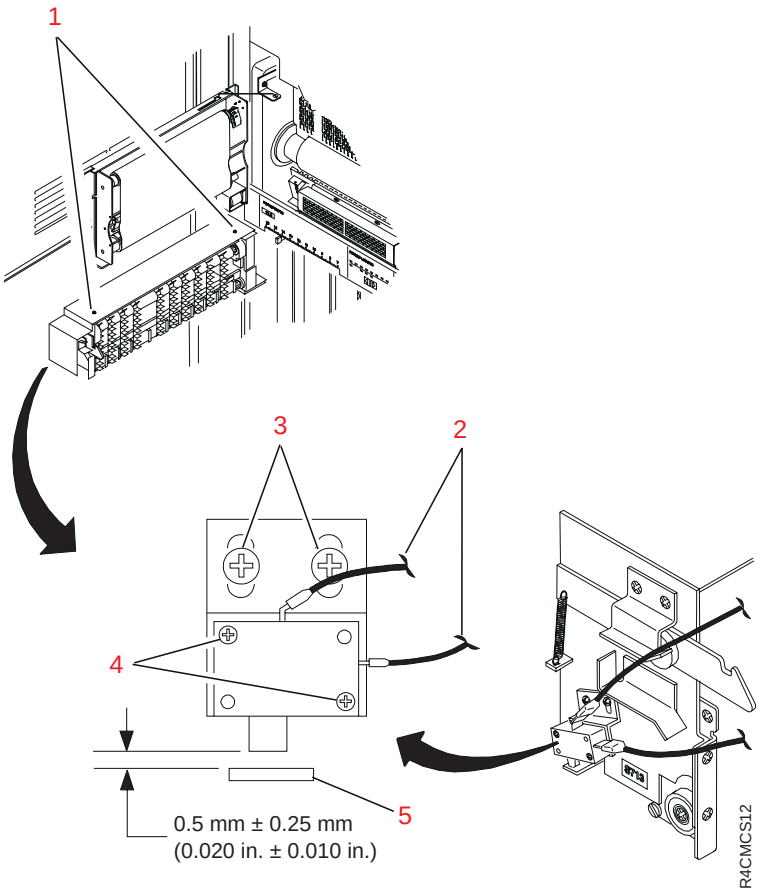
1. Run Sensor Routine 77.
2. To ensure positive transfer, loosen the two screws **(4)** and adjust the switch bracket so that when the stacker gate is latched closed there is 0.5 mm (0.020 in.) switch plunger travel beyond transfer.

Check

1. Run Sensor Routine 77 to test the switch operation.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Gate Safety Switches (S713 and S714)

Table 860. Stacker Gate Safety Switches (S713 and S714)



S713 Removal

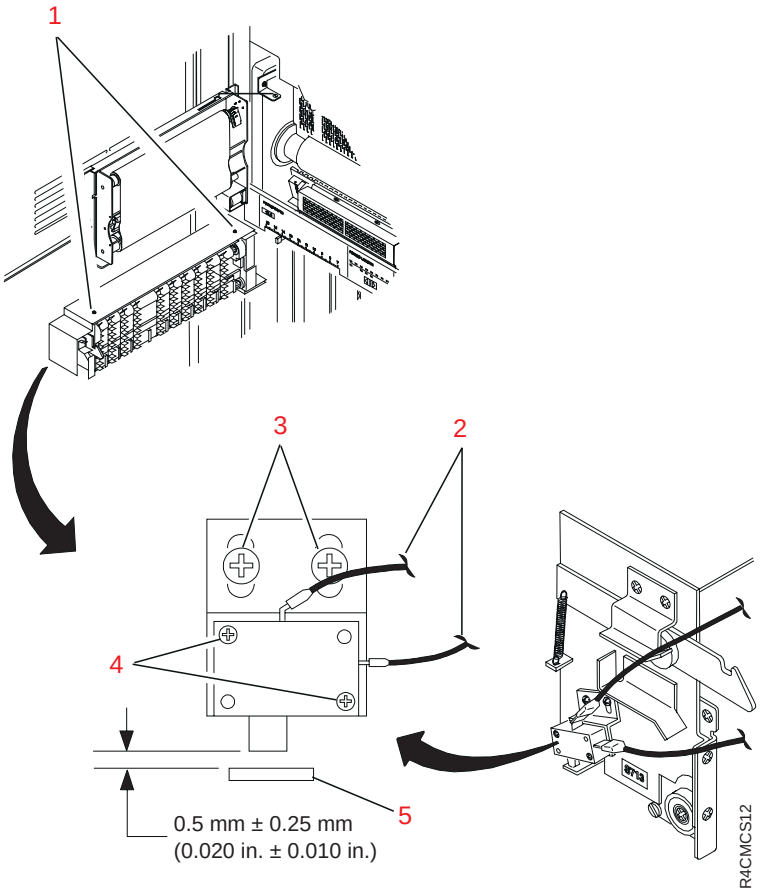
1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Remove the two screws **(1)**, remove the stacker gate cover.
7. Disconnect the two connectors **(2)**.
8. Remove the two screws **(4)**, remove the switch.

S714 Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the stacker gate.
4. Remove the two screws **(1)**, remove the stacker gate cover.
5. Remove the stacker gate belt cover. See step 7 under Left Finger Belts.
6. Remove the two switch mounting screws (located behind the cover), remove the switch.

(continued on next page)

Table 860. Stacker Gate Safety Switches (S713 and S714) (continued)



Installation

1. Reverse the removal procedure.
2. Perform the S713 adjustment. S714 has no adjustment.

S713 Adjustment

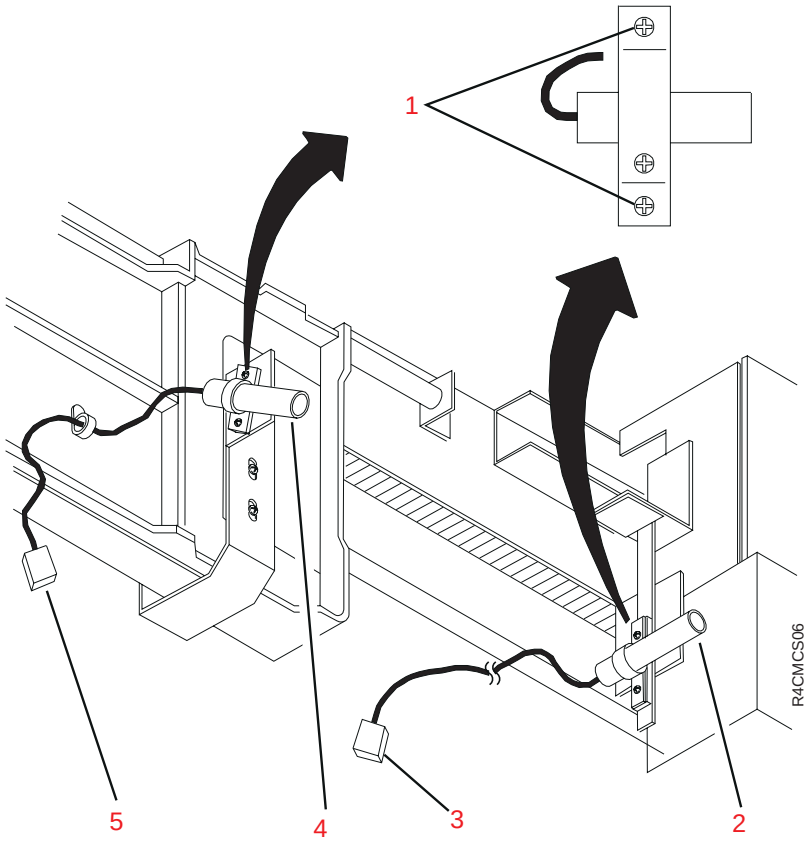
1. Loosen the two screws **(3)**.
2. Adjust the switch bracket so that when the safety bail is at rest there is a 0.5 mm ±0.25 mm (0.020 in. ±0.010 in.) clearance between the tab on the safety bail **(5)** and the switch plunger.
3. Tighten the two screws **(3)**.

Check

1. Run Sensor Routine 76 to ensure the switches transfer reliably when the safety bail is operated. Test the switch operation by operating the safety bail from the front, middle, and rear.
2. Ensure that the stacker table stops driving up when the safety bail is lifted.
3. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
4. Run Print Pack to check print quality.

Stacker Height Sensors - Left PL703/Q703

Table 861. Stacker Height Sensors



Lamp Removal

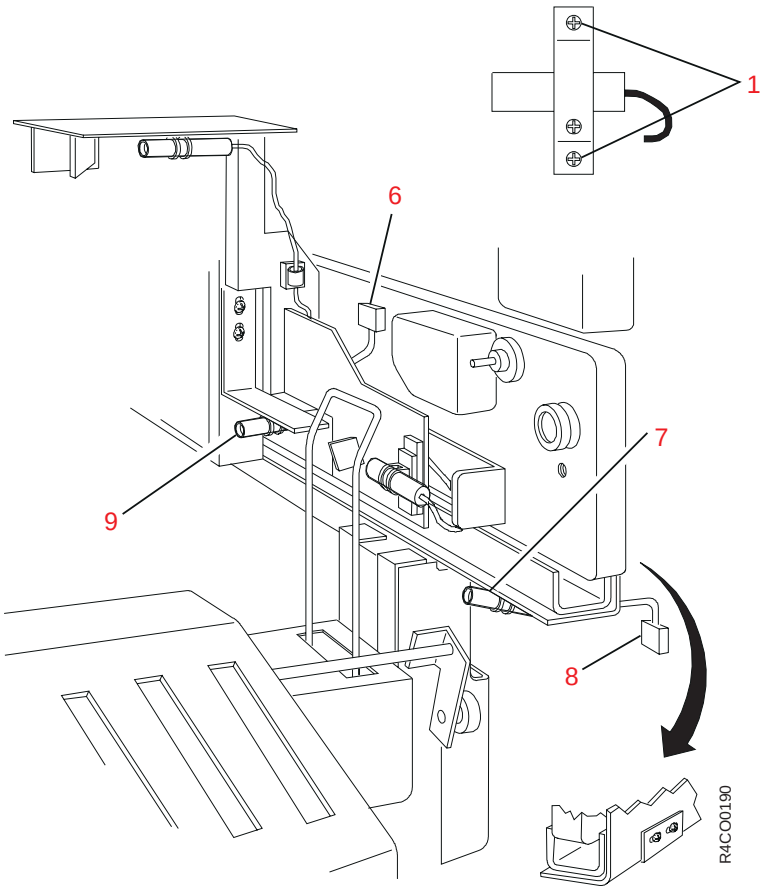
1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Disconnect the connector PJ732 **(5)** and any necessary cable clamps.
7. Remove the two screws **(1)**, remove the sensor lamp **(4)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Height Sensor adjustment.

(continued on next page)

Table 861. Stacker Height Sensors (continued)



Receiver Removal

1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Disconnect the connector PJ730 **(8)** and any necessary cable clamps.
7. Remove the two screws **(1)**, remove the sensor receiver **(7)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Height Sensor adjustment.

Table 861. Stacker Height Sensors (continued)

Adjustment

1. Ensure that the printer is in the run mode. If the printer is in the diagnostic mode the voltage to the sensor lamps will be too low for accurate adjustment.
2. Place a piece of white paper over the receiver and loosen the LED mounting bracket screws to adjust the position of the LED PL703 so the beam hits the receiver Q703.
3. Loosen the receiver mounting bracket screws and adjust the position of the receiver so the bright area of the beam shines straight down the center of the receiver.

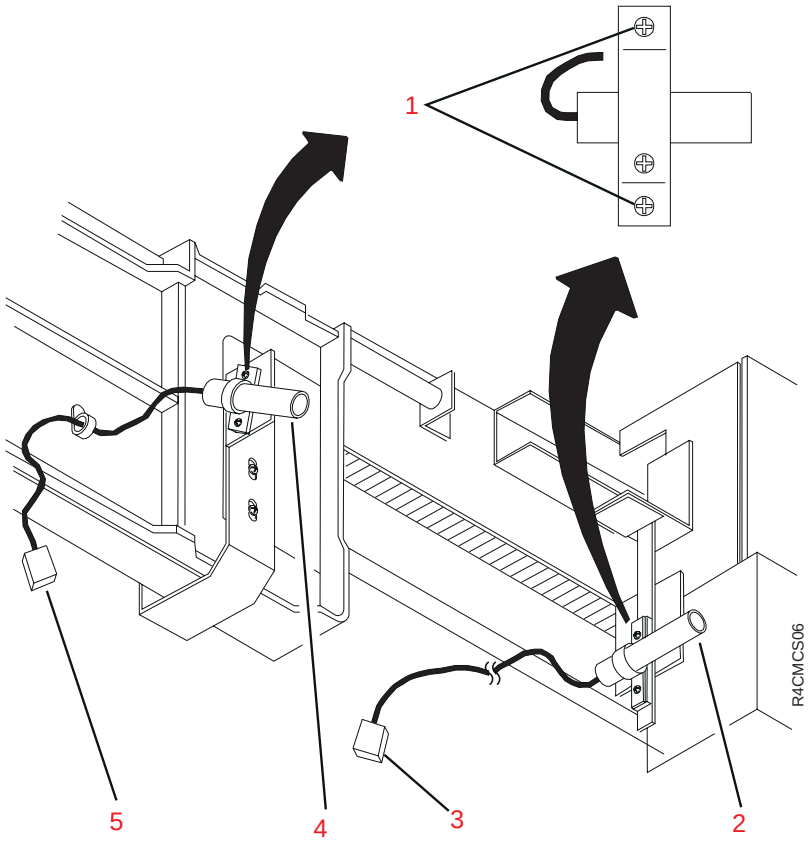
   The LED lamp beam has a bright area at each of the 4 corners. The lamp must be positioned so one of the bright areas shines directly into the receiver

Check

1. Run Sensor Routine 8E to ensure that PL703 and Q703 work correctly.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Height Sensors - Right PL702/Q702

Table 862. Stacker Height Sensors



Lamp Removal

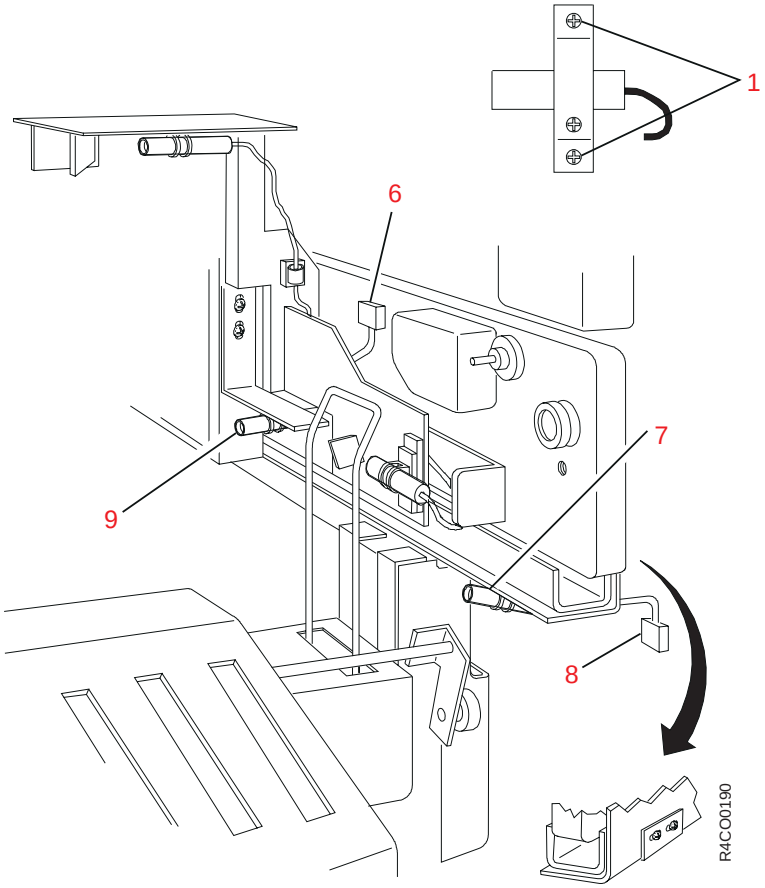
1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Disconnect the connector PJ733 **(3)**, and any necessary cable clamps.
7. Remove the two screws **(1)**, remove the sensor lamp **(2)** .

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Height Sensor adjustment.

(continued on next page)

Table 862. Stacker Height Sensors (continued)



Receiver Removal

1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Disconnect the connector PJ731 **(6)** and any necessary cable clamps.
7. Remove the two screws **(1)**, remove the sensor receiver **(9)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Height Sensor adjustment.

Table 862. Stacker Height Sensors (continued)

Adjustment

1. Ensure that the printer is in the run mode. If the printer is in the diagnostic mode the voltage to the sensor lamps will be too low for accurate adjustment.
2. Place a piece of white paper over the receiver and loosen the LED mounting bracket screws to adjust the position of the LED PL702 so the beam hits the receiver Q702 .
3. Loosen the receiver mounting bracket screws and adjust the position of the receiver so the bright area of the beam shines straight down the center of the receiver.

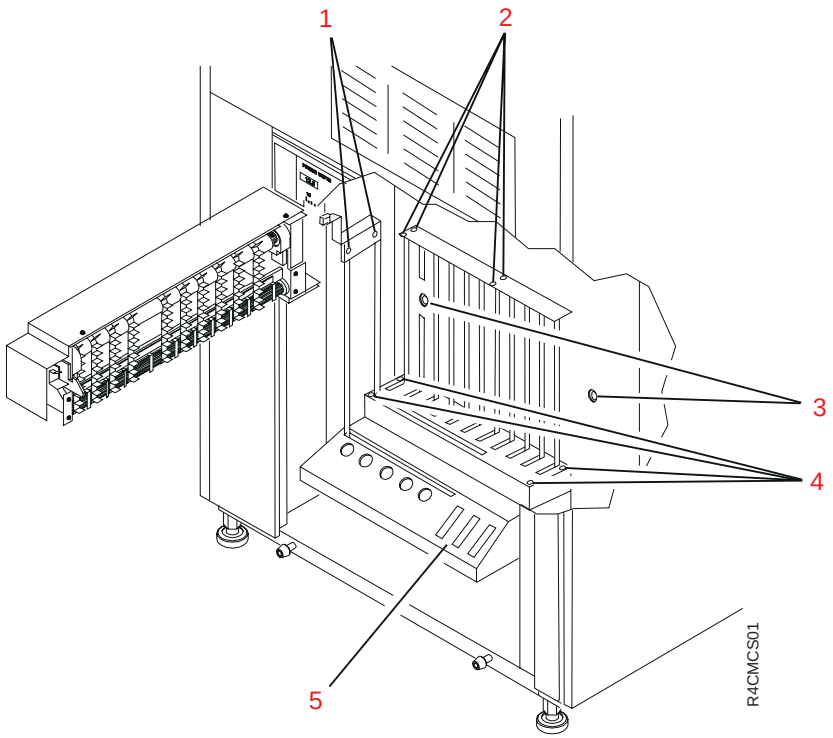
   The LED lamp beam has a bright area at each of the 4 corners. The lamp must be positioned so one of the bright areas shines directly into the receiver

Check

1. Run Sensor Routine 8D to ensure that PL702 and Q702 work correctly.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Inner Cover

Table 863. Stacker Inner Cover



Removal

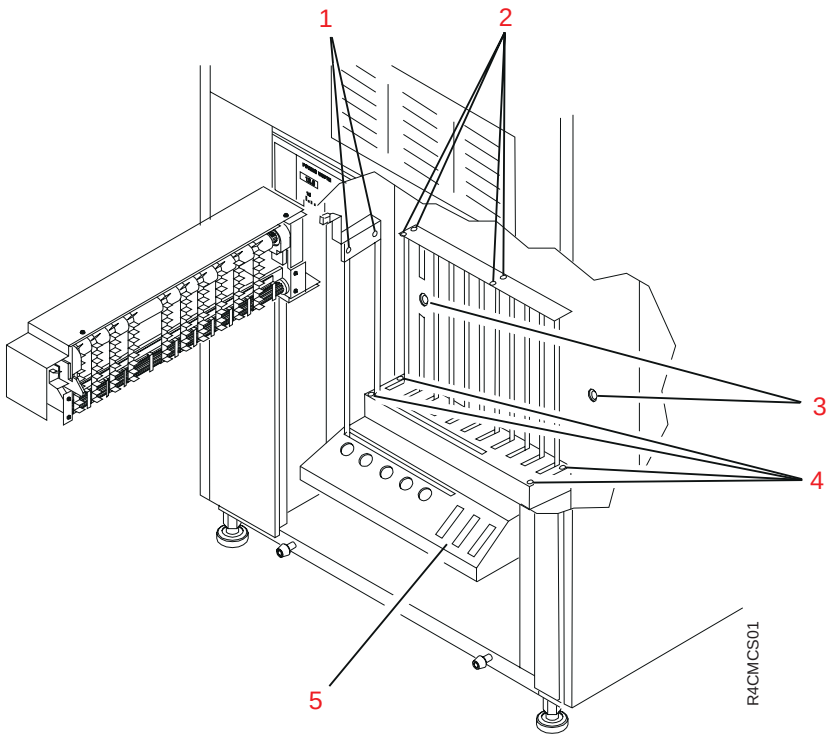
1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Set the stacker forms width guide to 9 inches.

Attention: Use care when removing the stacker forms width guide, the stacker table, and the inner forms guide. These parts bend easily.

7. Remove the two screws **(1)**, remove the stacker forms width guide.
8. Remove the four screws **(4)** and lift the inner and outer perforation expanders **(5)** to allow the rollers to clear the front forms guide, remove the stacker table.
9. Power on the printer.
10. Close the stacker gate.
11. Set the forms length to 7 inches.
12. Press **Power Off If In Local** button. Do not power off the control unit.
13. Open the stacker gate.
14. Remove the four screws **(2)**, remove the inner forms guide.
15. Loosen the two screws **(3)**, remove the stacker inner cover.

(continued on next page)

Table 863. Stacker Inner Cover (continued)



Installation

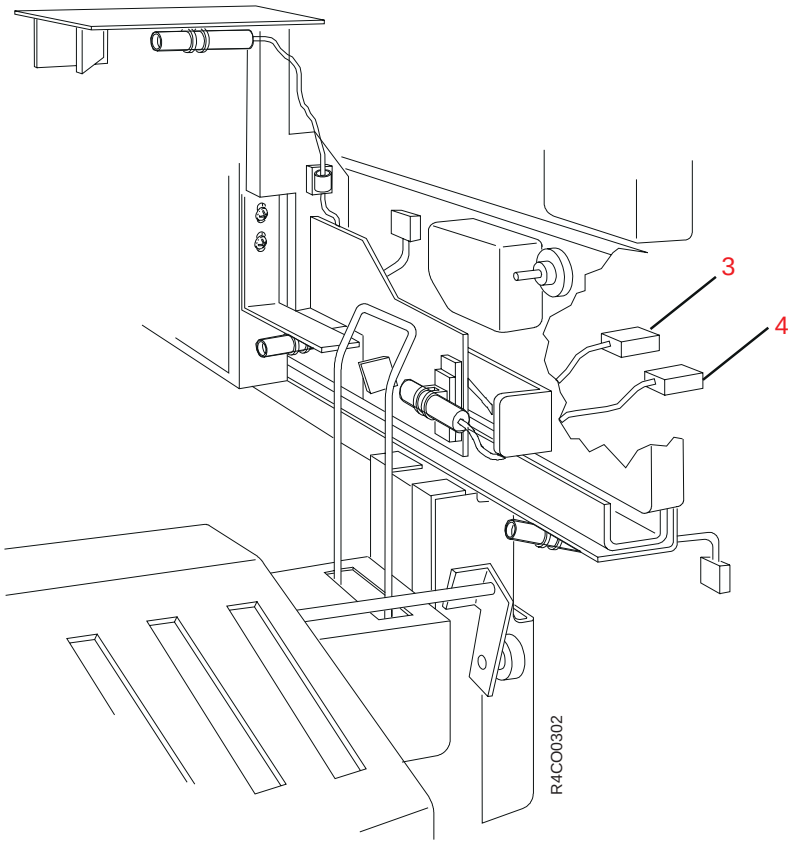
Reverse the removal procedure.

Check

1. Power on the printer.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Jam Sensor - PL701/Q701

Table 864. Stacker Jam Sensor (PL701 or Q701)

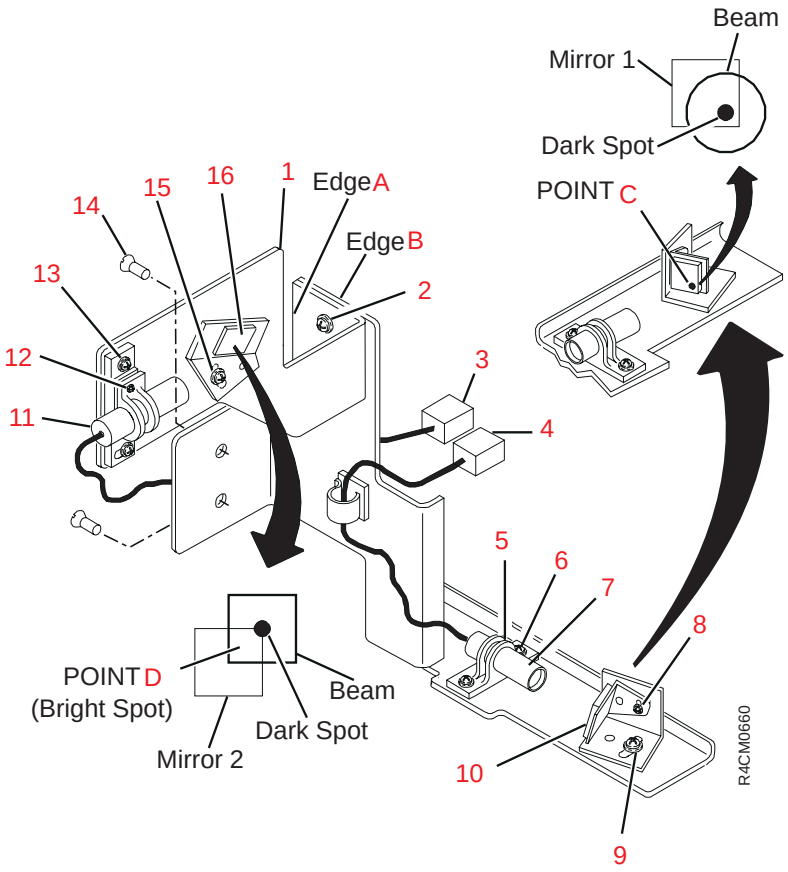


Removal

1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Open the printer left front cover.
7. Disconnect connectors PJ702 **(3)** and PJ711 **(4)**.

(continued on next page)

Table 864. Stacker Jam Sensor (PL701 or Q701) (continued)



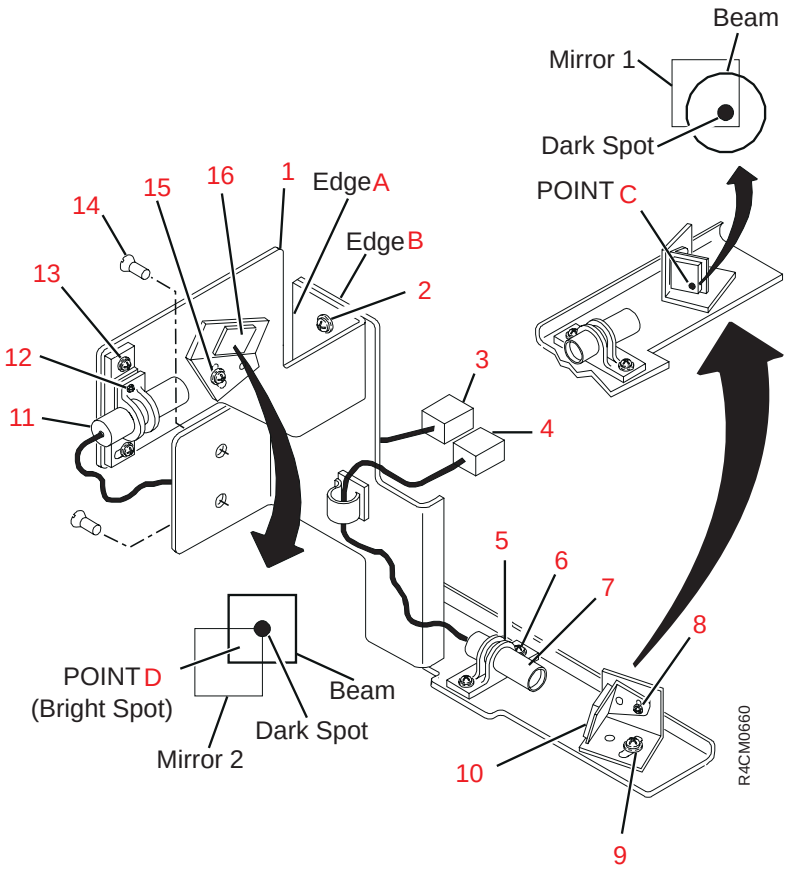
8. Remove the two screws **(14)**, remove the jam sensor assembly **(1)** (located above and to the right of the stacker table when viewed from the stacker gate end of the printer).
9. Remove the two screws **(6)**, remove the jam sensor lamp PL701 **(7)** from the bracket **(1)**.
10. Remove the two screws **(13)**, remove the jam sensor receiver Q701 **(11)** from the bracket **(1)**.

Installation

1. Perform the Stacker Jam Sensor adjustment before installing the stacker jam sensor assembly.
2. Reverse the removal procedure.

(continued on next page)

Table 864. Stacker Jam Sensor (PL701 or Q701) (continued)



Adjustment

Notes:

a. Adjust the jam sensor assembly with the assembly removed, but connected.

b. Low intensity, dark area in the center of the transmitted beam is noticeable after the beam has been deflected by mirror 1.

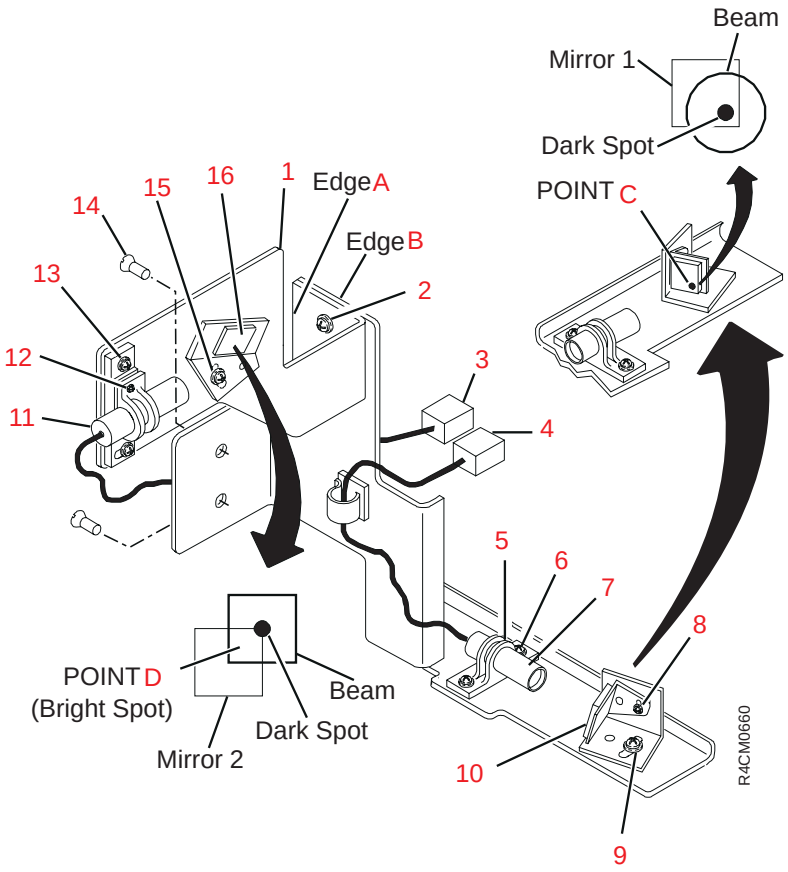
c. Do not let any bright light shine directly on jam sensor receiver Q701 **(11)** during this adjustment.

d. The following adjustments are interrelated. If one adjustment is made, then all others must be checked as well.

1. Loosen the two screws **(2)** and adjust the jam sensor receiver Q701 bracket flush with the two edges **(A)** and **(B)**.
2. Clean mirror 1 **(10)**, mirror 2 **(16)**, jam sensor lamp PL701 **(7)**, and jam sensor receiver Q701 **(11)**.

(continued on next page)

Table 864. Stacker Jam Sensor (PL701 or Q701) (continued)



3. Power on the printer.
4. Place a piece of white paper over mirror 1 **(10)** so that you can see the position of the beam transmitted from LED PL701 **(7)**.
5. Loosen the two screws **(6)** to adjust the position of LED PL701 so that the center of the beam hits mirror 1 **(10)** at point **(C)**.
6. Tighten the two screws **(6)** and ensure that the beam position on mirror 1 **(10)** did not move.
7. Place a piece of white paper over mirror 2 **(16)** and loosen the two screws **(8)** and **(9)** to adjust the position of mirror 1 so that the dark spot in the center of the beam hits mirror 2 at the corner, and the bright spot hits mirror 2 at point **(D)**.
8. Place a piece of white paper over the receiver Q701 **(11)** and loosen the screw **(15)** to adjust the position of mirror 2 **(16)** so that the center of the beam is focused directly on receiver Q701 **(11)**.
9. Tighten the screw **(15)** and ensure that the beam position on receiver Q701 **(11)** did not move.
10. Clean mirror 1 **(10)**, mirror 2 **(16)**, jam sensor lamp PL701 **(7)**, and jam sensor receiver Q701 **(11)**.

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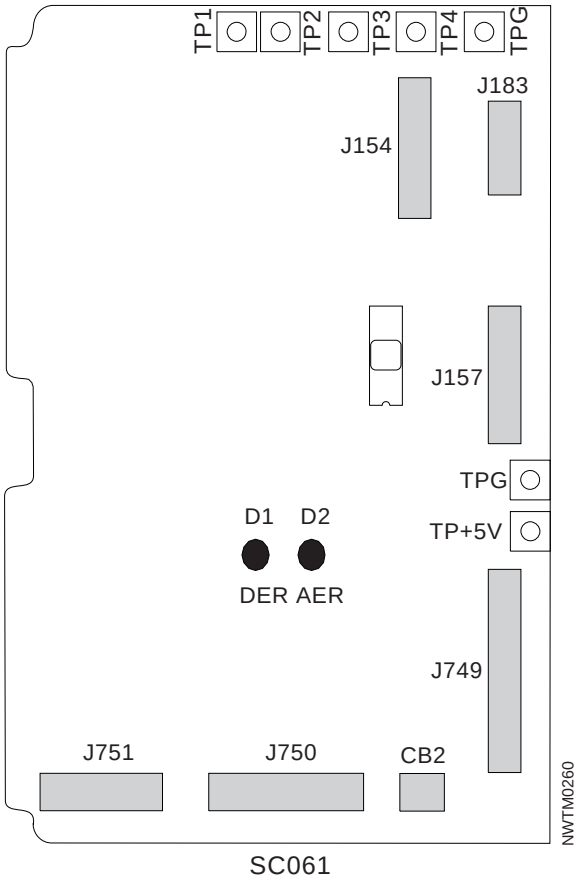
Table 864. Stacker Jam Sensor (PL701 or Q701) (continued)



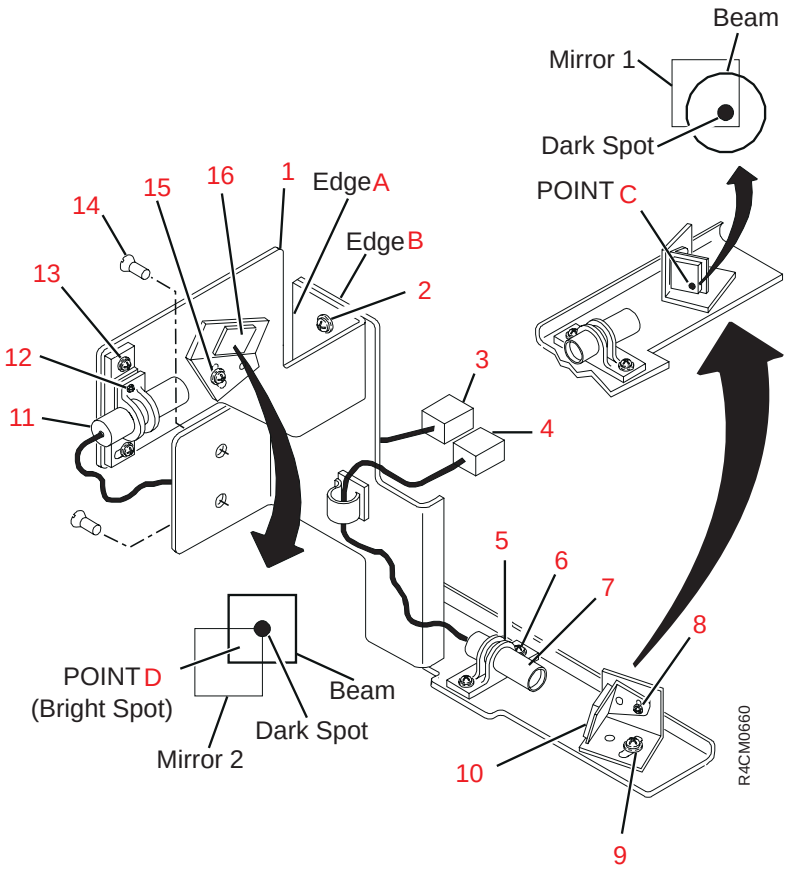
SC061

11. Connect the voltmeter from TP1 to TPG on the SCxxx card.
12. Run Sensor Routine 75.

    Ensure that the printer is in the diagnostic mode. If the printer is not in the diagnostic mode, the voltage across the test points will be too low for accurate adjustment.

(continued on next page)

Table 864. Stacker Jam Sensor (PL701 or Q701) (continued)



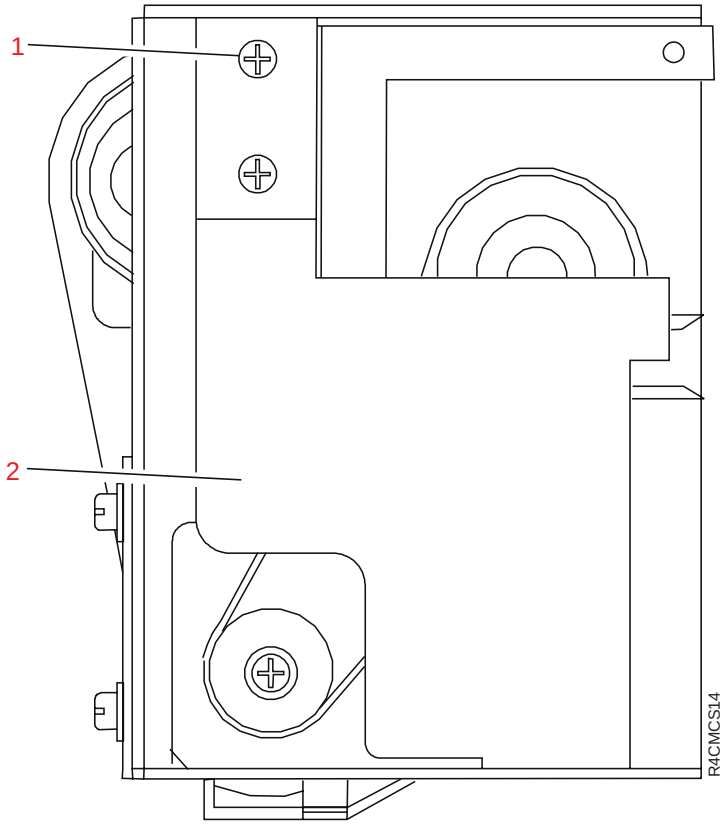
13. Loosen the two screws **(13)** and adjust the position of the jam sensor receiver Q701 **(11)** to maximize the voltage reading.
14. Loosen the two screws **(5)** and **(12)** and rotate the jam sensor lamp PL701 **(7)**, and the jam sensor receiver Q701 **(11)** around their axis alternately to maximize the voltage reading.
15. The voltmeter should read at least 4.5 V dc. If the reading is below 4.5 V dc, repeat all of the adjustment steps until a reading of 4.5 V dc, or more, is reached.
16. Perform the stacker jam sensor assembly removal in reverse to install the jam sensor assembly.

Check

1. Run Sensor Routine 75 to ensure that 4.5 V dc is still present across test points TP1 and TPG.
2. Run Driver Routine 3C and 3D to move the stacker through all forms lengths and check for interference between the stacker mechanism and the jam sensor bracket.
3. Run the stacker table to both its upper and lower limits to ensure that the stacker works correctly.
4. Run Print Pack to check print quality.

Left Finger Belt Motor (M701) & Drive Belt

Table 865. Stacker Left Finger Belt Motor (M701) and Drive Belt



Special Tool

Push-pull scale (PN 0460870).

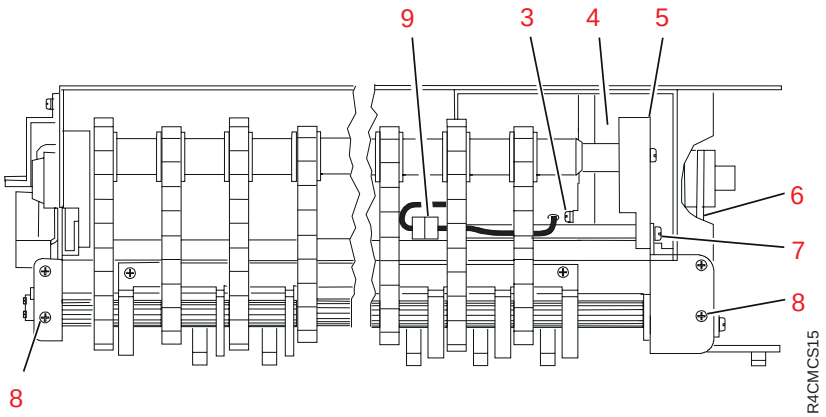
Removal

1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate and remove the cover. See step 6 under Stacker Gate Safety Switches (S713 and S714).
6. Remove the C-clip on the stacker gate stop to allow the stacker gate to open further and provide better access to the hinge end of the stacker gate.
7. Remove the two screws **(1)**, remove the belt cover **(2)**.

Note: Removing a cable clamp will provide more clearance for the belt cover removal.

(continued on next page)

Table 865. Stacker Left Finger Belt Motor (M701) and Drive Belt (continued)



8. Loosen the two screws **(3)**, remove the drive belt **(6)**
9. Remove the screw, remove the capacitor C702.
10. Disconnect connector PJ715 **(9)**.
11. Remove the two screws **(3)**, remove the drive motor and gear box assembly **(4)**, and capacitor C702.

Note: The drive motor and gear box assembly **(4)**, and capacitor C702 are replaced as an assembly.

Installation

1. Reverse the removal procedure.
2. Perform the Left Finger Belt Drive Motor adjustment.

Adjustment

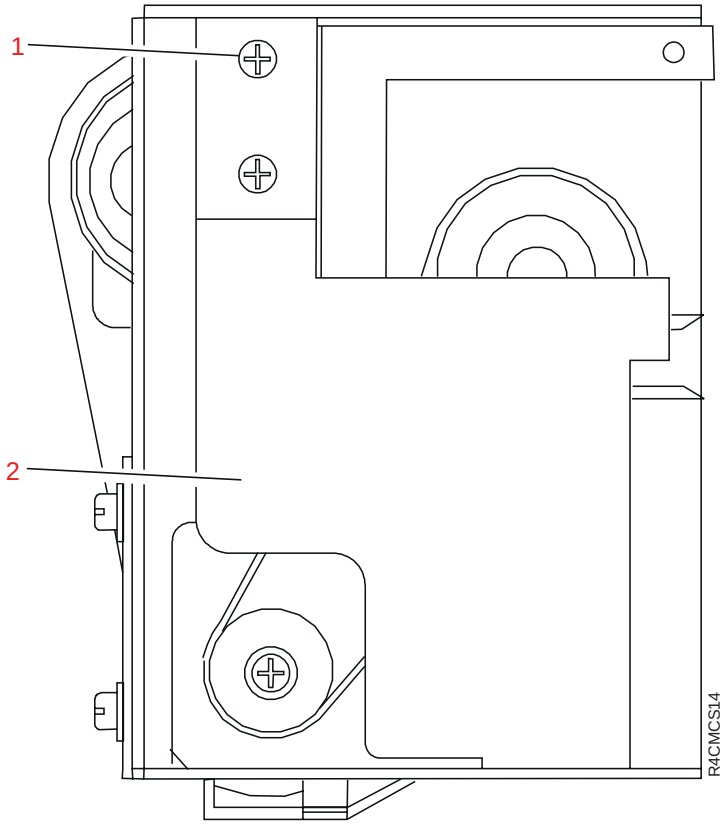
Loosen the two screws **(3)** and adjust the position of the drive motor and gear box so the belt deflects 2–3 mm (0.080-0.120 in.) when a 1 kg (2.2 lb) force is applied to the center of the belt.

Check

1. Run Driver Routine 1C to ensure that the motor and drive belt work correctly.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Left Finger Belts

Table 866. Stacker Left Finger Belts



Special Tool

Push-pull scale (PN 0460870).

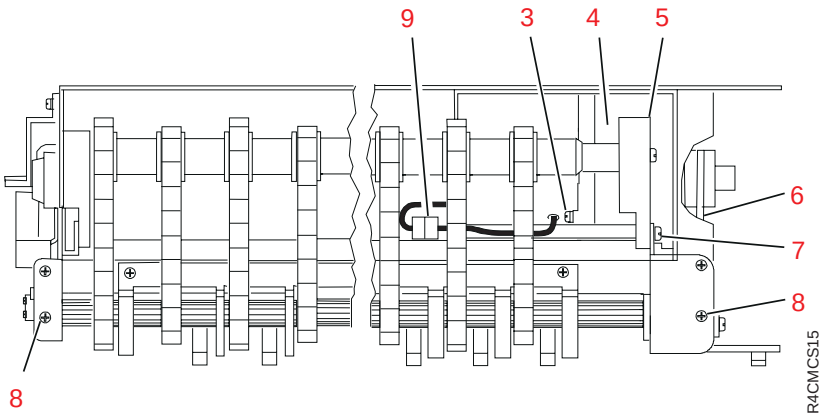
Removal

1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate and remove the cover. See step 6 under Stacker Gate Safety Switches (S713 and S714).
6. Remove the C-clip on the stacker gate stop to allow the stacker gate to open further, providing better access to the hinge end of the stacker gate.
7. Remove the two screws **(1)**, remove the belt cover **(2)**.

Note: Removing a cable clamp will provide more clearance for the belt cover removal.

(continued on next page)

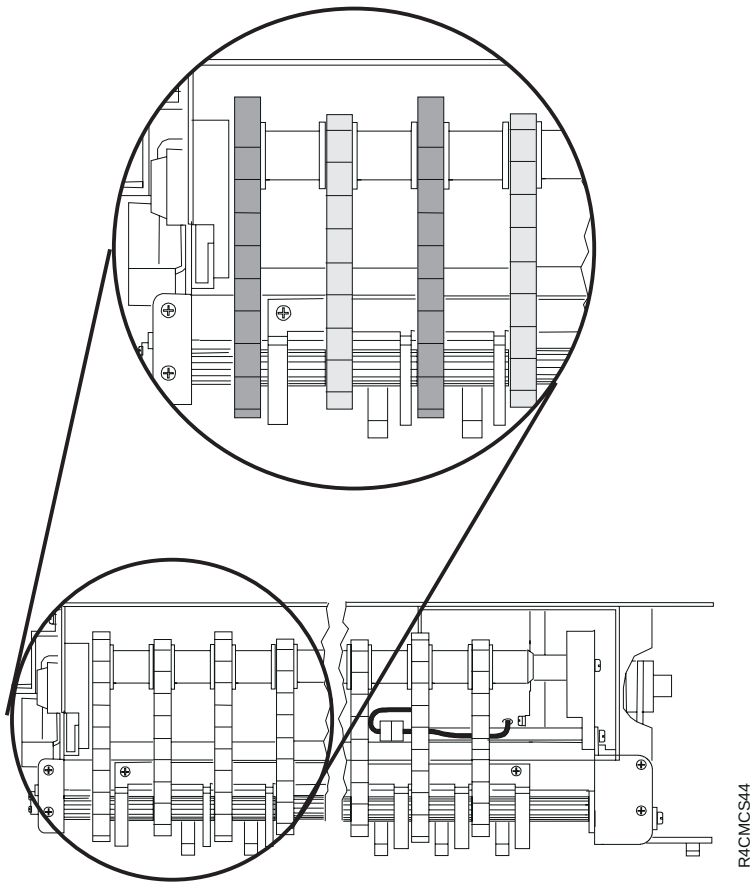
Table 866. Stacker Left Finger Belts (continued)



8. Remove the four screws **(8)** and raise the finger belt assembly enough to remove the drive belt **(6)**.
9. Remove the finger belt assembly.
10. Remove the two screws **(7)** and disassemble the finger belt assembly for belt removal.

(continued on next page)

Table 866. Stacker Left Finger Belts (continued)

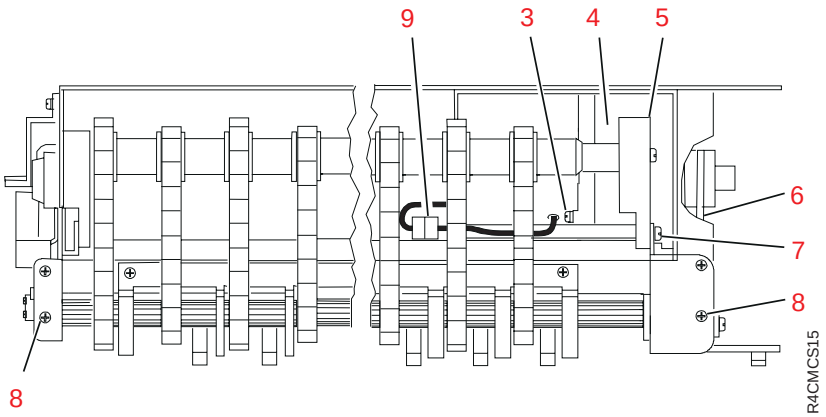


Installation

1. Install replacement finger belts so that the fingers are staggered as shown here.
2. Reverse removal step 10. Lay the finger belt assembly on a flat work surface during assembly to prevent the unit from twisting.
3. Perform finger belt adjustment.
4. Reverse the remaining removal steps to install the finger belt assembly and drive belt.

(continued on next page)

Table 866. Stacker Left Finger Belts (continued)



Adjustment

Note: Lay the finger belt assembly on a flat work surface during adjustment and reassembly to prevent the unit from twisting. This assembly may have either an aluminum or stainless steel shaft.

1. Adjust the finger belt tension so that the two end belts deflect 5–7 mm (0.20-0.28 in.) when a force of
   - Aluminum shaft - 1 kg (2.2 lb)
   - Stainless steel shaft - 0.5 kg (1.1 lb)

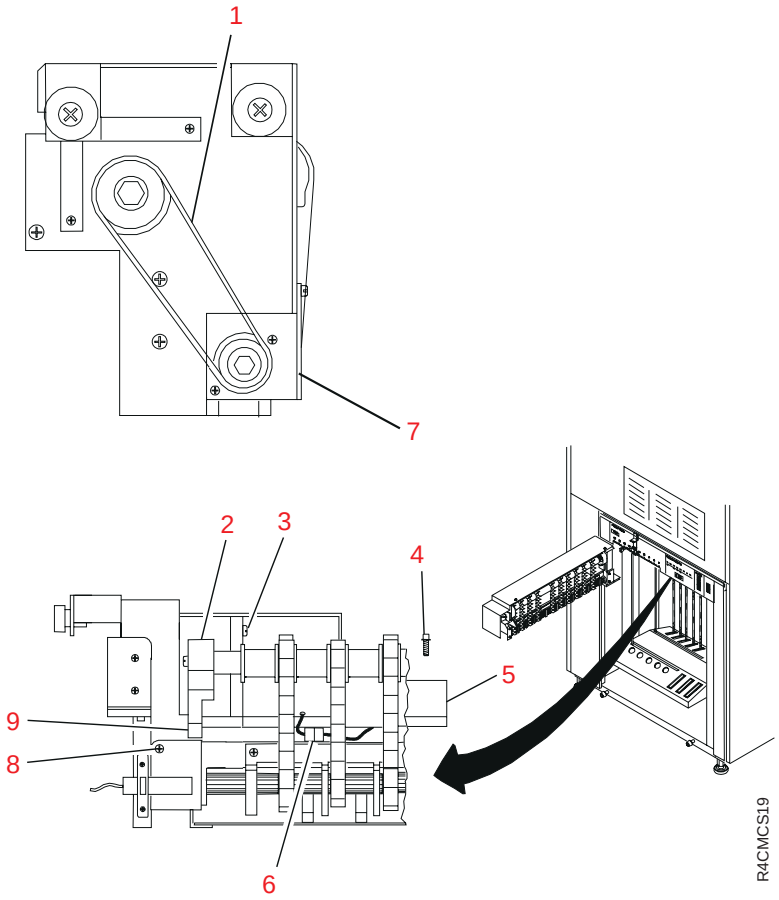
   is applied to the center of the belt. The tension of the end belts will be slightly higher than that of the inner belts due to flexing of the shafts.
2. Loosen the two screws **(3)** and adjust the position of the drive motor and gear box so that the drive belt **(6)** deflects 2–3 mm (0.080-0.120 in.) when a 1.0 kg (2.2 lb) force is applied to the center of the belt.

Check

1. Run Driver Routine 1C to ensure that the finger belts work correctly.
2. Ensure that the finger belts do not damage the edge of the forms stack.
3. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
4. Run Print Pack to check print quality.

Right Finger Belt Motor (M702) and Drive Belt

Table 867. Right Finger Belt Motor (M702) and Drive Belt



Special Tool

Push-pull scale (PN 0460870).

Removal

1. Perform steps 1 through 14 under Stacker Inner Cover.
2. Remove the two screws **(8)** and raise the finger belt assembly enough to remove the drive belt **(1)**.
3. Remove the finger belt assembly **(2)**.
4. Remove the screw **(4)**, remove the capacitor C703 **(5)**.
5. Disconnect connector PJ717 **(6)**.

Note: The drive motor and gear box assembly, and capacitor C703 are replaced as an assembly.

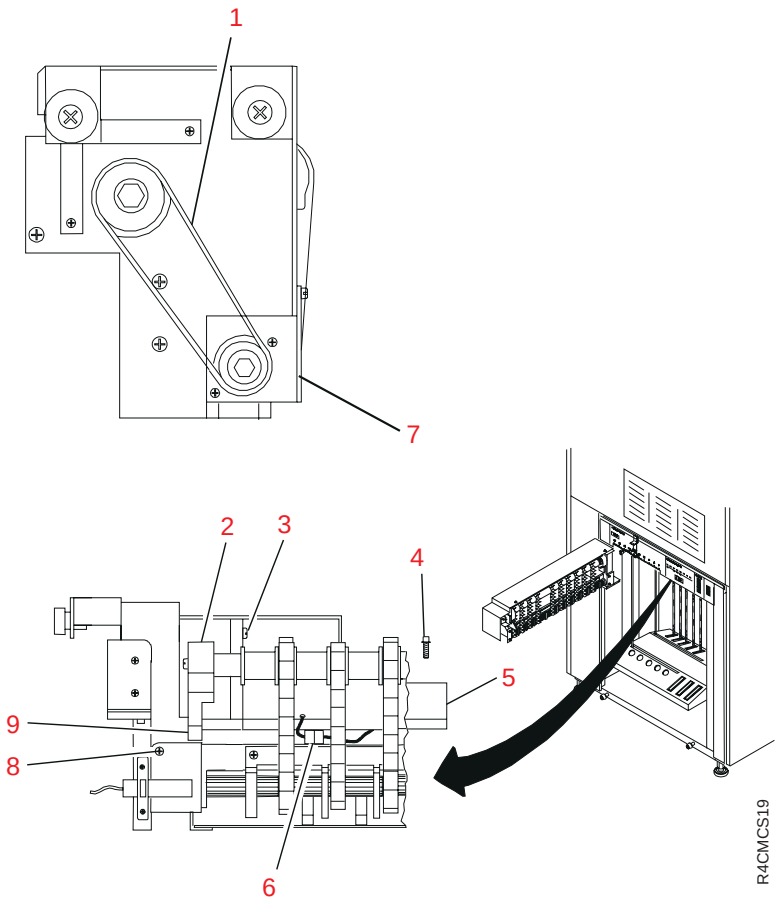
6. Remove the two screws **(3)**, remove the drive motor and gear box, and capacitor C703.

Installation

1. Reverse the removal procedure.
2. Perform the Right Finger Belt Motor Drive Beltadjustment.

(continued on next page)

Table 867. Right Finger Belt Motor (M702) and Drive Belt (continued)



Adjustment

Note: The following adjustment cannot be measured with a feeler gauge and push-pull scale while the finger belt assembly is in the printer. The adjustment specifications are for reference only. Adjust the belt so it is tight.

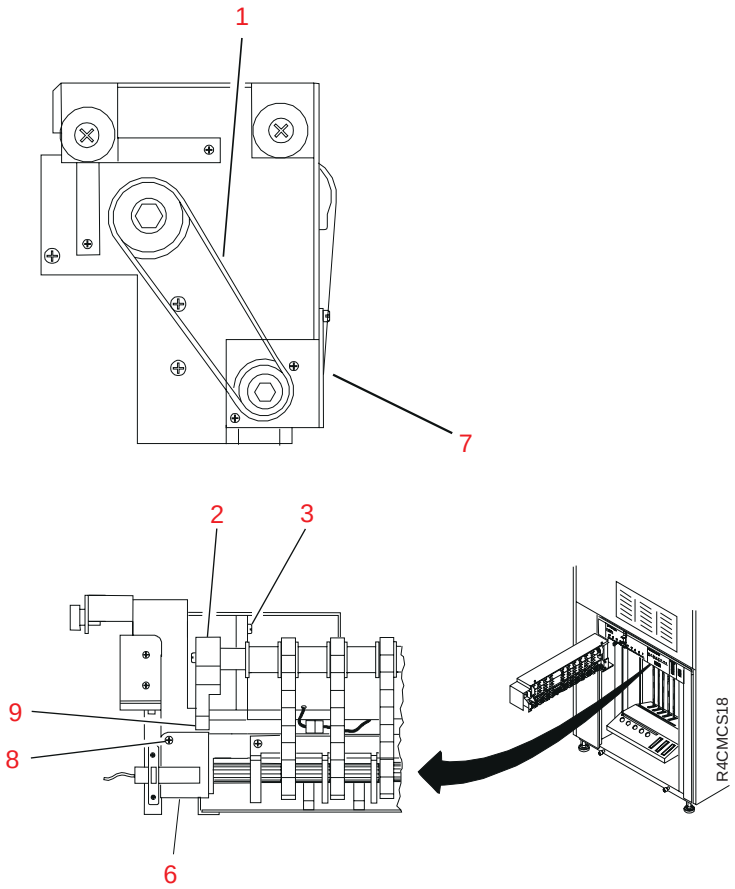
Loosen the two screws **(3)** and adjust the position of the drive motor and gear box so the belt deflects 2–3 mm (0.080–0.120 in.) when a 1 kg (2.2 lb) force is applied to the center of the belt.

Check

1. Run Driver Routine 1C to ensure that the right finger belts work correctly.
2. Ensure that the finger belts do not damage the edge of the forms stack.
3. Ensure that the drive belt **(1)** does not slip during normal operation with wide forms.
4. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
5. Run Print Pack to check print quality.

Right Finger Belts

Table 868. Stacker Right Finger Belts



Special Tool

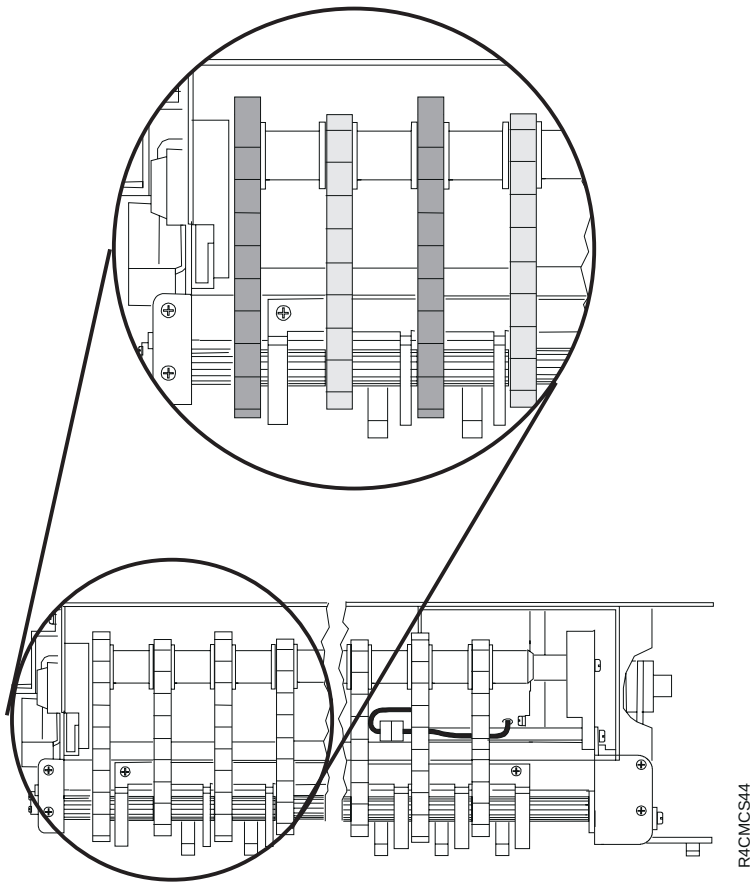
Push-pull scale (PN 0460870).

Removal

1. Perform steps 1 through 14 under Stacker Inner Cover.
2. Remove the two screws **(8)** and raise the finger belt assembly enough to remove the drive belt **(1)**.
3. Remove the finger belt assembly **(2)**.
4. Remove the two screws **(9)** and disassemble the finger belt assembly for belt removal.

(continued on next page)

Table 868. Stacker Right Finger Belts (continued)



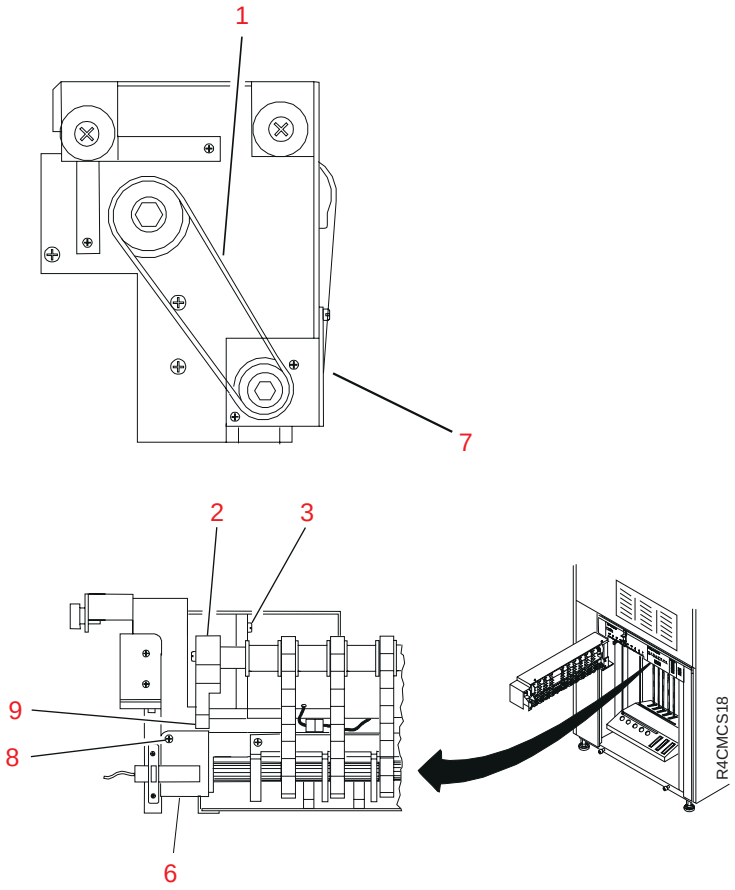
Installation

1. Install replacement finger belts so the fingers are staggered as shown here.
2. Reverse removal step 4. Lay the finger belt assembly on a flat work surface during reassembly to prevent the unit from twisting.
3. Perform step 1 under right finger belt adjustment.
4. Reverse the removal procedure.

(continued on next page)

Table 868. Stacker Right Finger Belts (continued)

Stacker Right Finger Belts



Adjustment

1. Adjust the finger belt tension so the 2 end belts deflect 5–7 mm (0.20–0.28 in.) when a 1 kg (2.2 lb) force is applied to the center of the belt. The tension of the end belts will be slightly higher than that of the inner belts due to flexing of the shafts.

Note: The following adjustment cannot be measured with a feeler gauge and push-pull scale while the finger belt assembly is in the printer. The adjustment specifications are for reference only. Adjust the belt so that it is tight.

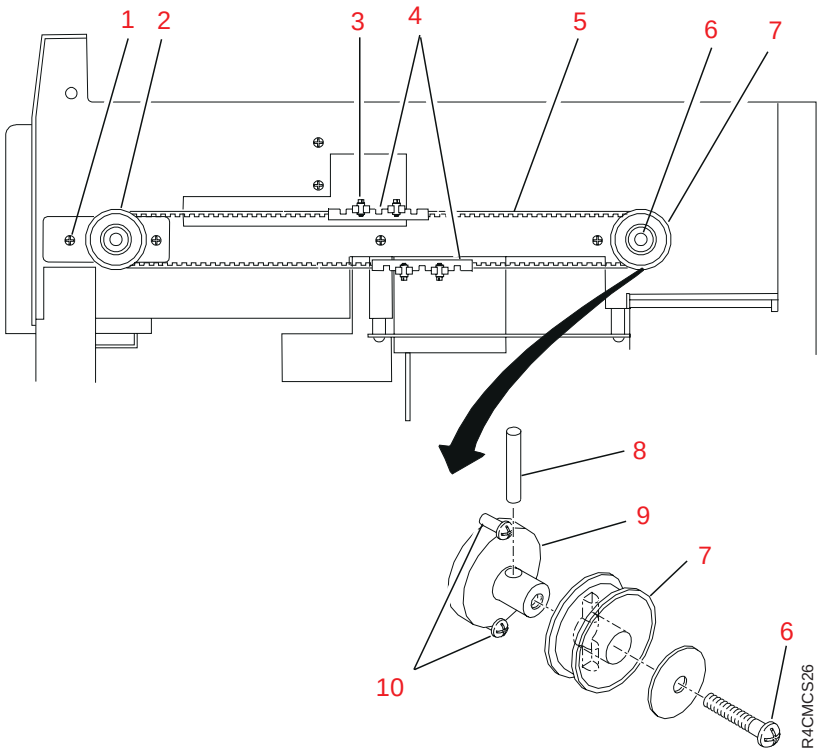
2. Loosen the two screws **(3)** and adjust the position of the drive motor and gear box so the drive belt **(1)** deflects 2–3 mm (0.080–0.120 in.) when a 1 kg (2.2 lb) force is applied to the center of the belt.

Check

1. Run Driver Routine 1C to ensure that the right finger belts work correctly.
2. Ensure that the finger belts do not damage the edge of the forms stack.
3. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
4. Ensure that the drive belt **(1)** does not slip during normal operation with wide forms.
5. Run Print Pack to check print quality.

Stacker Length Belts

Table 869. Stacker Length Belts



Special Tool

Push-pull scale (PN 0460870).

Removal

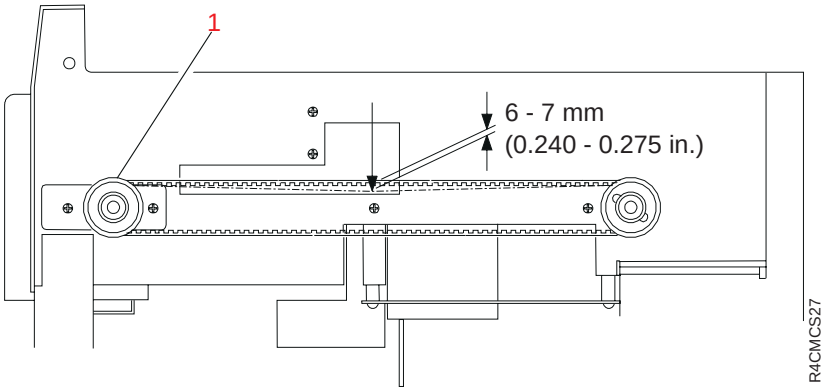
1. Set forms length to 7 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the stacker gate.
6. Open the printer left front cover.
7. Remove the two screws **(3)** from the top and bottom belt clamps **(4)**, remove the clamps.
8. Remove the two screws **(1)**, remove the front belt **(5)**.

Attention: Use care not to lose the pin **(8)** in either of the next 3 steps.

9. Remove the screw **(6)**, remove the right pulley **(7)**.
10. Remove the two screws **(10)** and the right bearing **(9)**.
11. Pull the drive shaft forward far enough to disengage the shaft from the rear bearing to remove the rear belt.

(continued on next page)

Table 869. Stacker Length Belts (continued)



Installation

1. Reverse the removal procedure.
2. Perform the Stacker Length Belt adjustment.

Adjustment

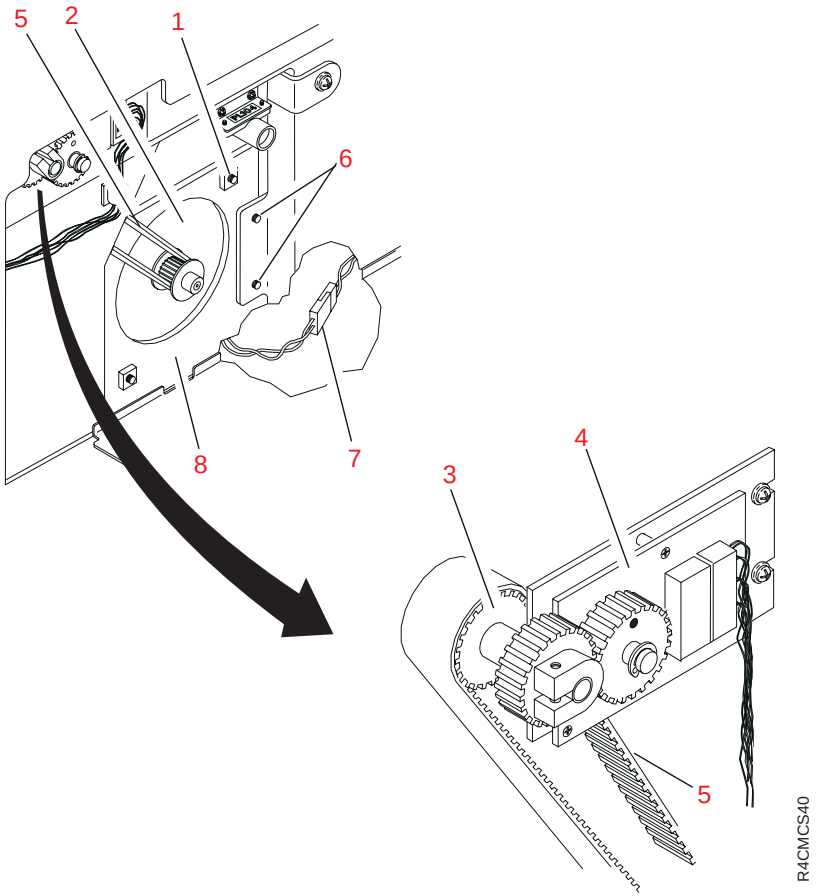
1. Adjust both the front and rear left pulleys **(1)** so that each belt deflects 6–7 mm (0.240–0.275 in.) when a 500 g (1.1 lb) force is applied to the center of the belt.
2. Perform steps 1 to 12 under Forms Length Mechanism and Sensor Adjustment.

Check

1. Run Driver Routines 3C and 3D to test the forms length drive belts for binding.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Length Drive Motor (M707) and Drive Belt

Table 870. Stacker Length Drive Motor (M707) and Drive Belt



Special Tool

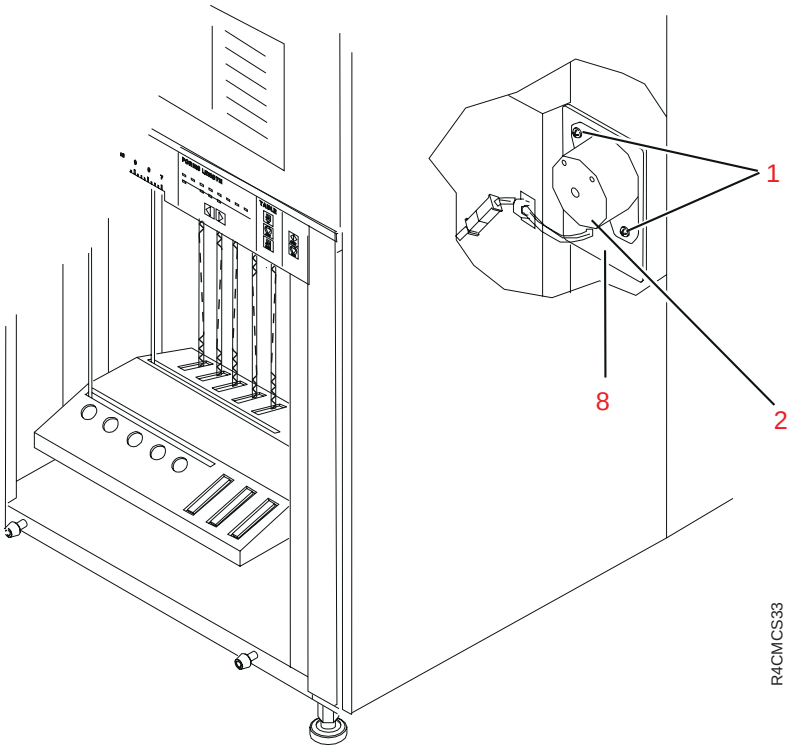
Push-pull scale (PN 0460870).

Removal

1. Set forms length to 7 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the printer center front cover.
6. Remove the input bin left side cover.
7. Disconnect connector PJ742 **(7)**
8. Remove the two screws **(6)**, located behind the motor, remove the motor **(2)** and its mounting plate **(8)**.

(continued on next page)

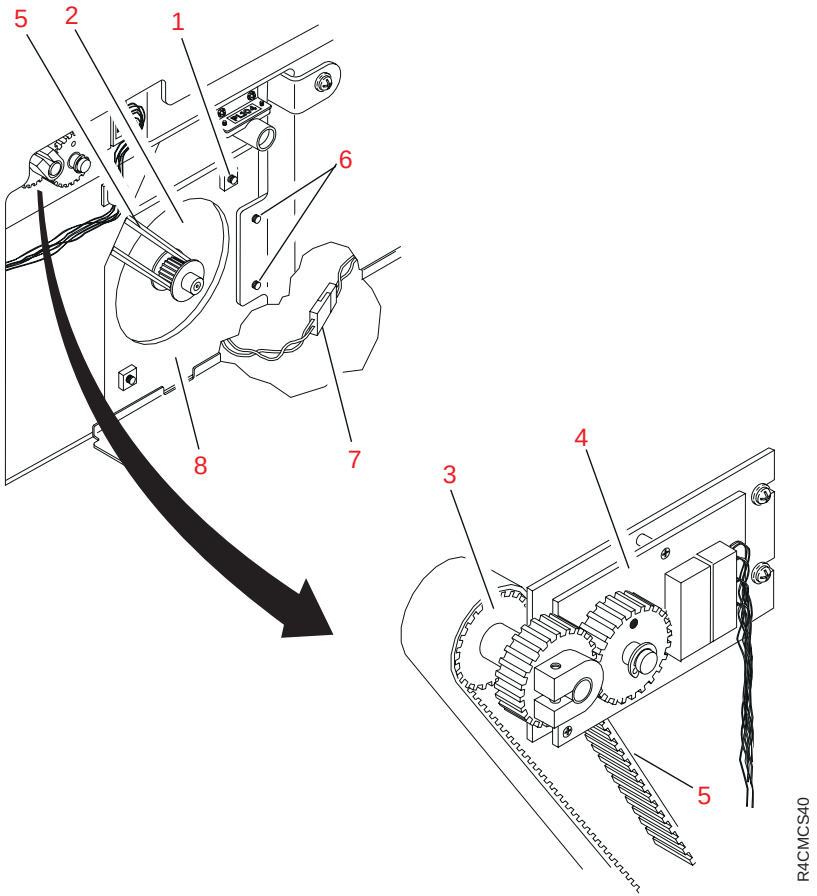
Table 870. Stacker Length Drive Motor (M707) and Drive Belt (continued)



9. If the motor, M707 is to be replaced, remove the two screws **(1)**, remove the motor, M707 **(2)** from its mounting plate **(8)**.

(continued on next page)

Table 870. Stacker Length Drive Motor (M707) and Drive Belt (continued)



10. If the drive belt **(5)** is to be replaced, perform steps 6 through 9 under Stacker Length Rotary Board (FL041) to remove the stacker length rotary board.

Attention: Do not turn the form length driven pulley **(3)** or the stacker length drive shaft while the stacker length rotary board **(4)** is removed. Do not turn the form length driven pulley **(3)** or the stacker length drive shaft while the stacker length rotary board **(4)** is removed.

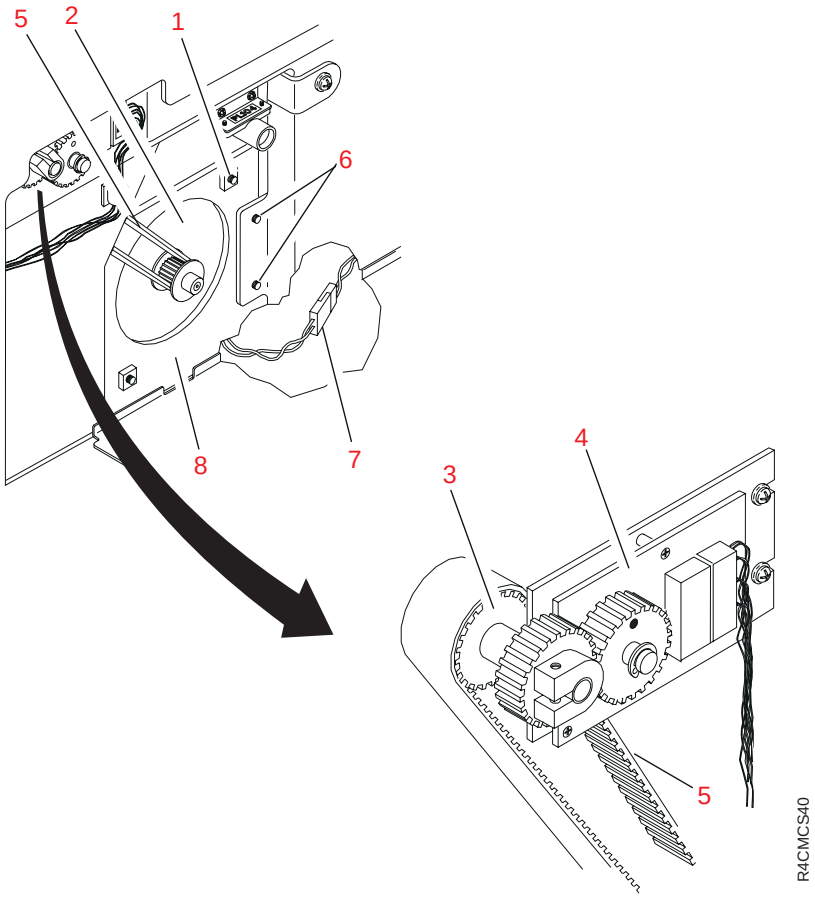
11. Remove the drive belt **(5)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Length Drive Motor adjustment.

(continued on next page)

Table 870. Stacker Length Drive Motor (M707) and Drive Belt (continued)



Adjustment

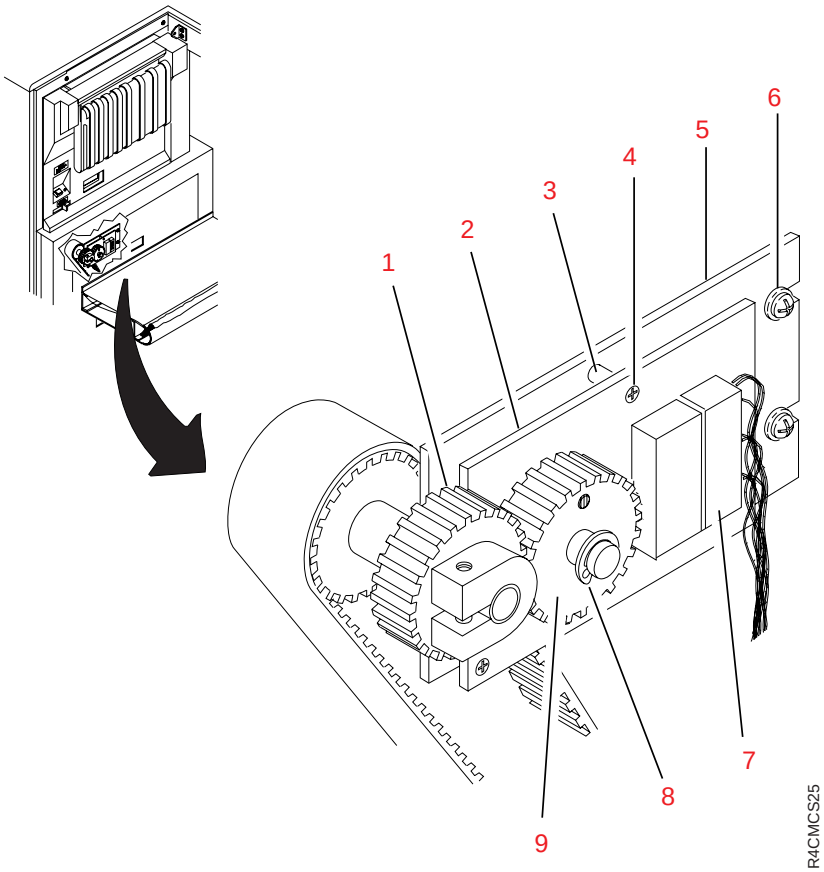
1. Loosen the two screws **(6)** and adjust the position of the mounting plate **(8)** so the drive belt **(5)** deflects 2–3 mm (0.080–0.120 in.) when a 500 g (1.1 lb) force is applied to the center of the belt.
2. If the drive belt has been replaced, check **Adjustment** steps 1 through 8 under Forms Length Mechanism and Sensor Adjustment.
3. Perform **Adjustment** steps 9 through 12 under Forms Length Mechanism and Sensor Adjustment to adjust the forms length rotary sensor.

Check

1. Run Driver Routines 3C and 3C to test the stacker length driver motor and the stacker length rotary sensor.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Length Rotary Board (FL041)

Table 871. Stacker Length Rotary Board (FL041)



Attention: Use ESD procedures when working with ESD sensitive parts.

Removal

1. Set forms length to 7 inches.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Shutdown and power off the printer.
4. Open the printer center front cover.
5. Remove the input bin left side cover.
6. Disconnect connector PJ727 **(7)**.

Attention: There is a timing relationship between the stacker length drive gear **(1)** and the stacker length rotary board **(2)**. Do not turn the stacker length drive gear **(1)** or the forms length drive shaft while the stacker length rotary board **(2)** is removed.

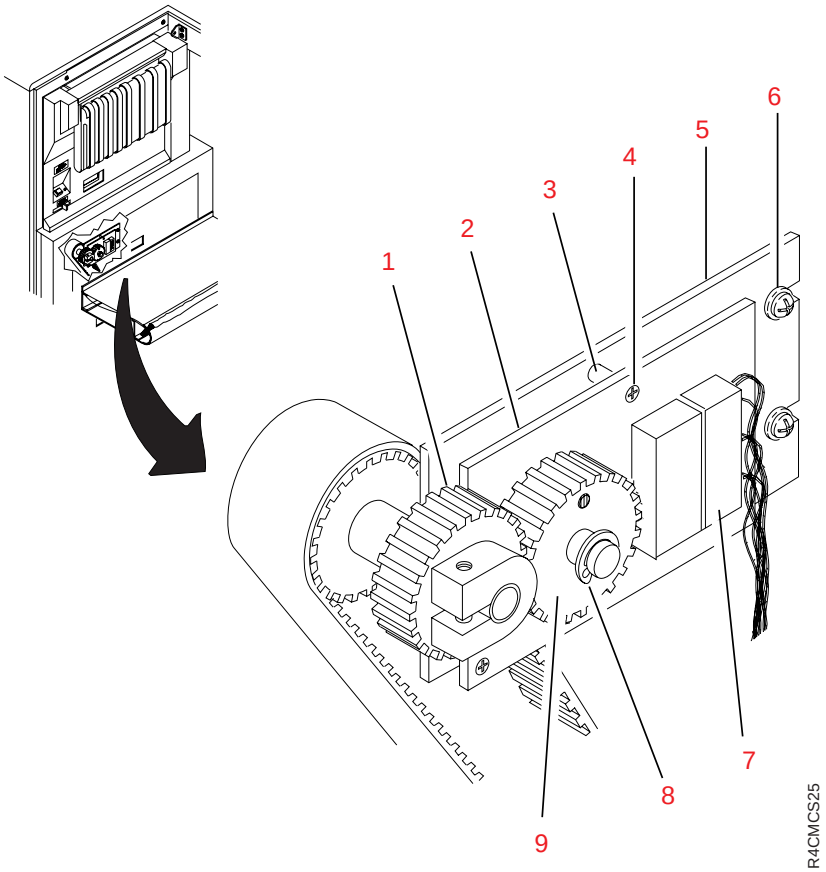
7. Remove the C-clip **(8)** and the driven gear **(9)**.
8. Remove the two screws **(6)**, remove the sensor board assembly **(5)**

Attention: Use care not to lose the three spacers **(3)** in the next step.

9. Remove the three screws **(4)**, remove the three spacers **(3)** and the stacker length rotary board **(2)**

(continued on next page)

Table 871. Stacker Length Rotary Board (FL041) (continued)

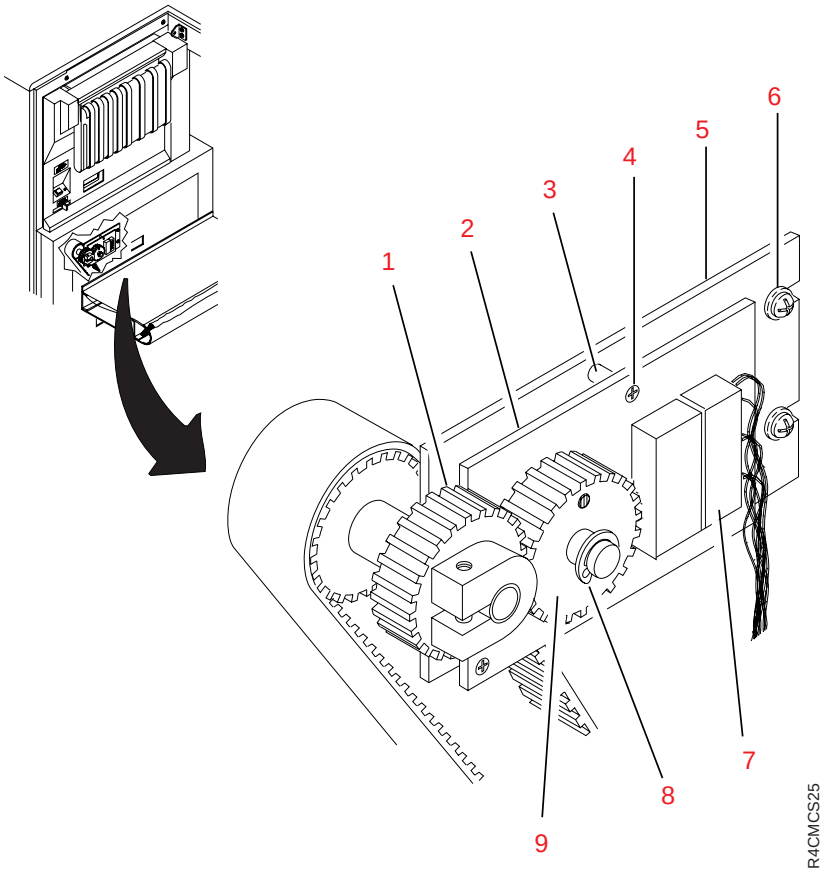


Installation

1. Loosen the three screws **(4)** and center the hole in the sensor card **(2)** around the mounting shaft for the gear **(9)**.
2. Reverse the removal procedure.
3. Perform the Stacker Length Rotary Board adjustment.

(continued on next page)

Table 871. Stacker Length Rotary Board (FL041) (continued)



Adjustment

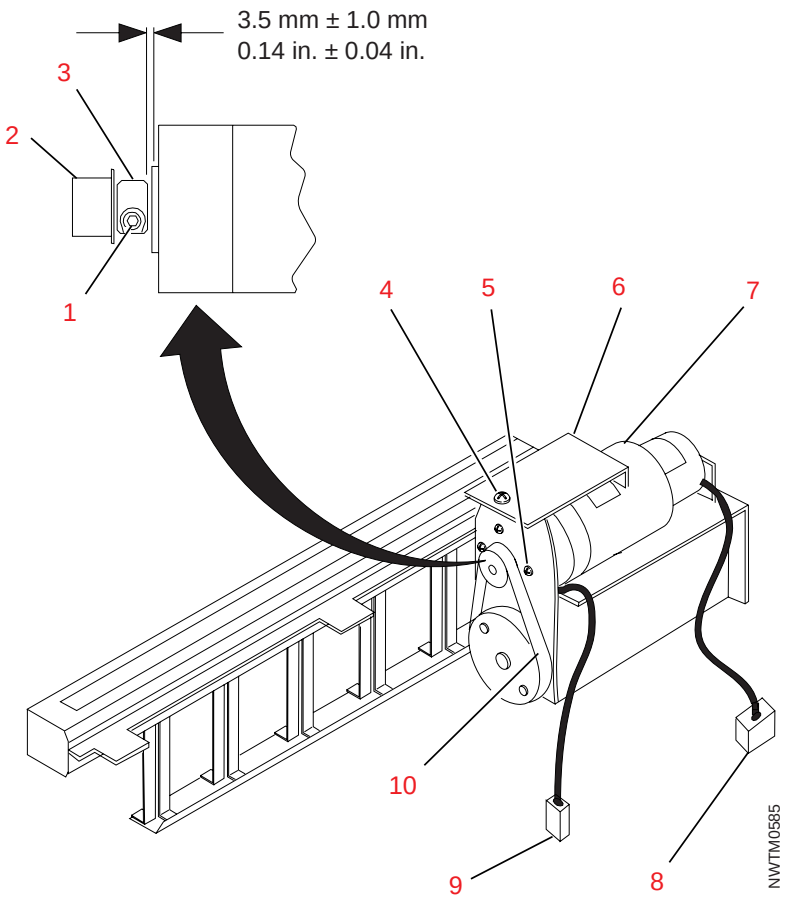
1. Loosen the two screws **(6)** and position the sensor board assembly **(5)** to ensure minimum backlash, with no binding, between gears **(1)** and **(9)**.
   Note: Check for binding in the gears by manually moving the drive belt to rotate the gears **(1)** and **(9)** through one full revolution.
2. Check **Adjustment** steps 1 through 8 under Forms Length Mechanism and Sensor Adjustment.
3. Perform **Adjustment** steps 9 through 12 under Forms Length Mechanism and Sensor Adjustment to adjust the forms length rotary sensor.

Check

1. Run Driver Routines 3C and 3D to ensure that the stacker length rotary board works correctly.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Pendulum Motor (M704) and Drive Belt

Table 872. Stacker Pendulum Motor (M704) and Drive Belt



DANGER

<60> High temperature. Let parts cool at least 30 minutes in this area before handling.

Note: To help with fuser cooling:

- Open the printer center front cover.
- Open and lock the oiler belt gate.

Attention: Oil and other contaminations from the fuser oiler belt can damage clothing. While working in this area, cover the oiler belt gate.

Special Tool

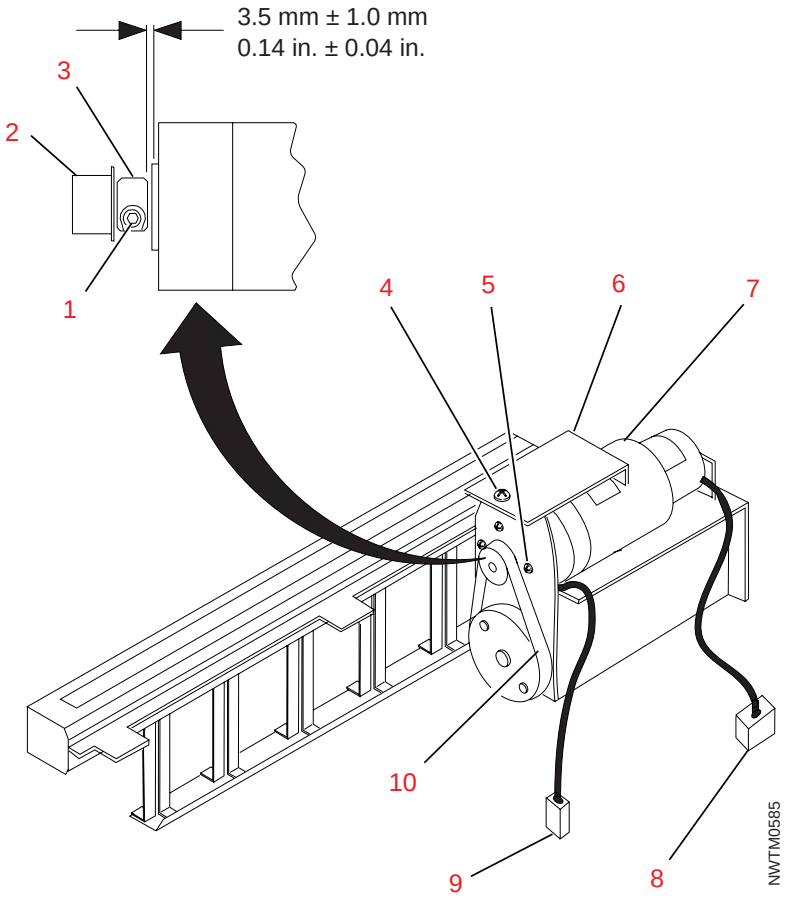
Push-pull scale (PN 0460870).

Removal

1. Set forms length to 14 inches.
2. Lower the stacker table.
3. Request the system operator to stop activity on the printer. Disable all host attachments.
4. Open the printer right front cover.
5. Run Driver Routine 21 to raise the autoload bridge.
6. Shutdown and power off the printer.
7. Remove the fuser right side cover.
8. Disconnect connectors PJ752 **(8)** and PJ823 **(9)**
9. Open the printer left front cover.

(continued on next page)

Table 872. Stacker Pendulum Motor (M704) and Drive Belt (continued)



10. Remove the fuser front cover.
11. Open the stacker gate.
12. Remove the Backup Roll.

Attention: Cover the backup roll surface to protect it.

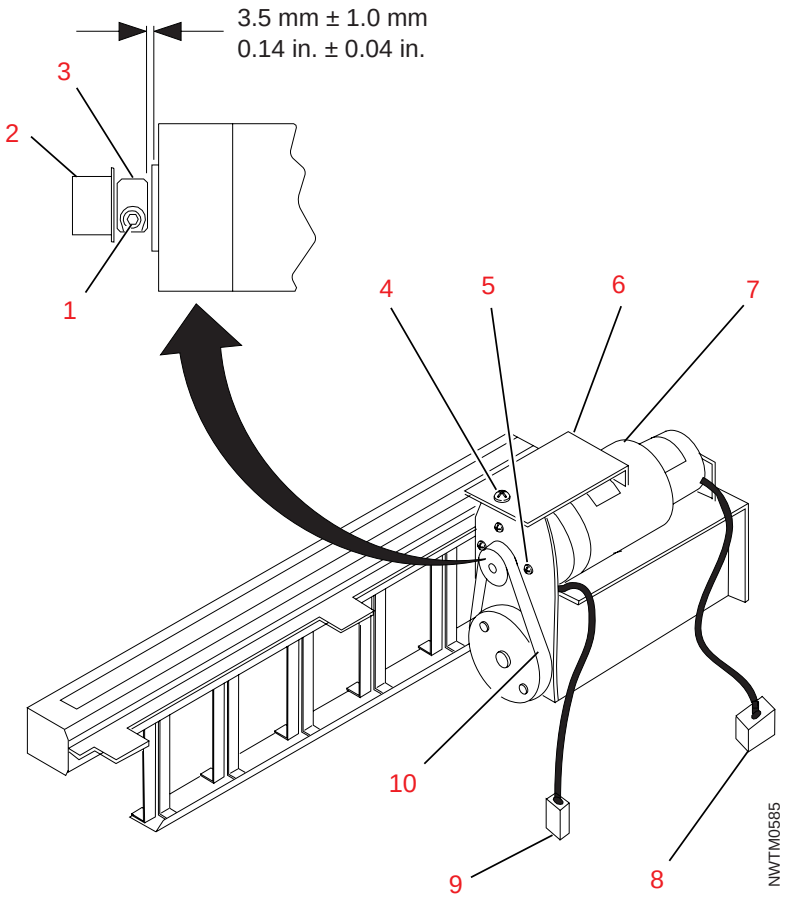
13. Loosen the three screws **(5)**, remove the drive belt **(10)**.
14. Remove the screw **(4)**, remove the motor mounting bracket **(6)**.
15. Remove the three screws **(5)**, remove the motor **(7)**.
16. Loosen the screw **(1)**, remove the drive pulley **(2)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Pendulum Motor adjustment.

(continued on next page)

Table 872. Stacker Pendulum Motor (M704) and Drive Belt (continued)



Adjustment

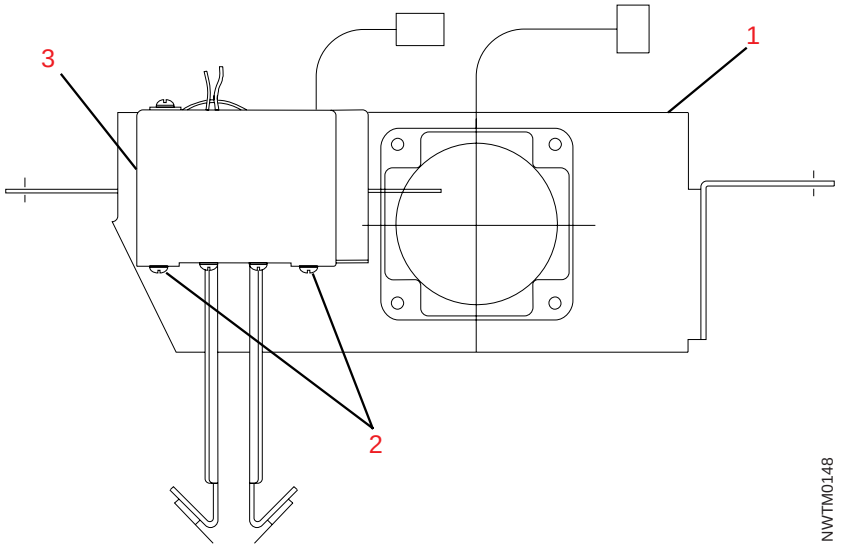
1. Place the collar **(3)** flush against the drive pulley **(2)**
2. Adjust the drive pulley and collar so the gap between them and the motor is 3.5 ±1.0 mm (0.14 ±0.04 in.).
3. Loosen the three mounting screws **(5)** and adjust the motor so that the drive belt **(10)** deflects 1.0 mm (0.04 in.) when a 260–450 g (9–16 oz.) force is applied to the center of the belt.

Check

1. Run Driver Routines 18 and 19 to ensure that the pendulum works correctly.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Pendulum Position Sensor (S619)

Table 873. Stacker Pendulum Position Sensor (S619)

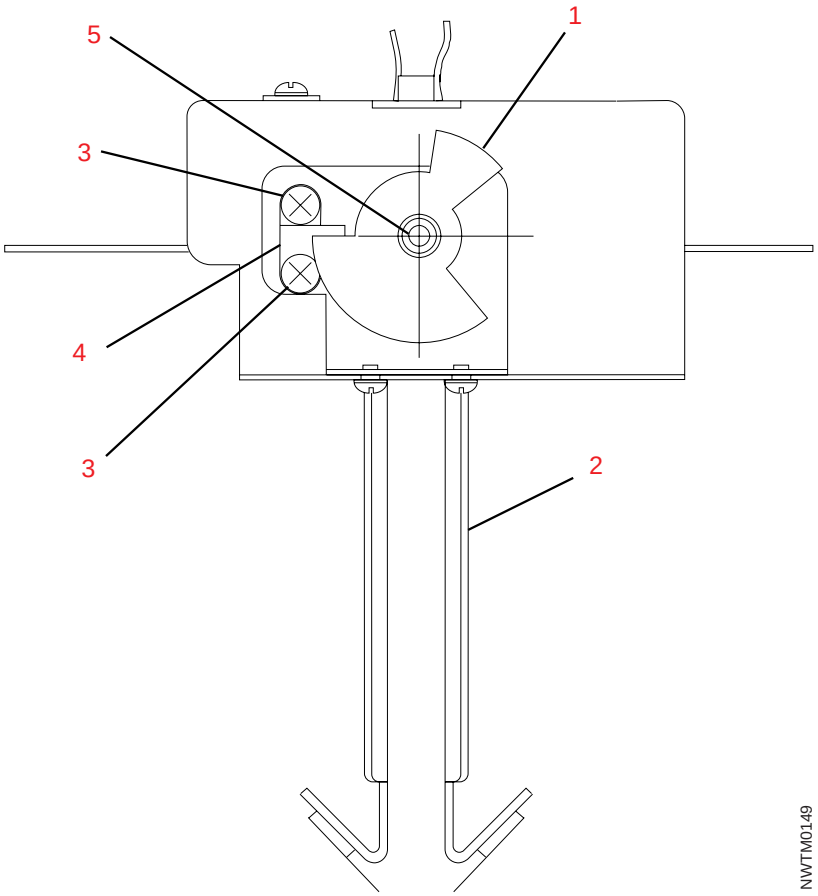


Removal

1. Set the forms length to 14 inches.
2. Lower the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Remove the pendulum motor assembly **(1)**. See Pendulum Motor (M704) and Drive Belt.
6. Remove the two screws **(2)** and take off the pendulum sensor cover **(3)**.

(continued on next page)

Table 873. Stacker Pendulum Position Sensor (S619) (continued)



7. Remove the two screws **(3)** and lift out the sensor **(4)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Pendulum Position Sensor adjustment.

Adjustment

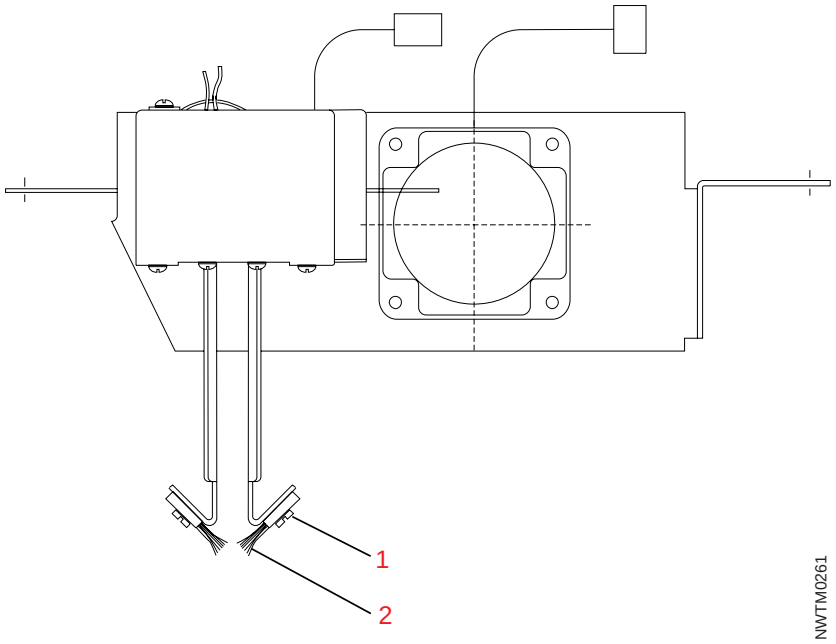
1. Remove the pendulum sensor cover.
2. Loosen hex bolt **(5)**.
3. Rotate control disk **(1)** so that it cuts off the sensor **(4)** when the pendulum **(2)** is at the home position (vertical).

Check

1. Run the stacker table to both its upper and lower limits and select all form lengths to ensure that the stacker works correctly.
2. Run Print Pack to check print quality.

Pendulum Static Discharge Brush

Table 874. Stacker Pendulum Static Discharge Brush



Removal

1. Set forms length to 7 inches.
2. Set the stacker forms width guide to 18 inches.
3. Lower the stacker table.
4. Request that the system operator stop activity on the printer. Disable all host attachments.
5. Shutdown and power off the printer.
6. Open the stacker gate.
7. Remove the three screws **(1)**, remove each discharge brush **(2)**.

Installation

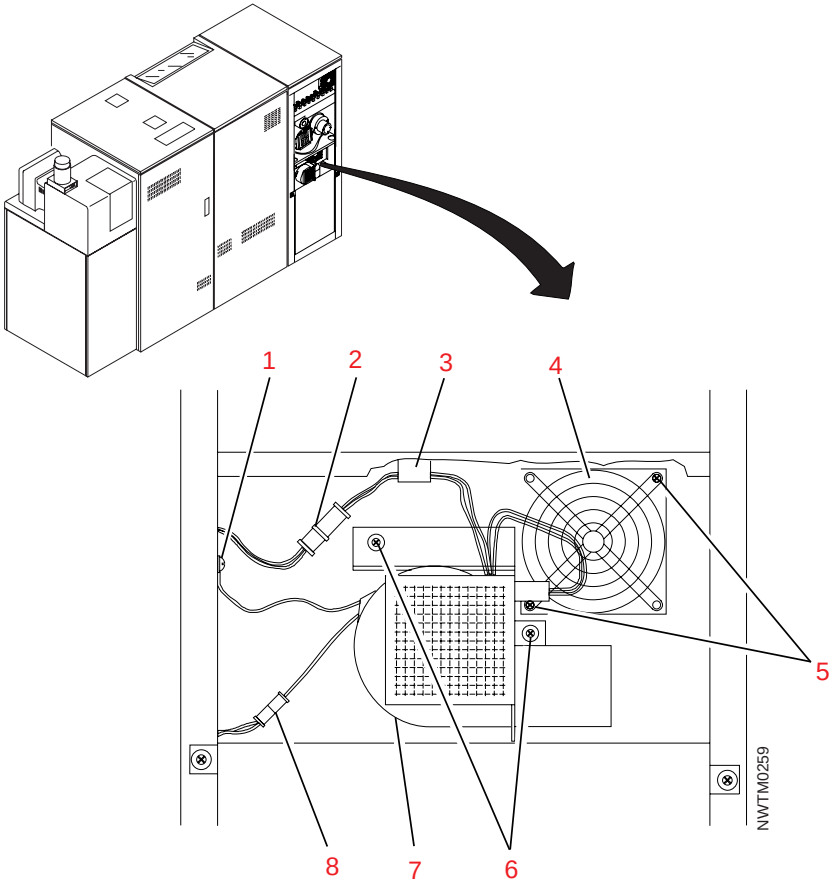
Reverse the removal procedure.

Check

1. Run Driver Routines 18 and 19 to ensure that the pendulum works correctly.
2. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
3. Run Print Pack to check print quality.

Stacker Rear Cooling Fan (B603)

Table 875. Stacker Rear Cooling Fan (B603)



Removal

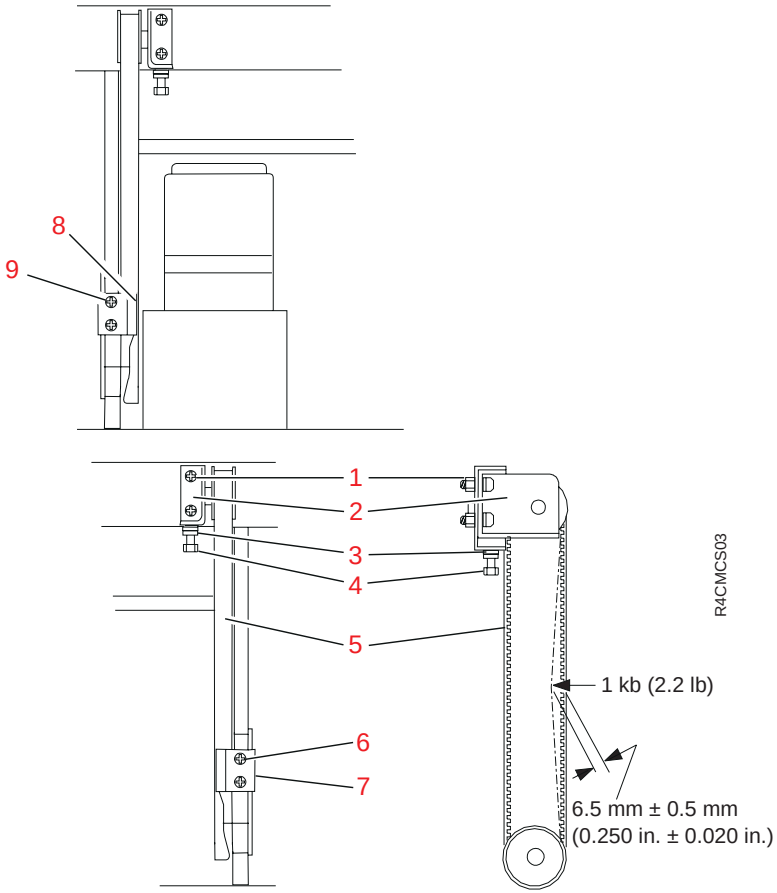
1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer right rear cover.
4. Disconnect the fan connector and remove the two screws **(5)**.
5. Remove the fan **(4)**.

Installation

Reverse the removal procedure.

Stacker Table Drive Belts

Table 876. Stacker Table Drive Belts



Special Tool

Push-pull scale (PN 0460870).

Removal

1. Remove the Stacker Inner Cover.
2. Open the printer center front cover.
3. Remove the input bin left side cover.
4. Remove the two screws **(9)**, and the front table drive belt clamp **(8)**.
5. Remove the two screws **(6)**, and the rear table drive belt clamp **(7)**.
6. Loosen the four screws **(1)**, unscrew the locking nuts **(3)**, the adjusting screws **(4)**, and belts **(5)**.

Installation

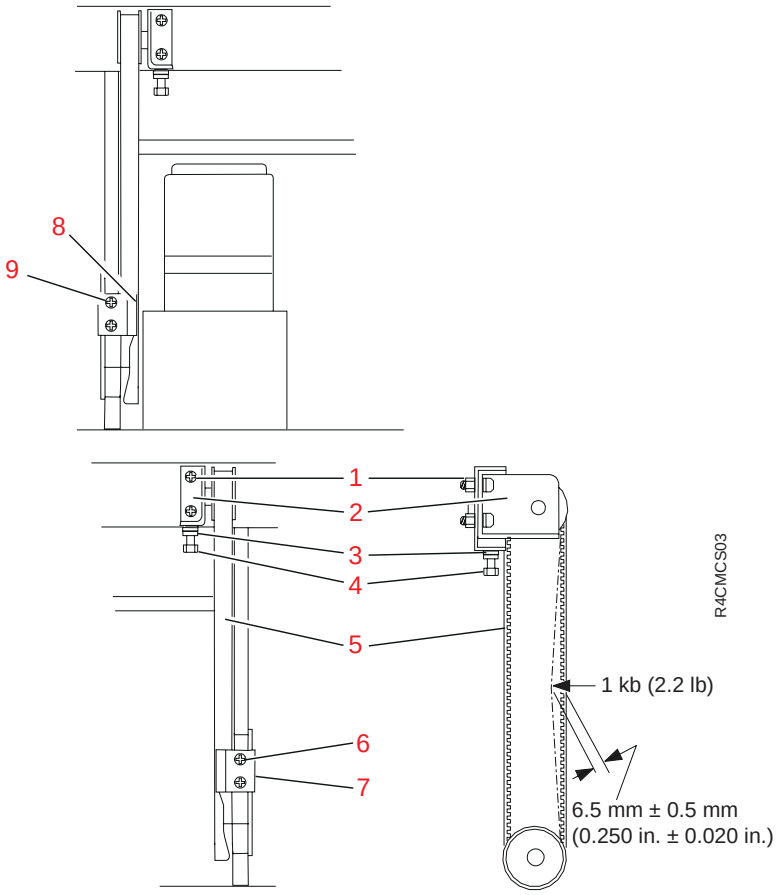
1. Ensure that the stacker table is all the way down when connecting the front and rear table drive belt clamps, this ensures that the stacker table is level.

Note: Both stacker table drive belts should be replaced at the same time.

2. Reverse the removal procedure.
3. Perform the Stacker Table Drive Belts adjustment.

(continued on next page)

Table 876. Stacker Table Drive Belts (continued)



Adjustment

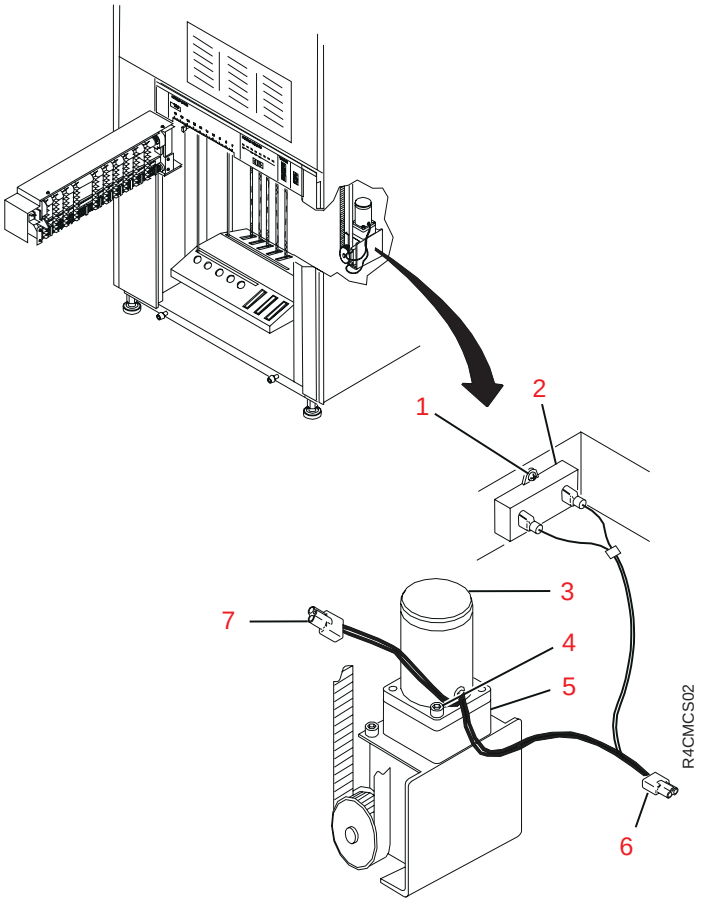
Adjust each bracket **(2)** so the belt will deflect 6-7 mm (0.24-0.28 in.) when 1 kg (2.2 lb) force is applied to the center of the belt.

Check

1. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
2. Run Print Pack to check print quality.

Stacker Table Motor (M803)

Table 877. Stacker Table Motor (M803)



Removal

1. Lower the stacker table.
2. Request that the system operator stop activity on the printer. Disable all host attachments.
3. Shutdown and power off the printer.
4. Open the printer center front cover.
5. Remove the input bin left side cover.
6. Remove the End-of-Forms Sensor PL103.
7. Remove the screw **(1)**, remove capacitor C803 **(2)**.

Note: C803 and M803 are replaced as one FRU.

8. Disconnect connectors PJ803 **(6)** and PJ804 **(7)**.

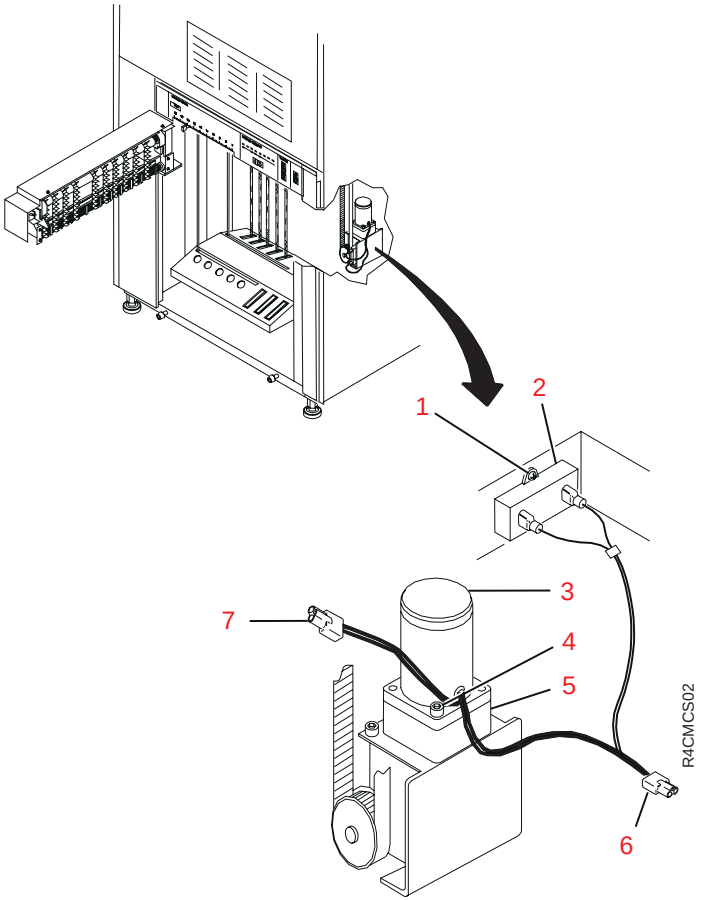
Attention: When the motor and gear box are removed, the stacker table can drop.

Note: Use care not to lose the key on the gear box shaft.

9. Remove the two screws **(4)**, lift the motor **(3)** from the gear box **(5)**, the gear box can also be removed.

(continued on next page)

Table 877. Stacker Table Motor (M803) (continued)



Installation

1. Reverse the removal procedure.
2. Perform the adjustment procedure.

Adjustment

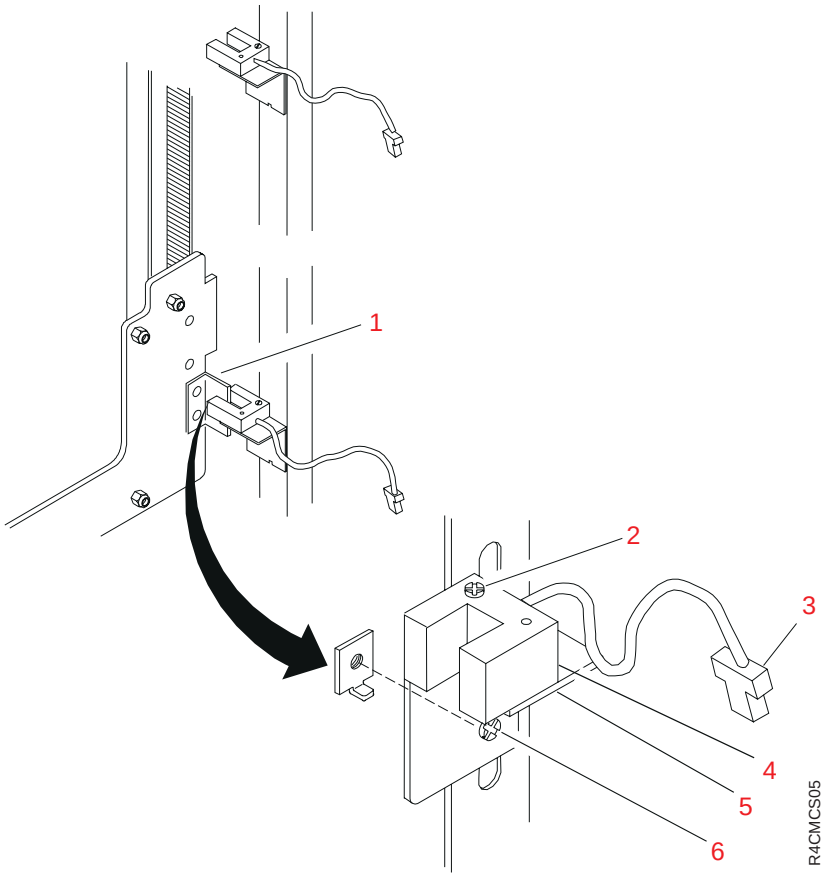
Adjust the End-of-Forms Sensor PL103.

Check

1. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
2. Run Print Pack to check print quality.

Stacker Table Lower Limit Sensor (S701)

Table 878. Stacker Table Lower Limit Sensor (S701)



Removal

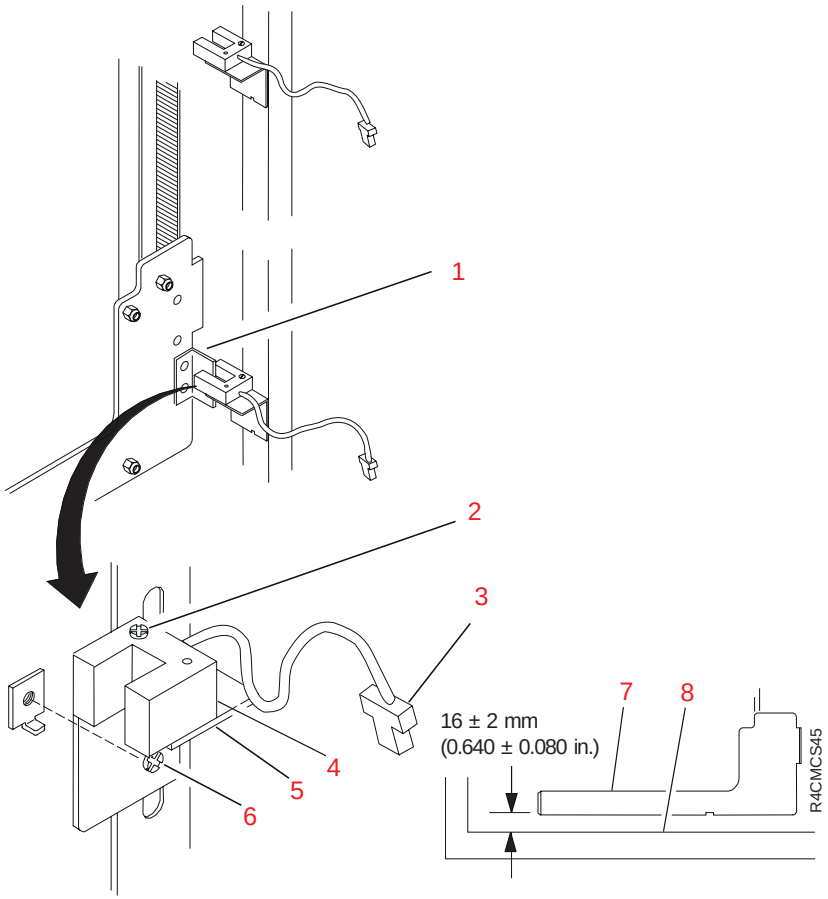
1. Set forms length to 7 inches.
2. Raise the stacker table.
3. Request that the system operator stop activity on the printer. Disable all host attachments.
4. Shutdown and power off the printer.
5. Open the printer left front cover.
6. Disconnect connector PJ705 **(3)**.
7. Open the printer center front cover.
8. Remove the input bin left side cover.
9. Remove the screw **(2)**, remove the sensor **(4)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Table Lower Limit Sensor adjustment.

(continued on next page)

Table 878. Stacker Table Lower Limit Sensor (S701) (continued)



Adjustment

1. Adjust the sensor position to ensure that the sensor operating tab **(1)** on the front table-drive belt is centered as it passes through the sensor.

Attention: There is enough freedom of movement in the sensor mounting bracket **(5)** (see stacker table lower limit sensor (S701)) to allow the sensor **(4)** to be positioned so the operating tab **(1)** can hit and damage the sensor. When tightening the screw **(6)**, ensure that the mounting bracket **(5)** is positioned as close as possible to the front of the printer.

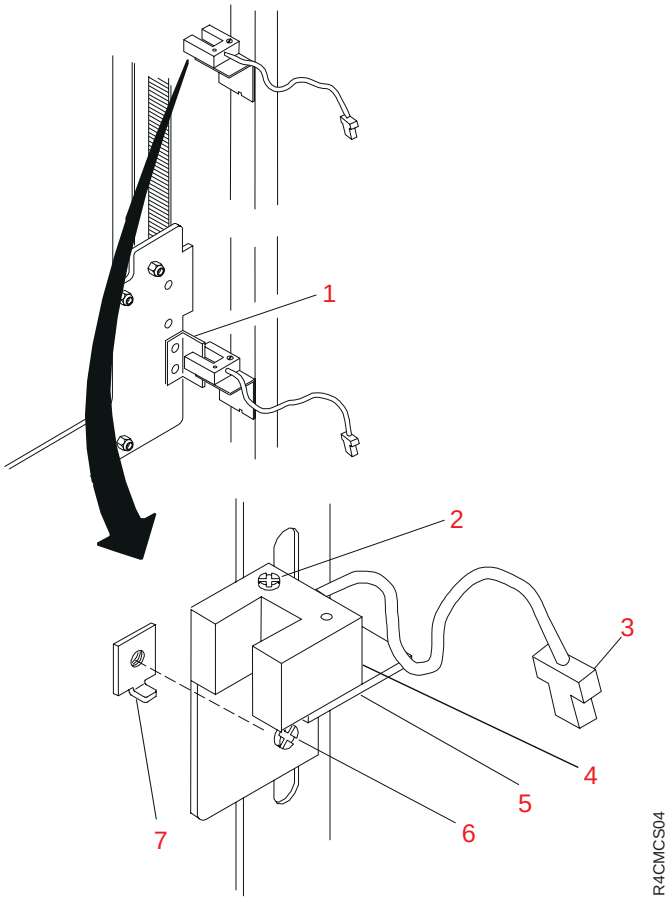
2. Loosen the screw **(6)** (see stacker table lower limit sensor (S701)) and adjust the lower limit sensor bracket **(5)** either up or down so the table **(7)** stops with a clearance of 16.0 mm ±2.0 mm (0.640 in. ±0.080 in.) between the lower surface of the table **(7)** and the stacker frame **(8)**.

Check

1. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
2. Run Print Pack to check print quality.

Stacker Table Upper Limit Sensor (S704)

Table 879. Stacker Table Upper Limit Sensor (S704)



Removal

1. Remove the Stacker Inner Cover.
2. Open the printer left front cover.
3. Disconnect connector PJ703 **(3)**.

Attention: Use care not to lose the nut plate **(7)** in the next step.

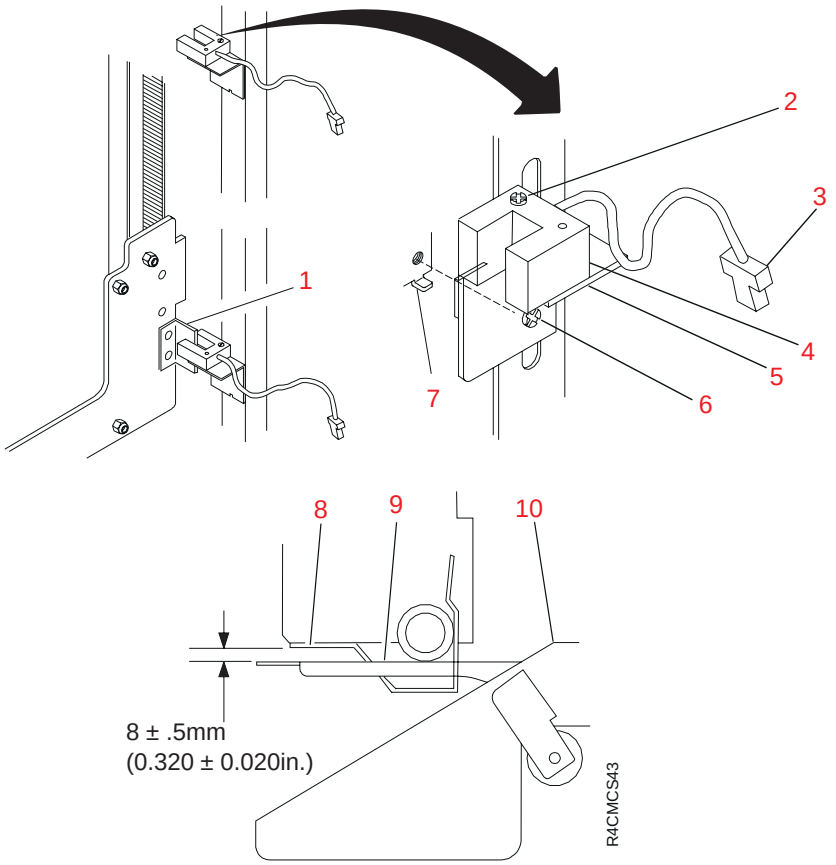
4. Remove the screw **(6)**, remove the sensor **(4)** and mounting bracket **(5)** as an assembly.
5. Remove the screw **(2)**, remove the sensor **(4)**.

Installation

1. Reverse the removal procedure.
2. Perform the Stacker Table Upper Limit Sensor adjustment.

(continued on next page)

Table 879. Stacker Table Upper Limit Sensor (S704) (continued)



Adjustment

1. Adjust the sensor position to ensure that the sensor operating tab **(1)** on the front table drive belt is centered as it passes through the sensor.

Attention: There is enough freedom of movement in the sensor mounting bracket **(5)** (see stacker table upper limit sensor (S704)) to allow the sensor **(4)** to be positioned so the operating tab **(1)** can hit and damage the sensor. When tightening the screw **(6)**, ensure that the mounting bracket **(5)** is positioned as close as possible to the front of the printer.

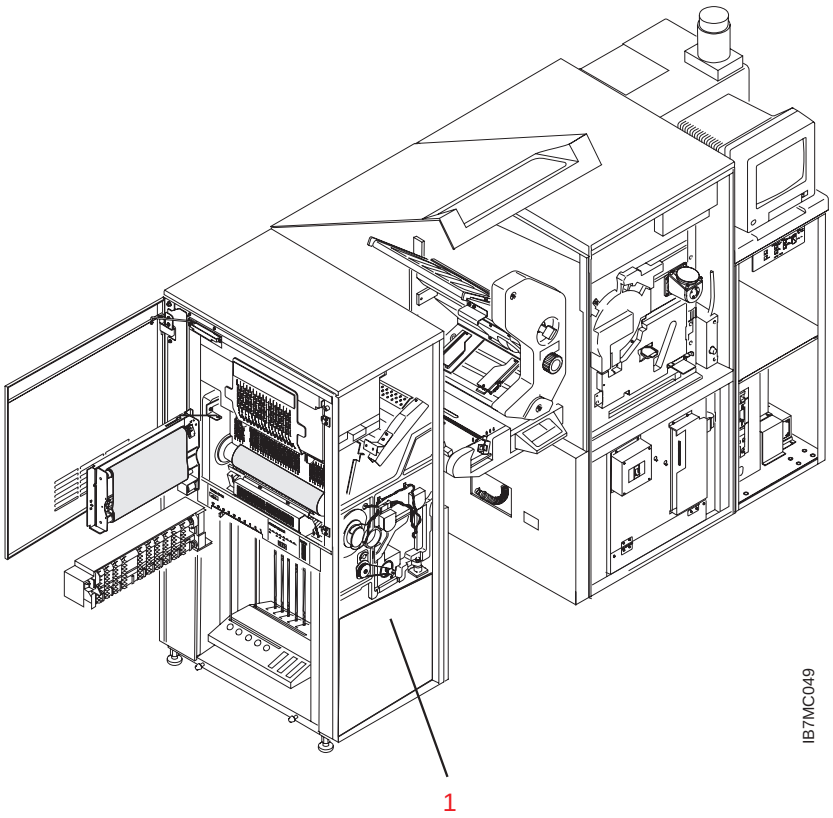
2. Loosen the screw **(6)** (see stacker table upper limit sensor (S704)) and adjust the upper limit sensor bracket **(5)** either up or down so the table **(10)** stops with a clearance of 8.0 mm ±0.5 mm (0.320 in. ±0.020 in.) between the lower surface of the forms guide **(8)** on the left finger belt assembly and the upper surface of the outer perforation expanders **(9)**.

Check

1. Run the stacker table to both its upper and lower limits and select all forms lengths to ensure that the stacker works correctly.
2. Run Print Pack to check print quality.

SCxxx - Stacker Control Card

Table 880. Functional Control Cards Accessed from the Front



Attention:

- Functional control cards are not interchangeable.
- Use ESD procedures when working with the control cards.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Removing the necessary covers and locate the SCxxx Stacker Control Card.
4. Disconnect all connectors attached to the card.
5. Release the plastic clips that hold the card in place.

Installation

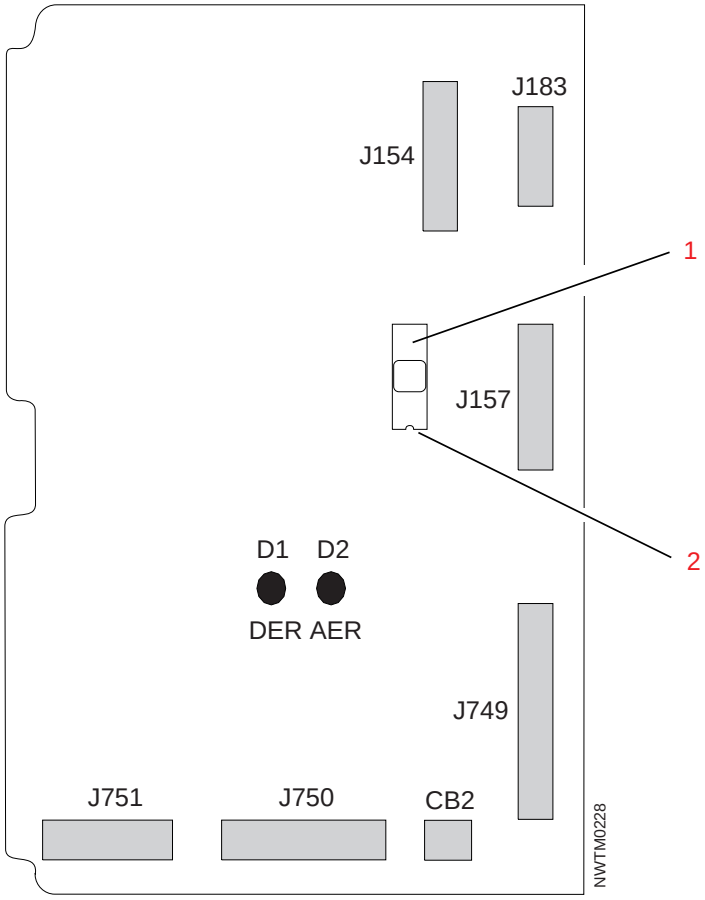
Reverse the removal procedure.

Check

Run Print Pack to check print quality.

SC061/SC091 Card EPROM Module

Table 881. SC061/SC091 Card EPROM



Attention: Use ESD procedures when working with EPROMs.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Locate the EPROM module **(1)** on the card.

Note: Note the module position by observing the notch **(2)** on the EPROM.

5. Carefully lift the EPROM modules from the card.

Installation

1. Install the EPROM modules in the same position.
2. Ensure that all the pins align with the holes in the socket before you insert the module.

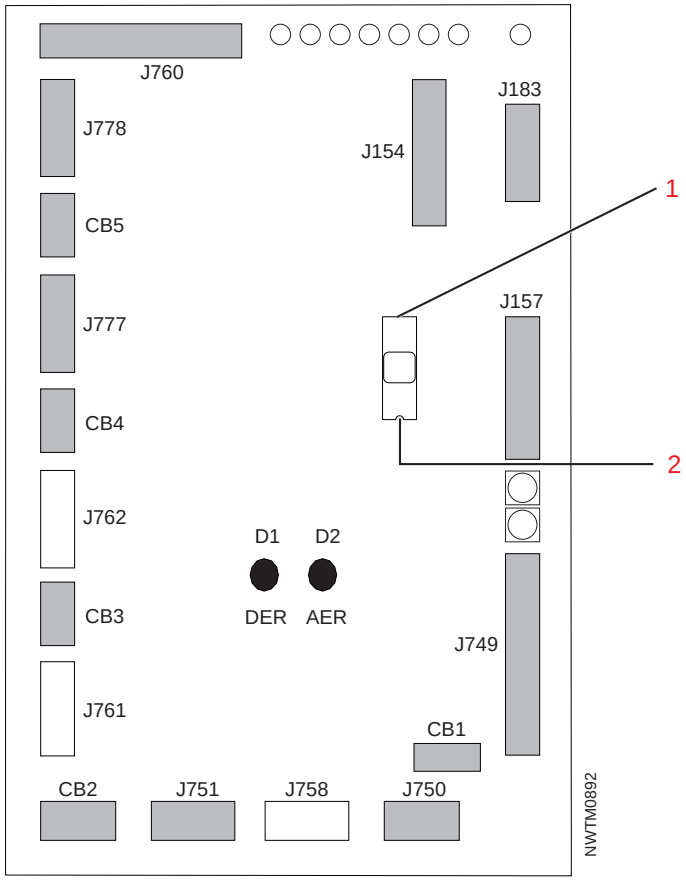
Note: It may be necessary to lay the pins on a flat surface and form them slightly for insertion in the socket.

Check

Run Print Pack to check print quality.

SC0101/SC0103 Card EPROM Module

Table 882. SC0101/SC0103 Card EPROM



Attention: Use ESD procedures when working with EPROMs.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer left front cover.
4. Locate the EPROM module **(1)** on the card.

Note: Note the module position by observing the notch **(2)** on the EPROM.

5. Carefully lift the EPROM modules from the card.

Installation

1. Install the EPROM modules in the same position.
2. Ensure that all the pins align with the holes in the socket before you insert the module.

Note: It may be necessary to lay the pins on a flat surface and form them slightly for insertion in the socket.

Check

Run Print Pack to check print quality.

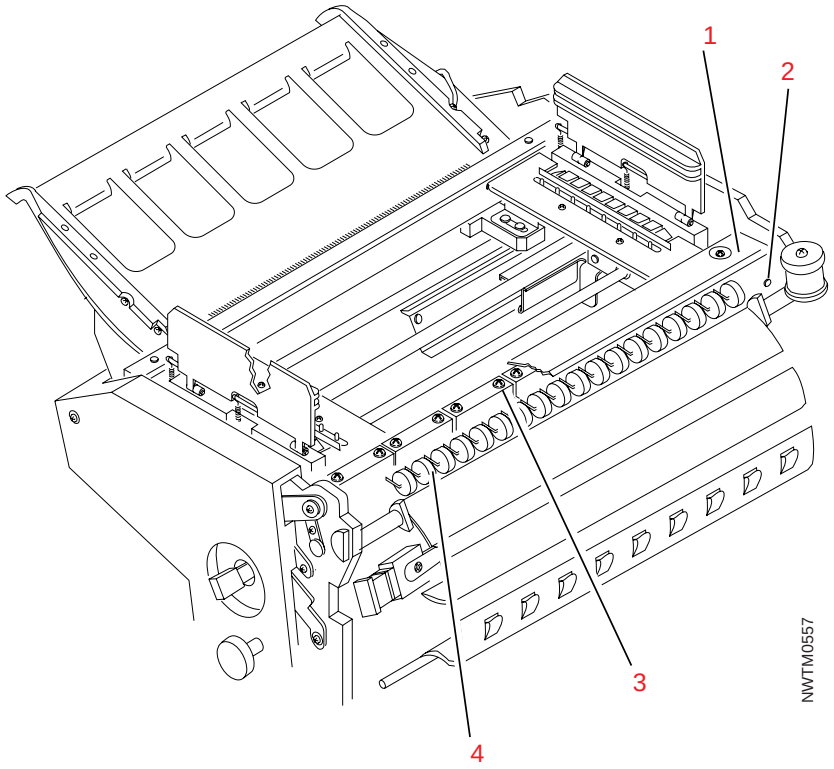
Transfer Station

Capstan Pinch Roll 3024
Capstan Pinch Roll Motor (M301) and Gear Box 3028
Capstan Pinch Roll Open Switch (S301) 3031
Capstan Roll and Drive Belt 3033
Capstan Roll Motor (M302) and Gear Box 3038
Deflector Plate to PC Drum Gap 3040
Lower Forms Guide 3042
Upper Forms Guide 3044
Forms Width Sensor Board (PW091) 3046
Front Cover 3050
Path Modifier and Springs 3051
Path Modifier Position 3052
Pre-Measure Unit 3055
Retractor Motor (M304) 3057
Lower Retractor 3059
Upper Retractor 3061
Retractor Detent Position 3063
Retractor to PC Drum Gap 3066
Side 1/Side 2 Verification Sensor Card 3077
Tension Arm Encoders 3090
Tension Arm Encoder Position 3093
Tension Arm Plate 3097
Tension Arm Shaft and Springs 3098
Tension Arm Parallelism 3105
Tension Arm Position 3106
Tractor Motor (M303) and Drive Belt 3111
Lower Front Tractor 3113
Lower Rear Tractor 3116
Upper Front Tractor 3117

Upper Rear Tractor 3125
Tractor Installation and Adjustment 3126
Tractor Pin Feed Belts 3127
Tractor Belt Grounding Brushes 3131
Lower Tractor Guide Plates 3132
Upper Tractor Guide Plates 3134
Upper Tractor Positioning Cable A 3136
Lower Tractor Positioning Cable B 3140
Tractor Alignment 3142
Tractor Control Knob Resistance 3145
Lower Tractor Timing 3146
Upper Tractor Timing 3150
Upper Tractor Jam Sensor (Q301) 3152
Transfer Corona Shield 3154
Transfer Station Discharge Brush 3156
Transfer Station Open Sensor (S302) 3158
Transfer Station Adjustment Sequence 3160

Capstan Pinch Roll

Table 883. Capstan Pinch Roll



Special Tool

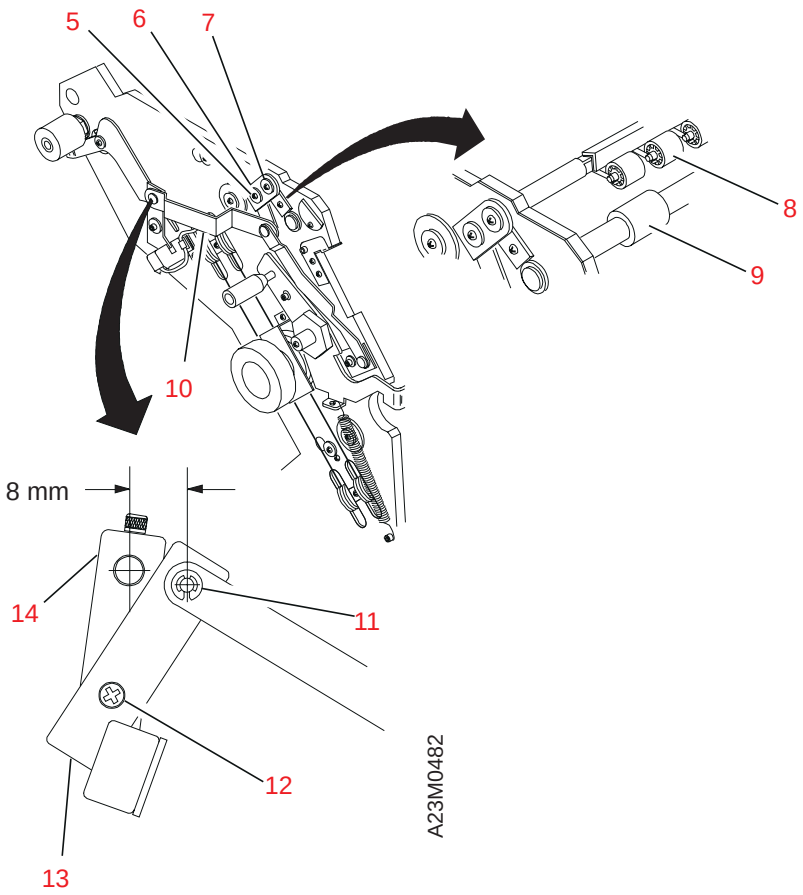
Push-pull scale (PN 0460870)

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Open the transfer station.
3. Loosen the two screws **(2)** and remove the capstan pinch roll cover **(1)**.
4. Remove the eight screws **(3)** and remove the four pinch roller sections **(4)**

(continued on next page)

Table 883. Capstan Pinch Roll (continued)

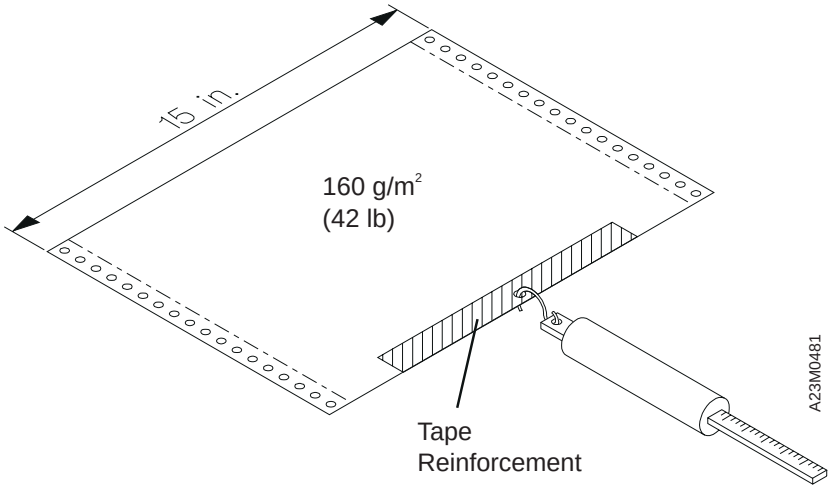


Installation and Adjustment

1. Reverse the removal procedure to install the pinch roller sections.
2. Rotate the tractor knob to move the rear tractor all the way to the rear of the printer.
3. Remove the transfer station front cover.
4. If the screw **(12)** has been replaced by a weld, go to step 10.
5. Loosen the screw **(12)**.
6. Turn the link **(13)** clockwise to correctly position the link to the D-shaft under screw **(12)**. When the link **(13)** is positioned correctly, the center of pin **(11)** will be approximately 8 mm (0.31 in.) to the right of the center of the shaft on the crank **(14)**.
7. Tighten the screw **(12)**.
8. Power on the printer.
9. Run Driver Routine 13. The bend in the link **(10)** should travel about 14 ±2 mm (0.55 ±0.08 in.).

(continued on next page)

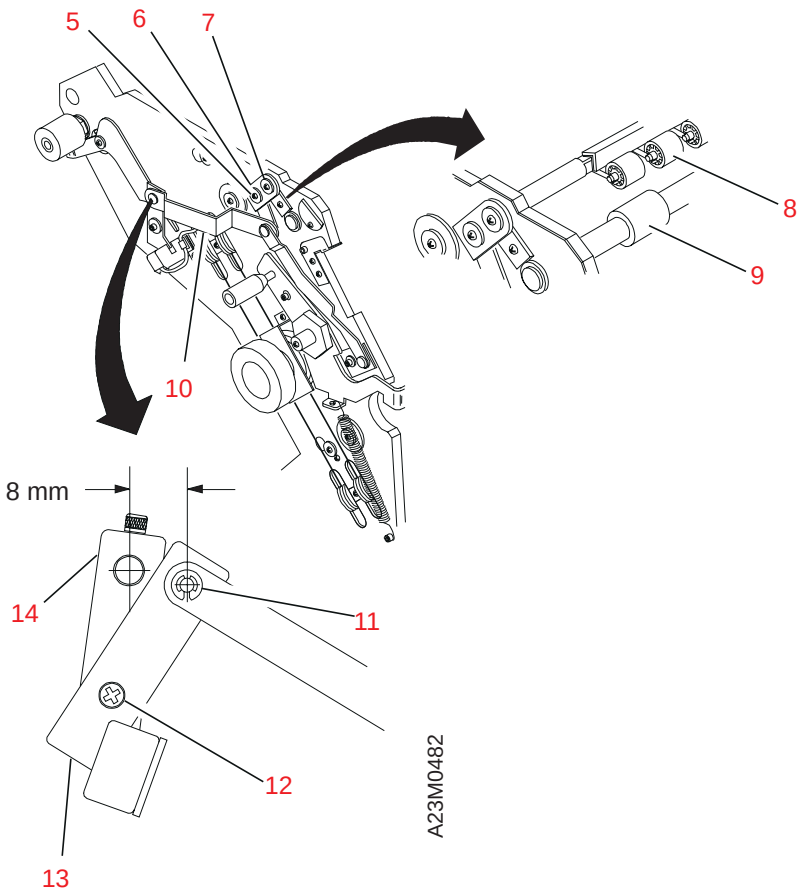
Table 883. Capstan Pinch Roll (continued)



10. Reinforce the perforation edge of a 15 in. wide, 42 lb form with tape as shown. Punch a hole in the center to attach the hook of the spring scale.
11. Insert the form between the pinch rolls and the capstan drive roll, then run Driver Routine 13 to close the pinch rolls. Stop the routine when the rolls are closed on the test form.

(continued on next page)

Table 883. Capstan Pinch Roll (continued)



12. Hold the spring scale while running the capstan pinch rolls with driver routine **12**.
13. The tension on the form should be 1200 ±300 g (2.65 ±0.65 lb).
14. If the tension is not correct, loosen the screws **(5)** and **(7)** and adjust the link **(6)** to increase or decrease the clearance between the capstan roll **(9)** and the pinch rollers **(8)**.
15. Tighten the screws **(5)** and **(7)**.
16. Return to step 11 and repeat the test procedure until the tension is correct.
17. Install all covers that were removed.

Check

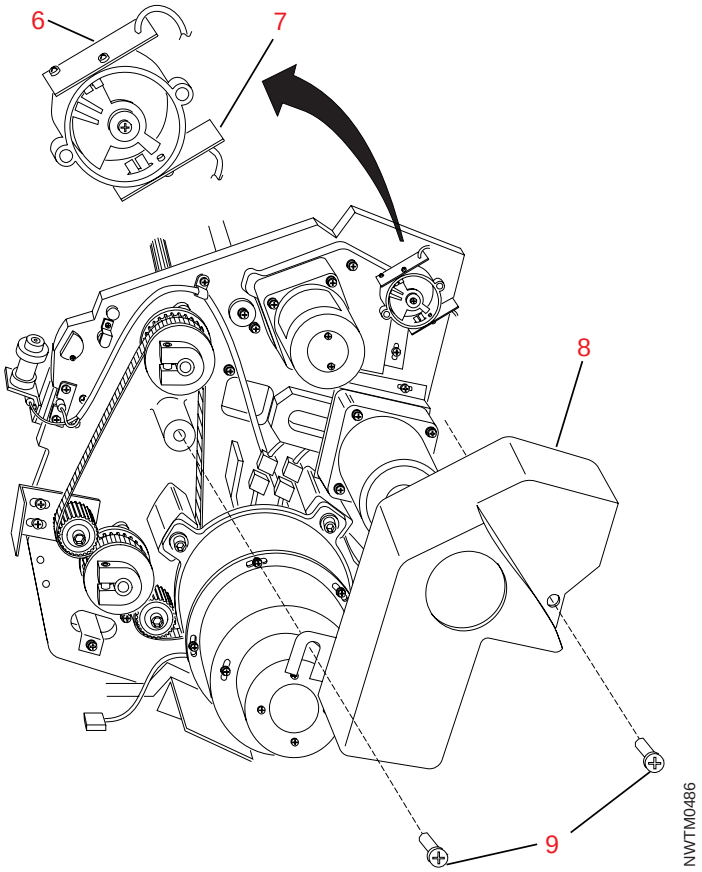
Run the auto load procedure to ensure that the pinch roll is pulling paper into the transfer station. See the Operator's Guide.

Verify

1. Run test prints to verify that the forms are feeding correctly.
2. Run Print Pack to verify print quality.

Capstan Pinch Roll Motor (M301) and Gear Box

Table 884. Capstan Pinch Roll Motor (M301) and Gear Box

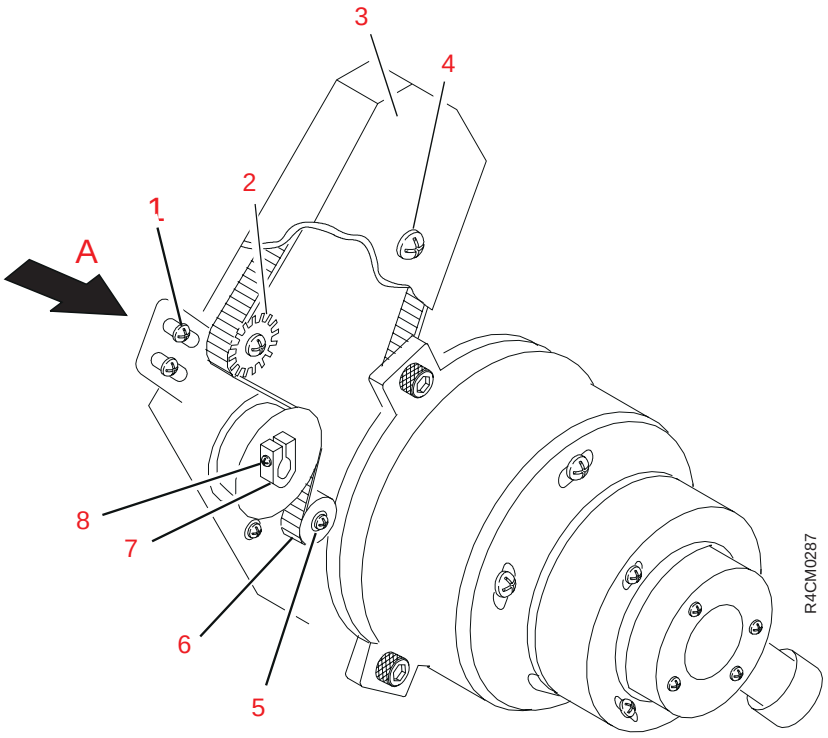


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Open the printer left front and center front covers.
3. Remove the transfer station center rear cover.
4. Open the transfer station.
5. Remove the two screws **(9)** on the tension arm encoder cover, remove the cover carefully to avoid damaging the encoder board cables.

(continued on next page)

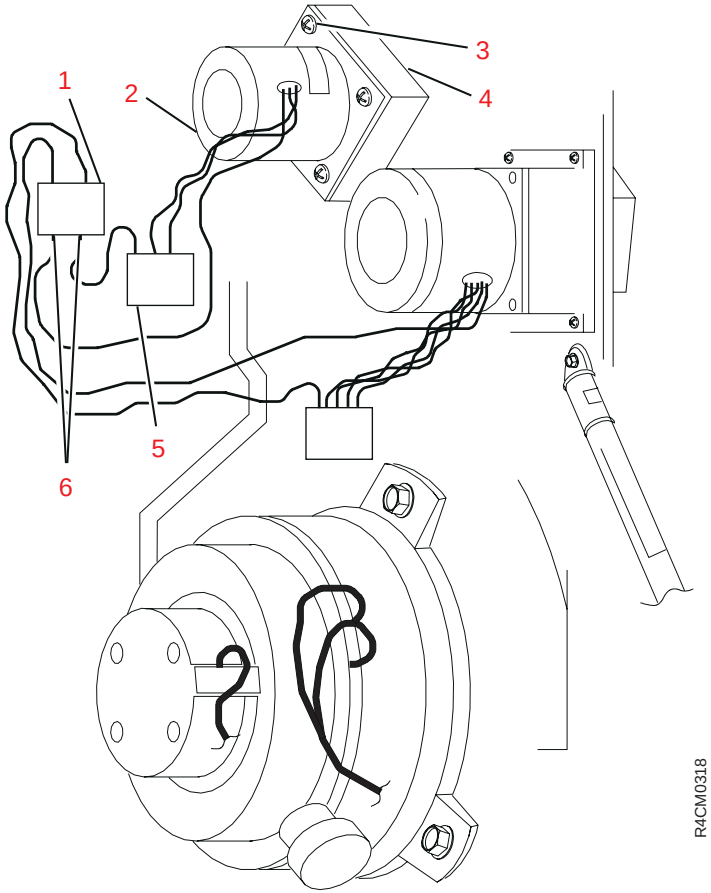
Table 884. Capstan Pinch Roll Motor (M301) and Gear Box (continued)



6. Remove the two lower cover screws **(4)**, and remove the tractor motor drive belt cover **(3)**.

(continued on next page)

Table 884. Capstan Pinch Roll Motor (M301) and Gear Box (continued)



7. Mark the wire locations and remove the two terminals **(6)** from the capacitor C301 **(1)**.
8. Remove the three screws **(3)**. Remove the capstan pinch roll motor **(2)** and gearbox **(4)**.

Installation

1. Rotate the gear box to ensure that the gears are rotate with no binds and minimum backlash.
2. Reverse the removal procedure.

Check

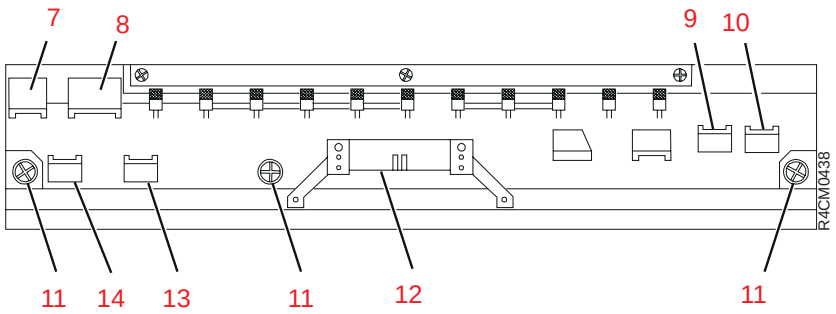
Run Driver Routine 13 to ensure that the capstan pinch roll motor works correctly.

Verify

1. Run the auto load procedure to ensure that the forms are loading correctly. See the Operator's Guide.
2. Run Print Pack to verify print quality.

Capstan Pinch Roll Open Switch (S301)

Table 885. Capstan Pinch Roll Open Switch (S301)

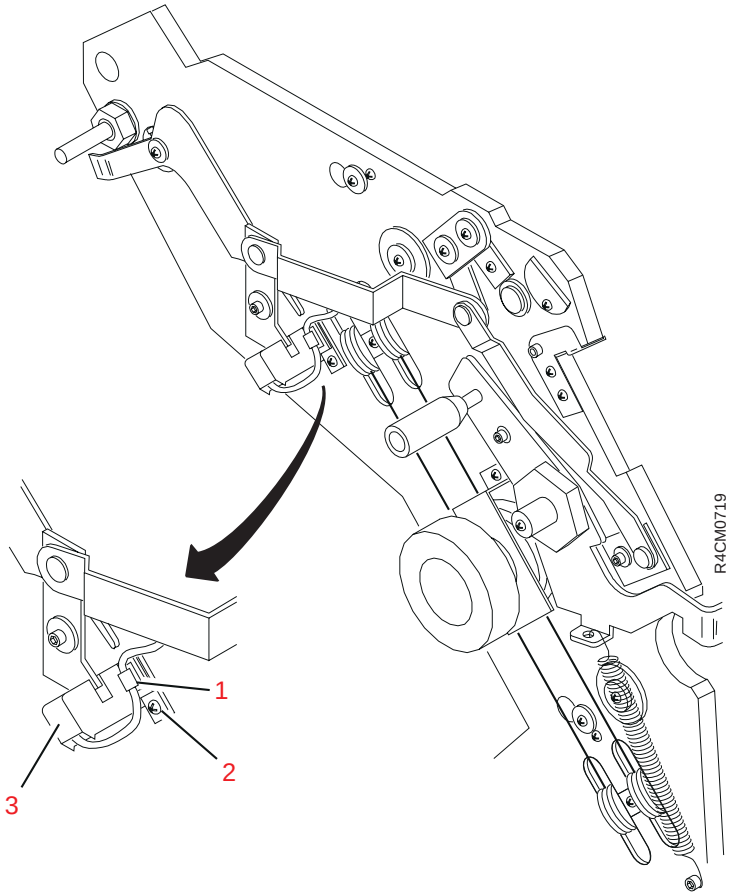


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the transfer station front cover.
3. Remove the Transfer Station Discharge Brush plate.
4. Disconnect connector PJ304 **(13)** from the forms width sensor board (PW091).

(continued on next page)

Table 885. Capstan Pinch Roll Open Switch (S301) (continued)



5. Remove the cable from the cable clamp **(1)**.
6. Remove the screw **(2)**. Remove the switch **(3)**.

Installation and Adjustment

1. Reverse the removal procedure.
2. Loosen the screw on the switch support bracket.
3. Move the switch up or down so that the flag is centered in the switch.
4. Tighten the screw on the switch support bracket.

Check

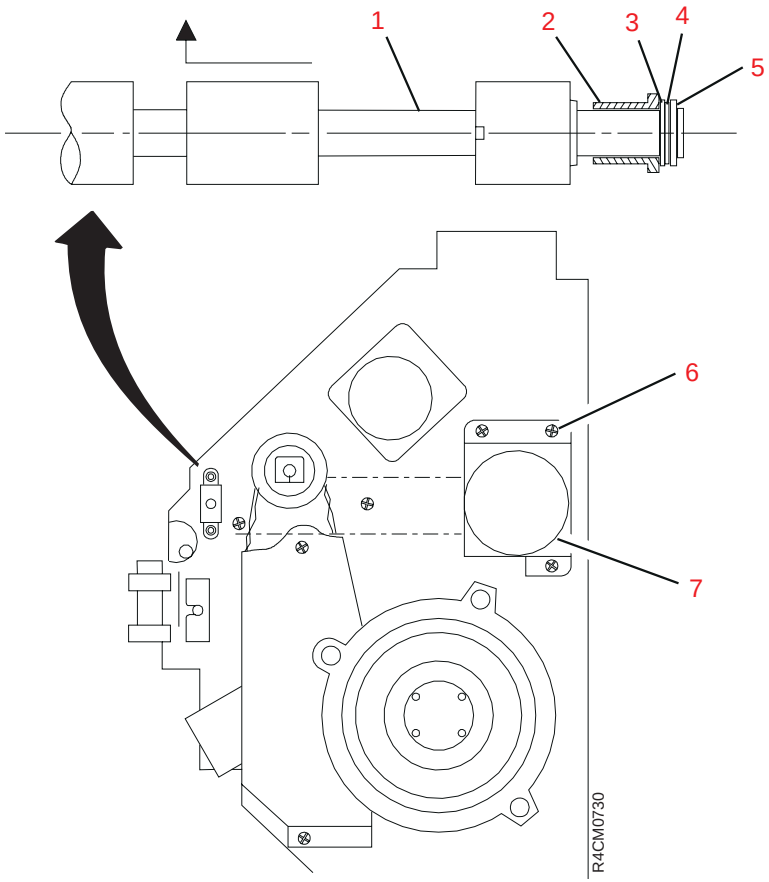
Run Driver Routine 13 to ensure that the capstan pinch roll open switch (S301) operates correctly.

Verify

Run Print Pack to verify print quality.

Capstan Roll and Drive Belt

Table 886. Capstan Roll and Drive Belt



Special Tool

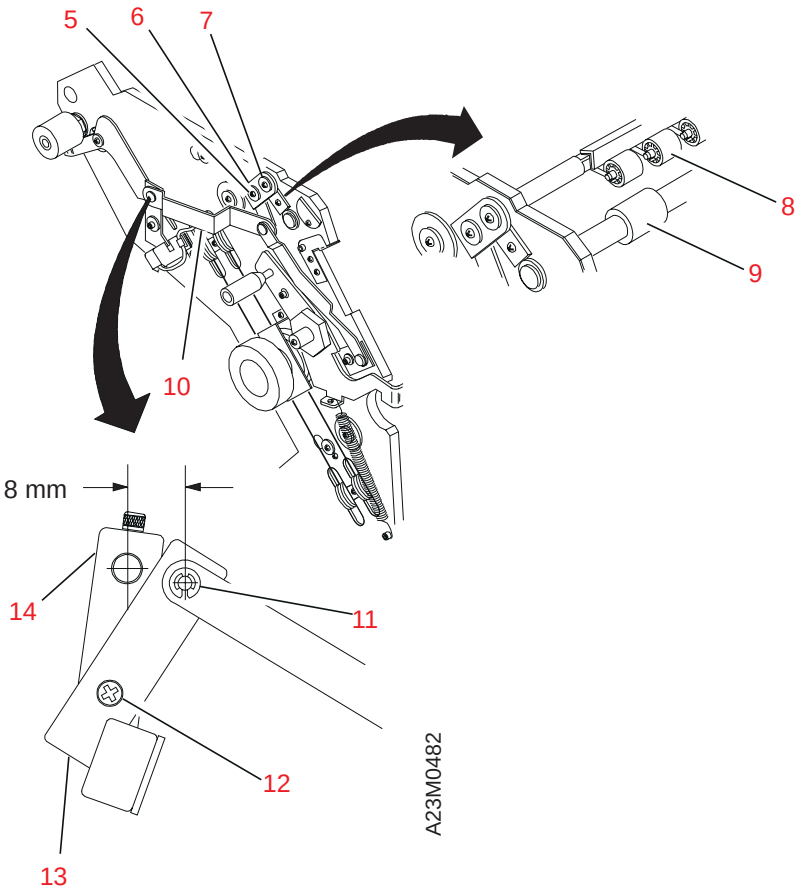
Push-pull scale (PN 0460870)

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the transfer station front cover.
3. Perform steps 2 through 6 in Capstan Roll Motor (M302) and Gear Box.
4. Loosen the three screws **(6)** and slide the motor assembly **(7)** to relieve belt tension.
5. From the rear of the printer, remove the grounding clip, retaining ring **(5)**, wave washer **(4)**, polyslider **(3)**, and bearing **(2)**.
6. Slide the capstan roll shaft **(1)** towards the front of the printer.
7. Remove the drive belt.
8. If only the drive belt is to be removed, stop here.

(continued on next page)

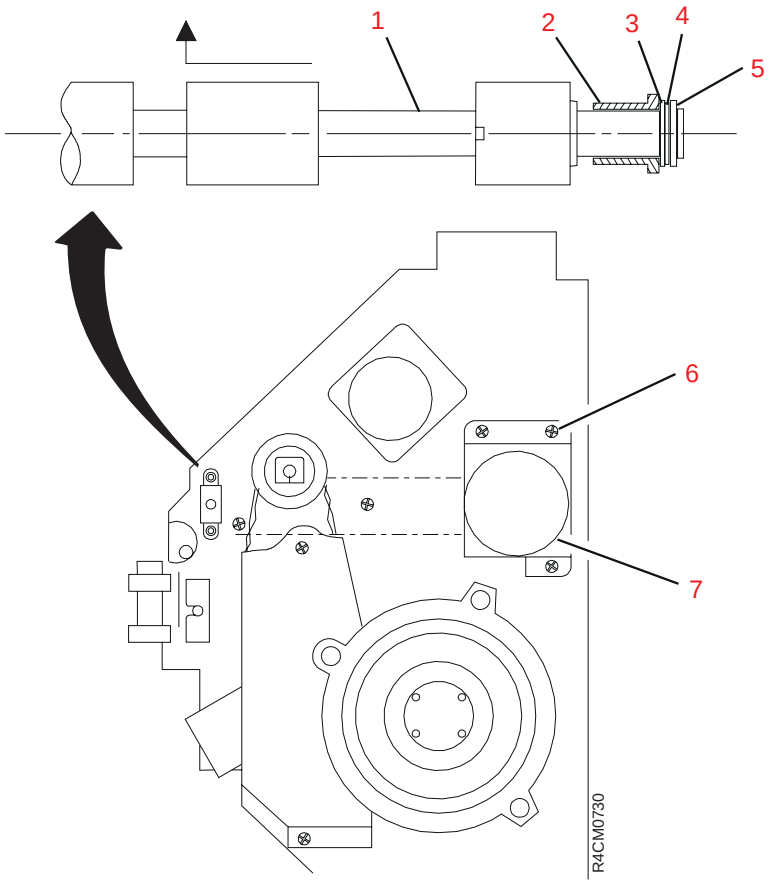
Table 886. Capstan Roll and Drive Belt (continued)



9. Remove the screw **(7)** holding the linkage to the capstan pinch roll shaft and rotate the rolls toward the tractors.

(continued on next page)

Table 886. Capstan Roll and Drive Belt (continued)



10. Remove the retaining ring **(5)** from the front of the capstan roll shaft.
11. Pull the bearing **(2)** off the front of the capstan roll shaft.
12. Lift the capstan roll out of the transfer station.

Installation

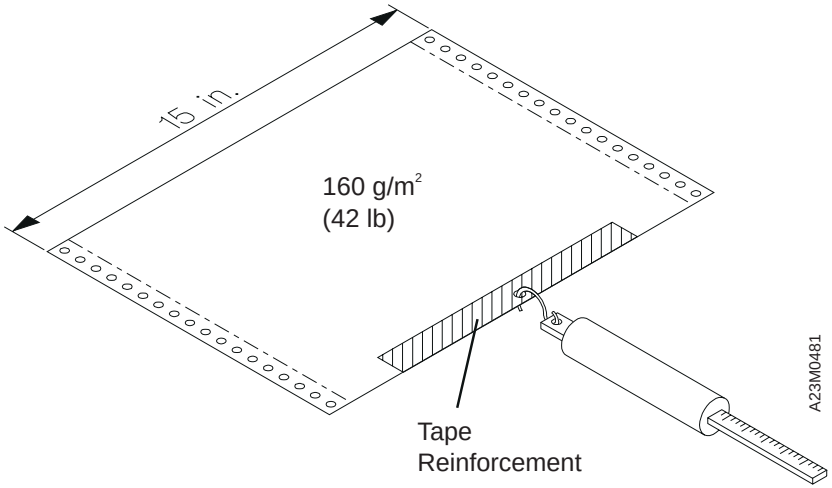
Reverse the removal procedure.

Adjustment

1. Adjust the tension of the drive belt by loosening the three screws **(6)** and sliding the capstan roll motor **(7)** to the right with a force of 2 to 3 kg (4.4 to 6.6 lb).
2. Tighten the three screws **(6)**

(continued on next page)

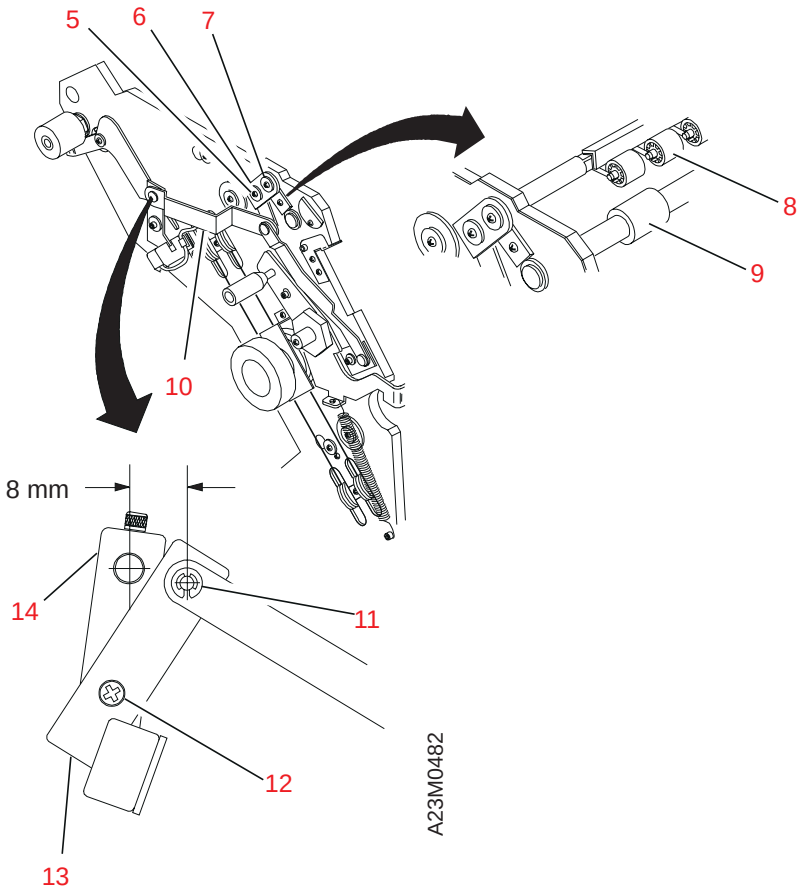
Table 886. Capstan Roll and Drive Belt (continued)



3. Steps 4 through 10 check the pinch roll adjustment.
4. Reinforce the perforation edge of a 15 in. wide, 42 lb form with tape as shown. Punch a hole in the center to attach the hook of the spring scale.
5. Insert the form between the pinch rolls and the capstan drive roll, then Run Driver Routine 13 to close the pinch rolls. Stop the routine when the rolls are closed on the test form.

(continued on next page)

Table 886. Capstan Roll and Drive Belt (continued)



6. Hold the spring scale while running the capstan pinch rolls with Driver Routine 12.
7. The tension on the form should be 1200 ±300 g (2.65 ±0.65 lb).
8. If the tension is not correct, loosen the screws **(5)** and **(7)** and adjust the link **(6)** to increase or decrease the clearance between the capstan roll **(9)** and the pinch rollers **(8)**.
9. Tighten the screws **(5)** and **(7)**.
10. Return to step 5 and repeat the test procedure until the tension is correct.

Check

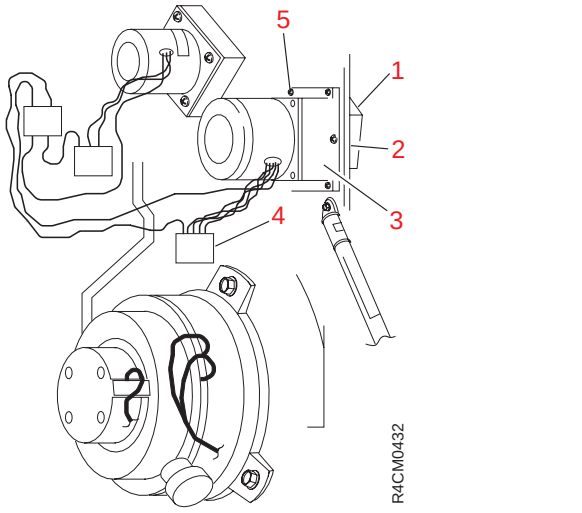
Run Driver Routine 12 to ensure that the capstan roll motor works correctly.

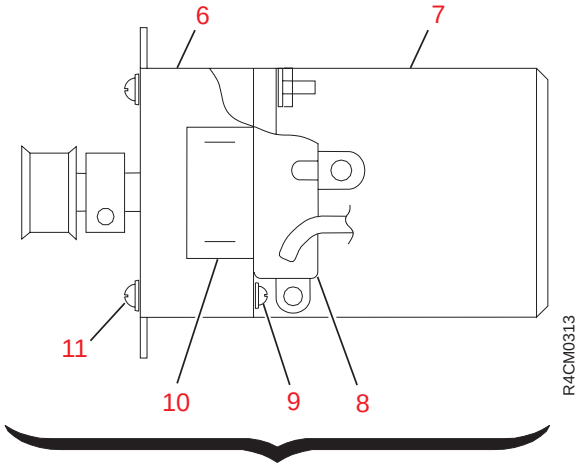
Verify

1. Run the auto load procedure to ensure that the pinch roll is pulling paper into the transfer station. See the Operator's Guide.
2. Run Print Pack to verify print quality.

Capstan Roll Motor (M302) and Gear Box

Table 887. Capstan Roll Motor (M302)





CR Motor Assembly

Special Tool

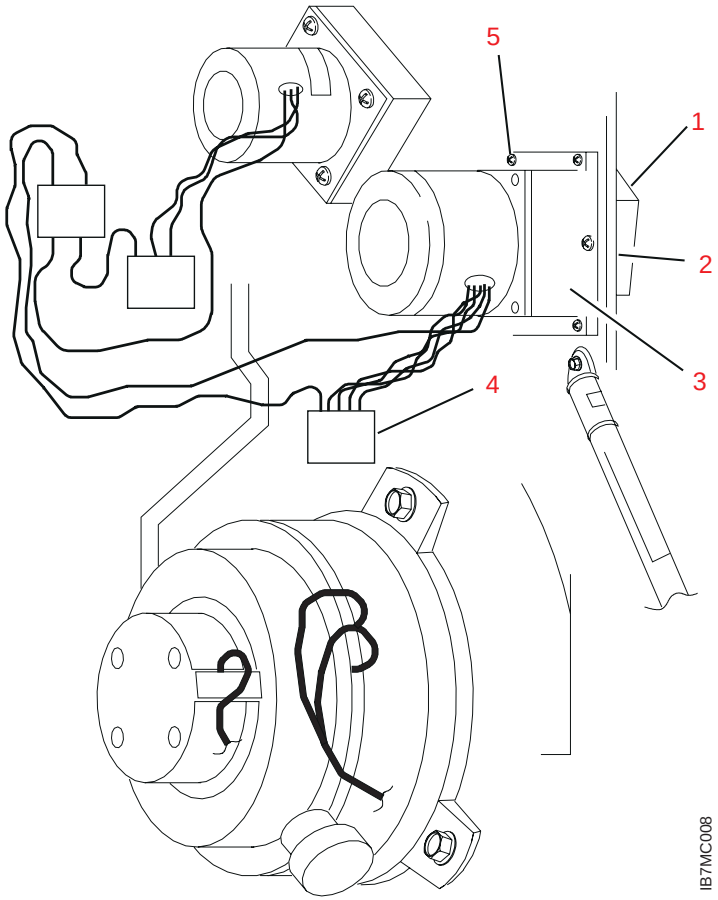
Push-pull scale (PN 0460870)

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Open the left rear and the center rear covers.
3. Remove the transfer station center rear cover.
4. Open the transfer station.
5. Through the hole in the front pulley cover **(1)**, loosen, but do not remove, the screw **(2)**, remove the pulley cover.
6. Remove the tension arm encoder cover. See step 8 in Tension Arm Encoders.
7. Remove the tractor motor drive belt cover. See steps 8 and 9 in Lower Front Tractor.
8. Disconnect connector PJ311 **(4)**.
9. Mark the location of the wires and disconnect the wires from capacitor C301 **(10)**, located behind capacitor C302 **(8)**.
10. Remove the three screws **(5)** and slide the motor to the left. Remove the capstan roll motor assembly **(3)**.
11. Remove the two screws **(9)**. Remove the capacitor C302 **(8)**.
12. Remove the three screws **(11)**. Remove gearbox **(6)** and the capstan roll motor **(7)** from the base plate.

(continued on next page)

Table 887. Capstan Roll Motor (M302) (continued)



Installation

Reverse the removal procedure.

Adjustment

1. Adjust the tension of the drive belt by loosening the three screws **(5)** and sliding the capstan roll motor to the right with a force of 2 to 3 kg (4.4 to 6.6 lb).
2. Tighten the three screws **(5)**.

Check

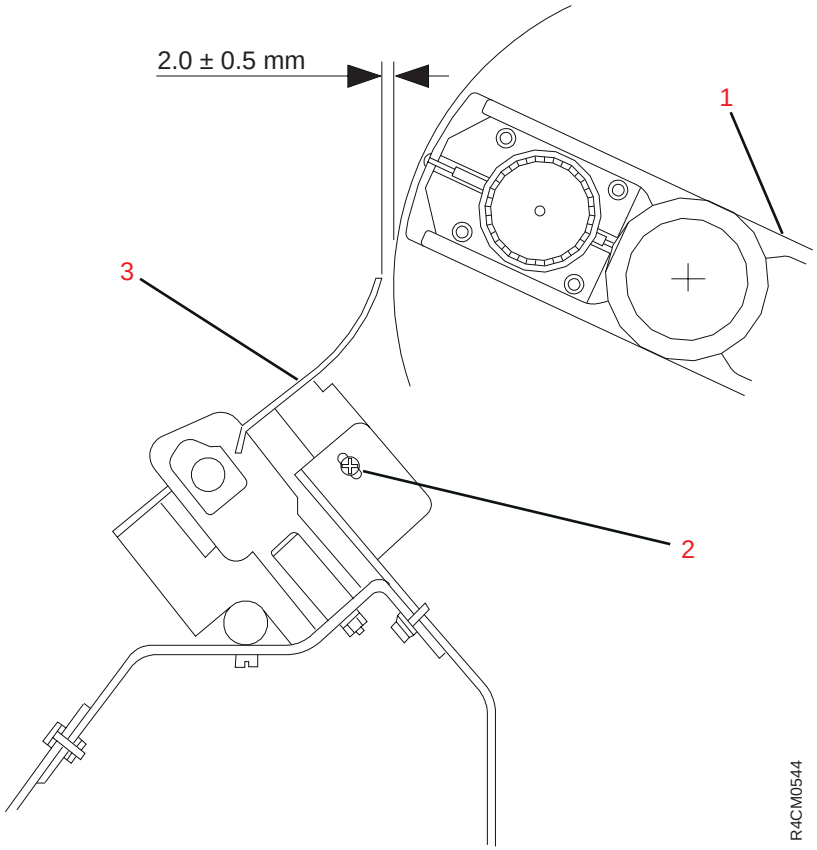
Run Driver Routine 12 to ensure that the capstan roll motor runs correctly.

Verify

1. Run the auto load procedure to ensure that the pinch roll is pulling paper into the transfer station. See the Operator's Guide.
2. Run Print Pack to verify print quality.

Deflector Plate to PC Drum Gap

Table 888. Deflector Plate to PC Drum Gap



Special Tools

- Drum shaft extension (PN 06F1025)
- Drum clearance gauge (PN 06F1029)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Molycoat G (PN 0357830)
- Gloves, plastic (PN 2200041)

Check

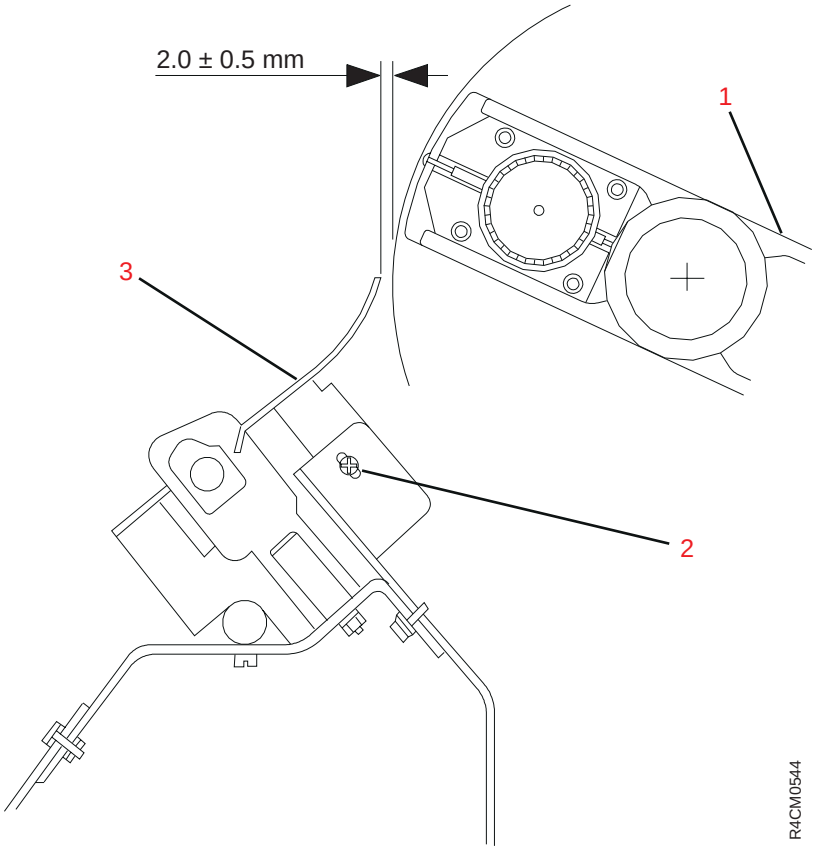
1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Close the laser shutter.
3. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Calibrate and install the Drum Clearance Gauge.
5. Use the drum gauge **(1)** to ensure that the gap (front and rear) between the deflector plate **(3)** is as stated in PC Drum & Developer Clearances/Gaps.
6. If the gap is not correct, perform the Deflector Plate to PC Drum Gapadjustment.

(continued on next page)

Table 888. Deflector Plate to PC Drum Gap (continued)

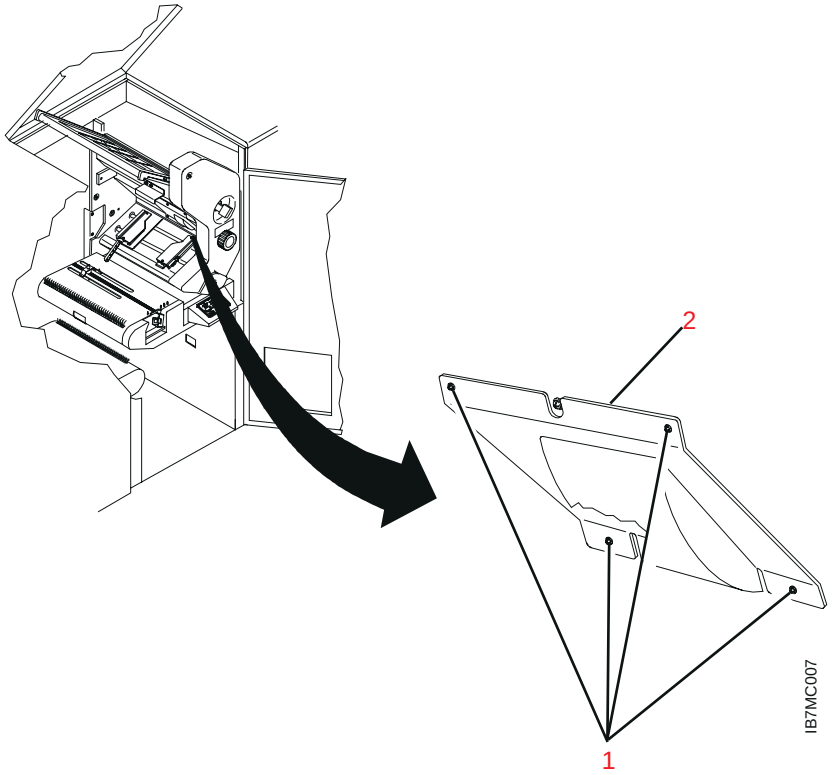


Adjustment

1. Loosen the front and back screws **(2)** from the inside.
2. Pivot the deflector plate **(3)** until the gap is as stated in PC Drum & Developer Clearances/Gaps.
3. Tighten the two screws **(2)**.
4. Power on the printer.
5. Run the auto load procedure to ensure that the forms are loading correctly. See the Operator's Guide.

Lower Forms Guide

Table 889. Lower Forms Guide



Removal

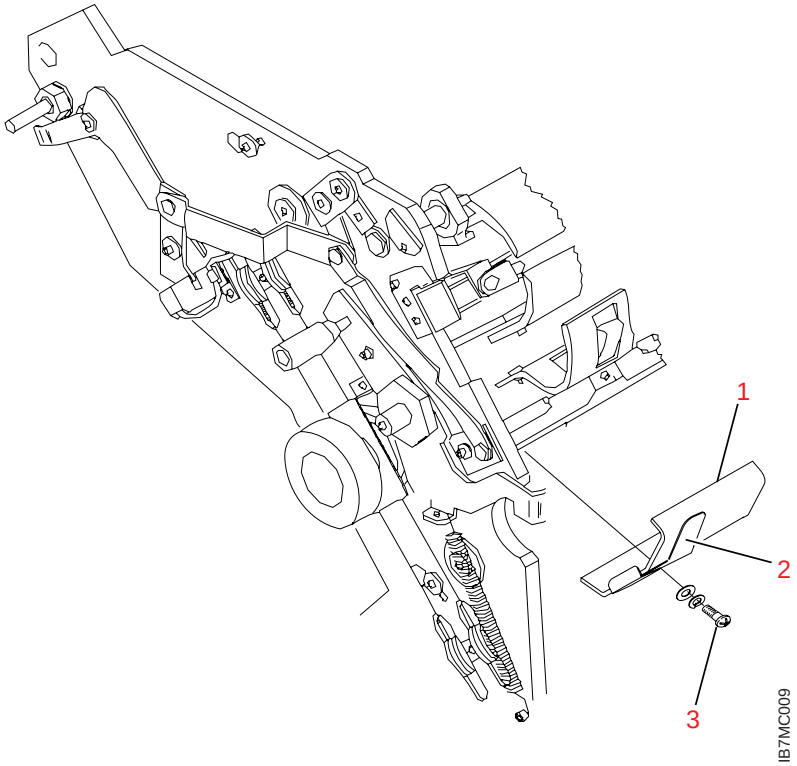
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the forms.
3. Shutdown and power off the printer.
4. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

5. Open the transfer station.
6. Remove the Lower Tractor Guide Plates.
7. Remove the four screws **(1)**. Remove the retractor motor cover **(2)**

(continued on next page)

Table 889. Lower Forms Guide (continued)



8. Remove the two screws **(3)** Remove the lower forms guide **(1)**.
9. If the lower forms guide is being replaced, remove the shims **(2)** from the old guide and install them on the new guide.
10. Reverse the removal procedure to install the lower forms guide **(1)**. Push the guide upward, toward the retractors, when tightening the two screws **(3)**

Adjustment

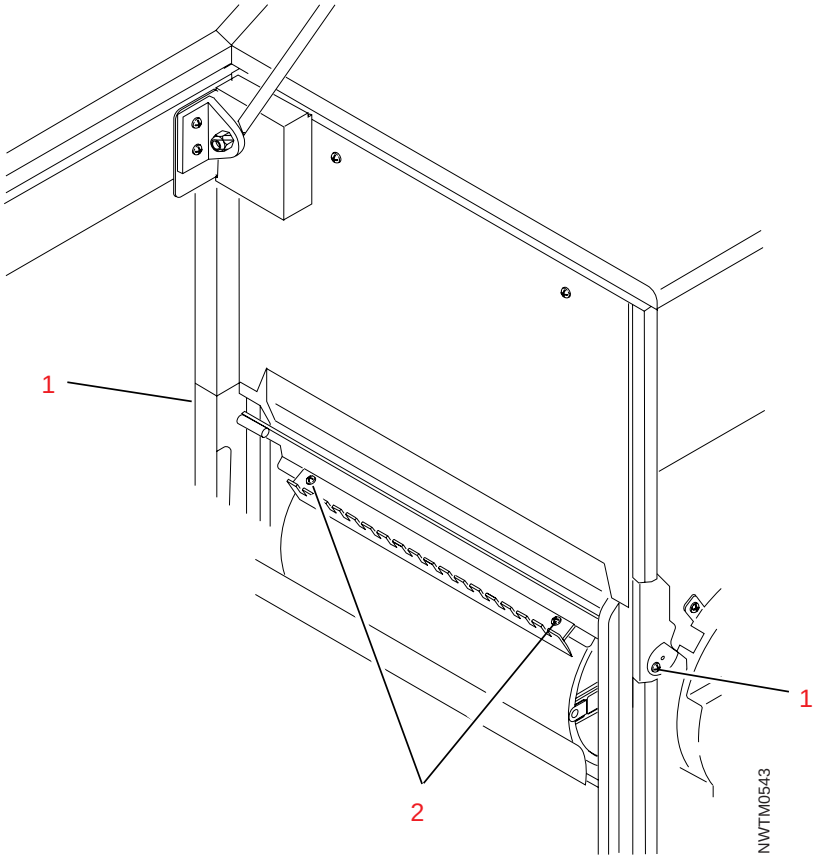
Lower Tractor Guide Plates adjustment.

Verify

Run Print Pack to verify print quality.

Upper Forms Guide

Table 890. Upper Forms Guide



Special Tools

Drum shaft extension (PN 06F1025)
Drum bag or empty box
Drum clearance gauge (PN 06F1029)
Lint free cloth (PN 2108930)
Molycoat G (PN 0357830)
Gloves, plastic (PN 2200041)

Removal

1. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

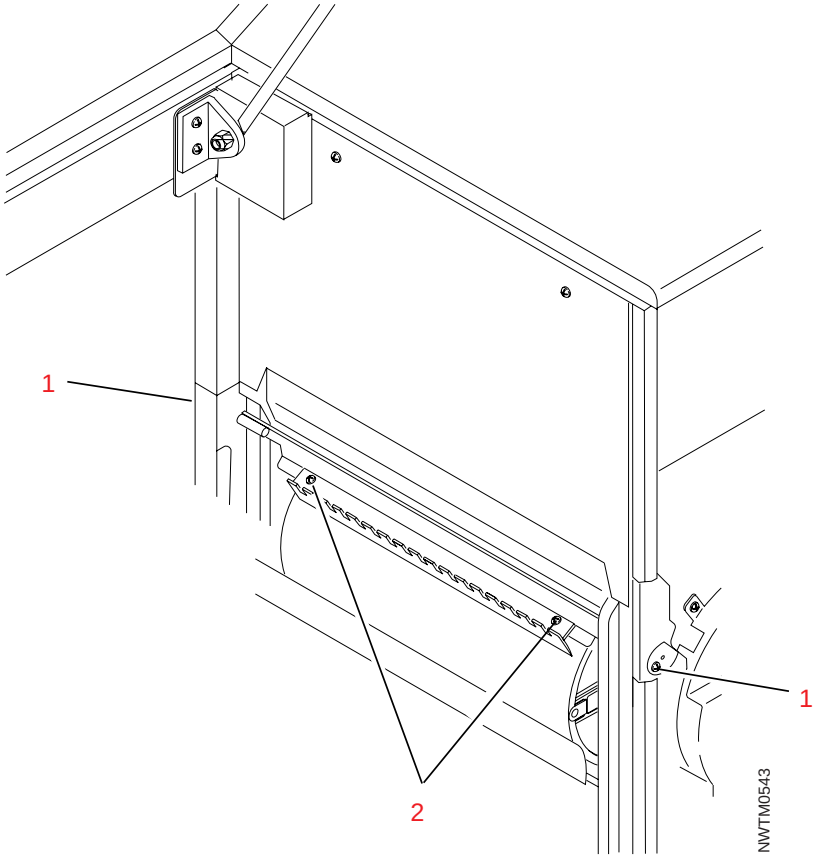
2. Remove the two mounting screws **(2)**, remove the upper forms guide.

Installation

Reverse the removal procedure.

(continued on next page)

Table 890. Upper Forms Guide (continued)



Check & Adjustment

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

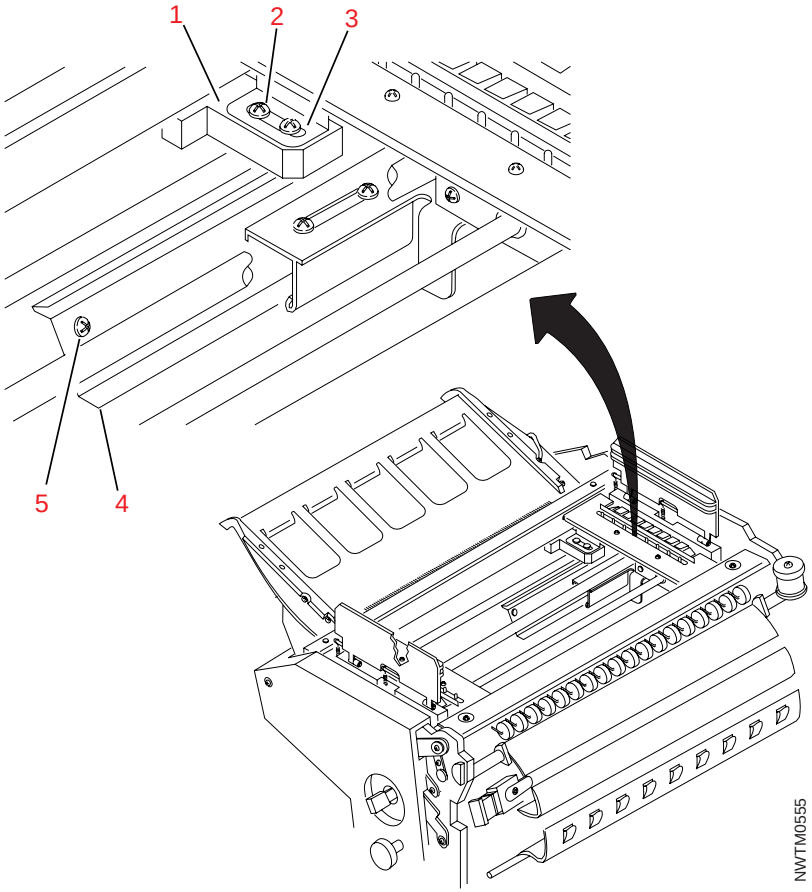
3. Use the drum gauge to ensure that the gap (front and rear) between the upper forms guide and the PC drum is as stated in PC Drum & Developer Clearances/Gaps.
4. If the gap is not correct, loosen the two screws **(1)** on the upper forms guide and adjust the gap.

Verify

Run Print Pack to verify print quality.

Forms Width Sensor Board (PW091)

Table 891. Forms Width Sensor Board (PW091)

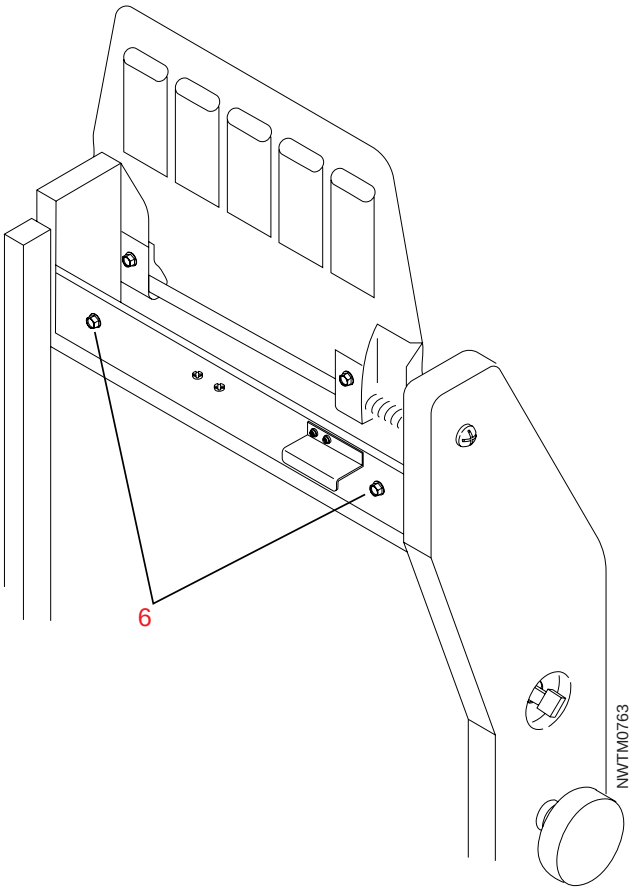


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the Transfer Station Discharge Brush plate.
3. Open the transfer station.
4. Remove the two screws **(2)**. Remove the magnet plate **(1)** from the upper rear tractor **(3)**.
5. Loosen the two screws **(5)**. Remove the transfer station cable shield **(4)**.

(continued on next page)

Table 891. Forms Width Sensor Board (PW091) (continued)



6. Remove the two screws **(6)**. Remove the forms width sensor board assembly.

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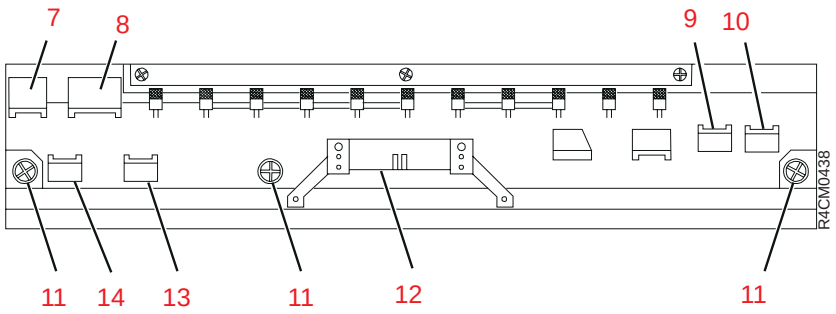
Table 891. Forms Width Sensor Board (PW091) (continued)



7. Disconnect connectors PJ301 **(7)**, PJ302 **(8)**, PJ304 **(13)**, PJ305 **(9)**, PJ306 **(10)** and PJ307 **(12)**.
8. Remove the three screws **(11)**. Remove the forms width sensor board from the holder.

Installation

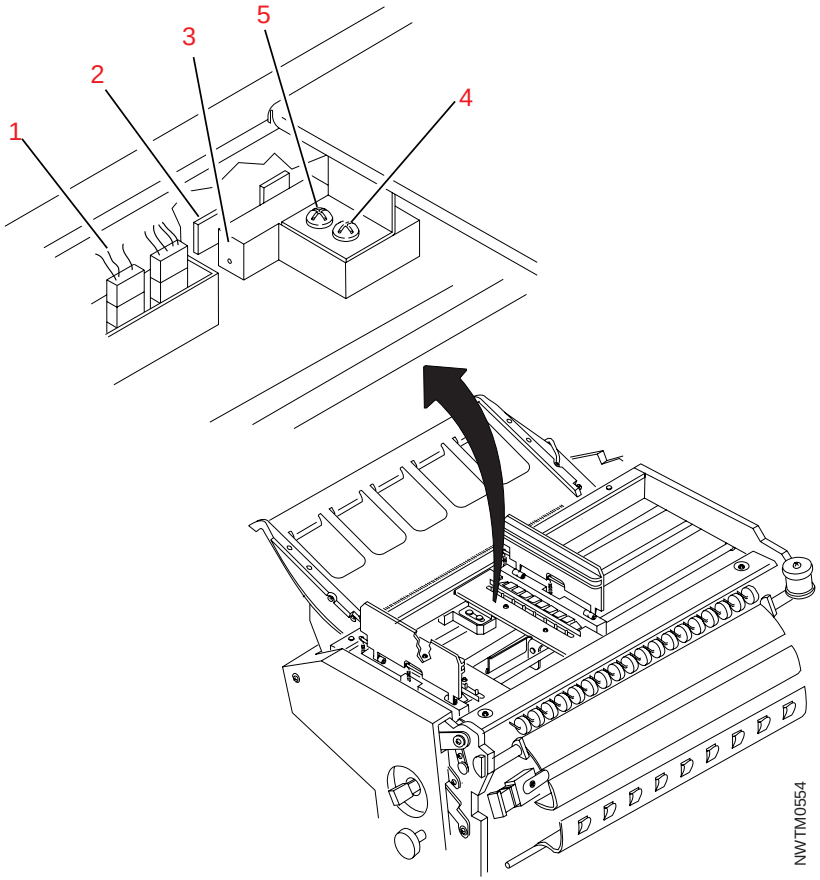
Reverse the removal procedure, ensuring to connect all connectors correctly.

Adjustment, Part 1

1. Set the clearance between the magnets and the shield to eliminate interference as the tractor moves.
2. Set the front and rear position of the magnet plate so that the forms width reading will be accurate.

(continued on next page)

Table 891. Forms Width Sensor Board (PW091) (continued)



Adjustment, Part 2

1. Loosen the two screws **(4)** and **(5)** on the magnet assembly to adjust the magnet assembly.
2. Turn the tractor control knob to position the upper rear tractor as close as possible to the front of the printer.
3. Insert a 0.35 mm (0.014 in.) thickness gauge between the magnets and the black plastic shield **(1)** covering the Hall sensors **(2)** on the forms width sensor board.
4. Slide the magnet assembly and the thickness gauge towards the fuser and against the plastic shield **(1)**.
5. Tighten the two screws **(4)** and **(5)**
6. Ensure that the gap between the magnet assembly and the plastic shield is 0.35 mm to 1.00 mm (0.01 to 0.04 in.) as the tractor moves through all forms width positions.

Check

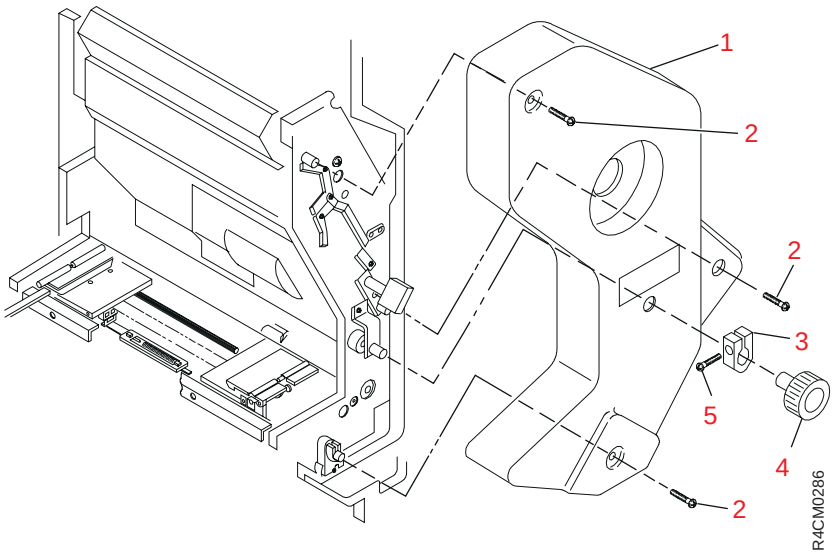
Run Sensor Routines 65.

Verify

Run Print Pack to verify print quality.

Front Cover

Table 892. Transfer Station Front Cover



Removal

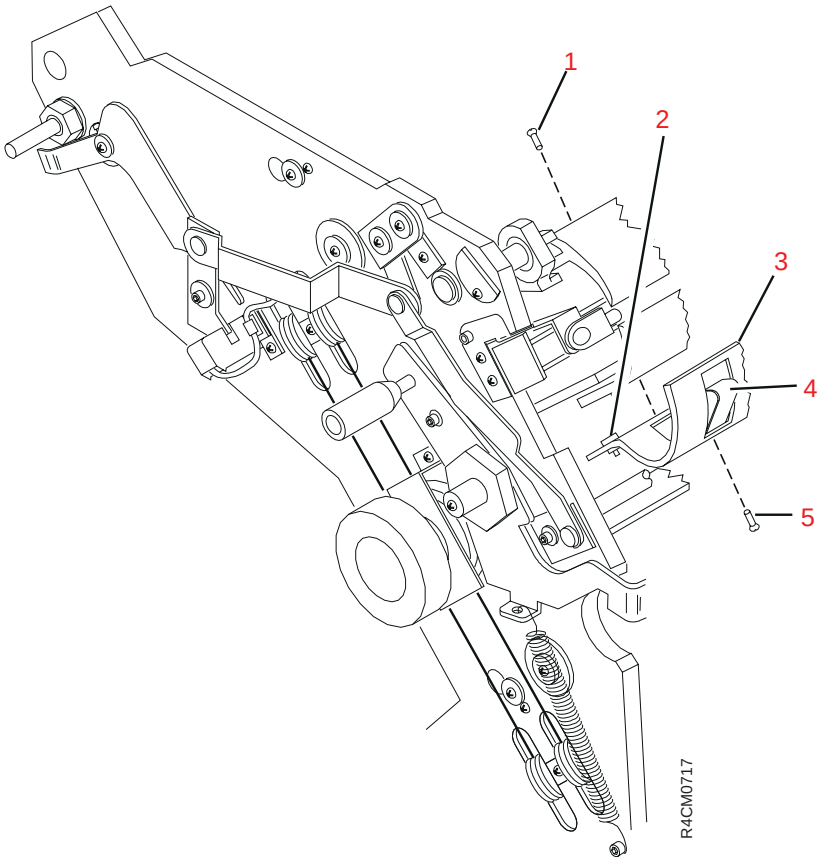
1. Open the transfer station.
2. Loosen the screw **(5)**. Remove the tractor control knob **(4)** and clamping ring **(3)**.
3. Remove the three screws **(2)**. Remove the transfer station front cover **(1)**.

Installation

Reverse the removal procedure.

Path Modifier and Springs

Table 893. Path Modifier and Springs



Special Tool

Path modifier gauge (PN 88F1609).

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the Lower Forms Guide.
3. Remove the two screws **(5)**. Remove the path modifier assembly **(3)** from the hinges.
4. Remove the screw **(2)**. Remove the ground wire from the path modifier and lift the path modifier out of the transfer station.
5. Remove the eight screws **(1)**. Remove the path modifier springs **(4)**.

Installation

Reverse the removal procedure, ensuring that the springs are centered in the square holes.

Adjustment

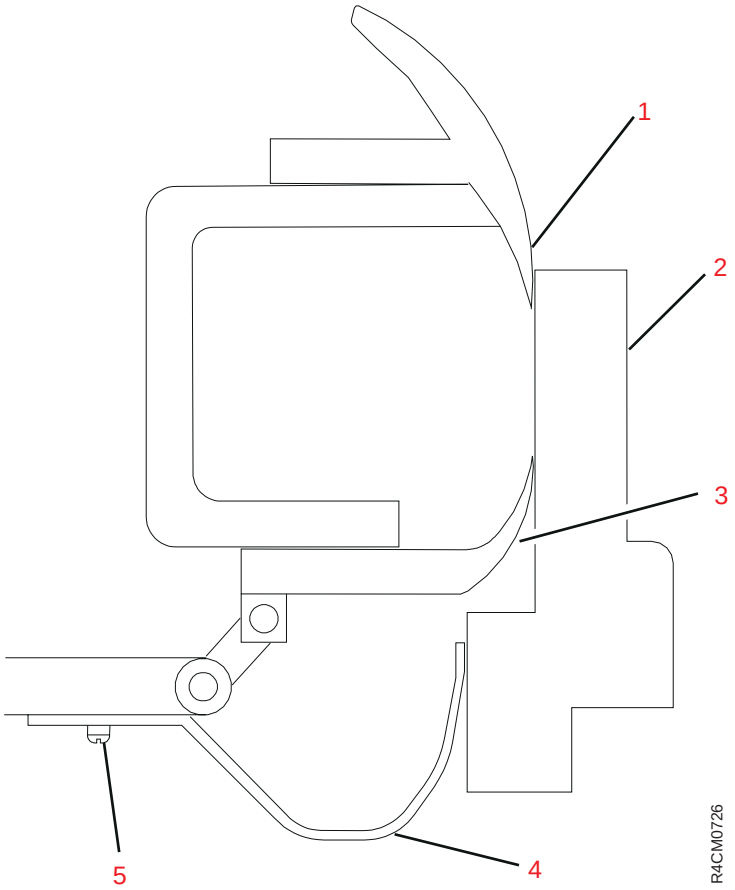
1. Perform the Path Modifier Position adjustment.
2. Perform the Lower Tractor Guide Plates adjustment.
3. Perform the Lower Tractor Timing Check .

Verify

Run Print Pack to verify print quality.

Path Modifier Position

Table 894. Path Modifier Position



Special Tool

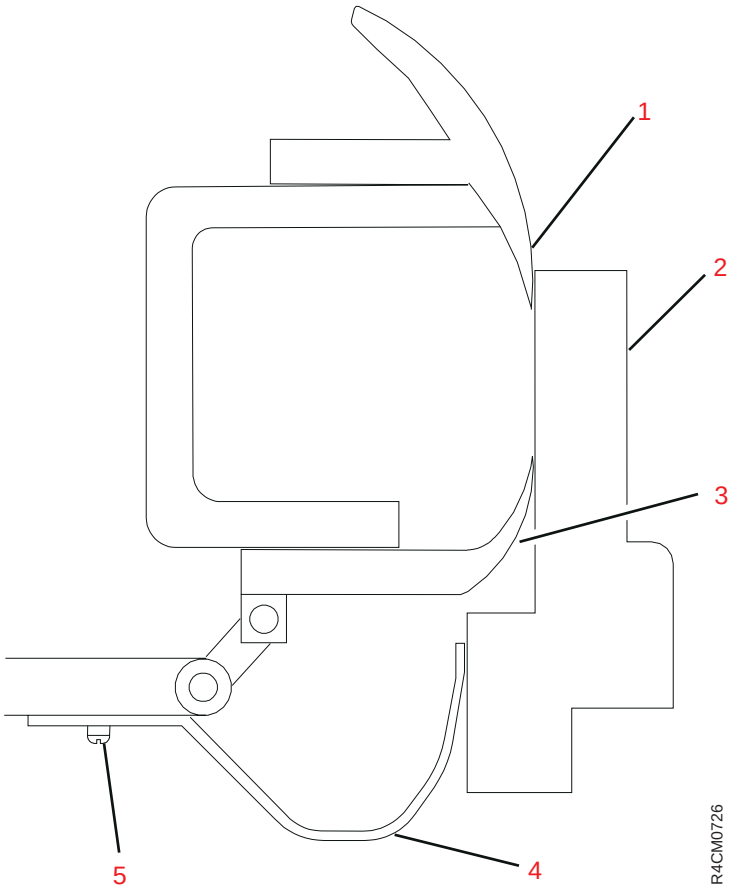
Path modifier gauge (PN 88F1609).

Check

1. Remove the forms.
2. Move the rear tractors to the widest forms setting.
3. Open the transfer station.
4. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
5. Place the path modifier gauge **(2)** against the retractors **(1)** and **(3)**, and the path modifier **(4)** at the front of the printer.
6. Ensure that the gauge touches both upper and lower retractors and the path modifier.
7. Repeat this check at the rear of the printer.
8. Press **Enter** on the maintenance panel to fully retract the retractors.
9. If the gauge does not touch all three points, front and rear, perform the Path Modifier Position adjustment.

(continued on next page)

Table 894. Path Modifier Position (continued)



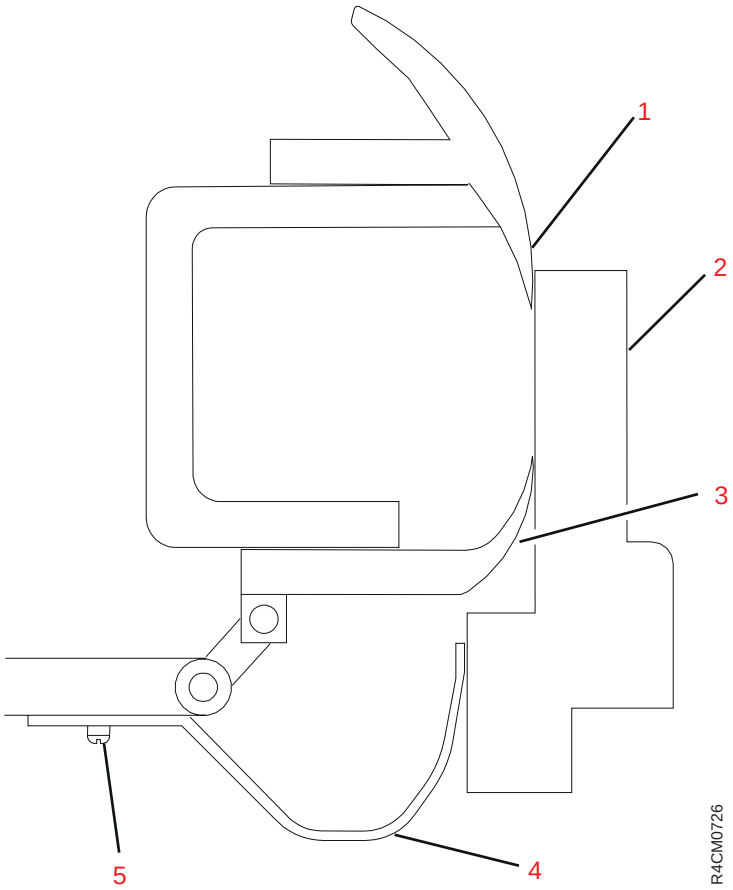
Adjustment

This procedure applies to early level machines that have Phillips screws to mount the path modifier. Later machines will have socket head cap screws, which allow adjustment of the path modifier by inserting an Allen wrench through the access holes in the lower forms guide. On later level machines it is not necessary to remove the lower forms guide and lower front tractor guide plate.

1. Ensure that the following adjustments are correct before performing this procedure:
   - Check the Retractor Detent Position.
   - Check the Retractor to PC Drum Gap.
2. Request the system operator to stop activity on the printer. Disable all host attachments.
3. Remove the Lower Forms Guide.
4. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
5. Loosen the two screws **(5)** that hold the path modifier **(4)** in place.
6. Place the path modifier gauge **(2)** against the retractors **(1)** and **(3)**, and the path modifier **(4)** at the front of the printer.
7. Move the path modifier so that the gauge touches both upper and lower retractors and the path modifier. Lightly tighten the front screw **(5)** to hold the path modifier in position.

(continued on next page)

Table 894. Path Modifier Position (continued)



8. Repeat this adjustment at the rear of the path modifier.
9. Tighten the two screws **(5)**.
10. Press **Enter** on the maintenance panel to retract the retractors.
11. Install the lower forms guide, pushing up on the guide while tightening the screws.
12. Install the tractor guide plate but leave the two screws loose.
13. Adjust the gap between the tractor pin feed belt and the Lower Tractor Guide Plates.
14. Perform the Lower Tractor Timing Check.
15. Install the retractor motor cover.

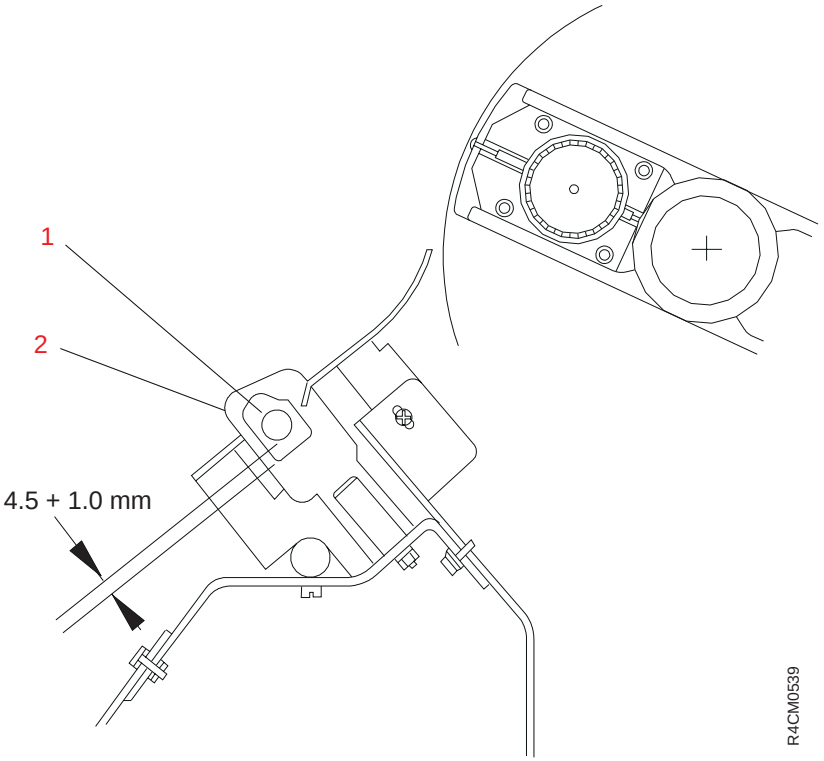
Verify

Run the auto load procedure to ensure that the forms are loading correctly. See the Operator's Guide.

Run Print Pack to verify print quality.

Pre-Measure Unit

Table 895. Pre-Measure Unit

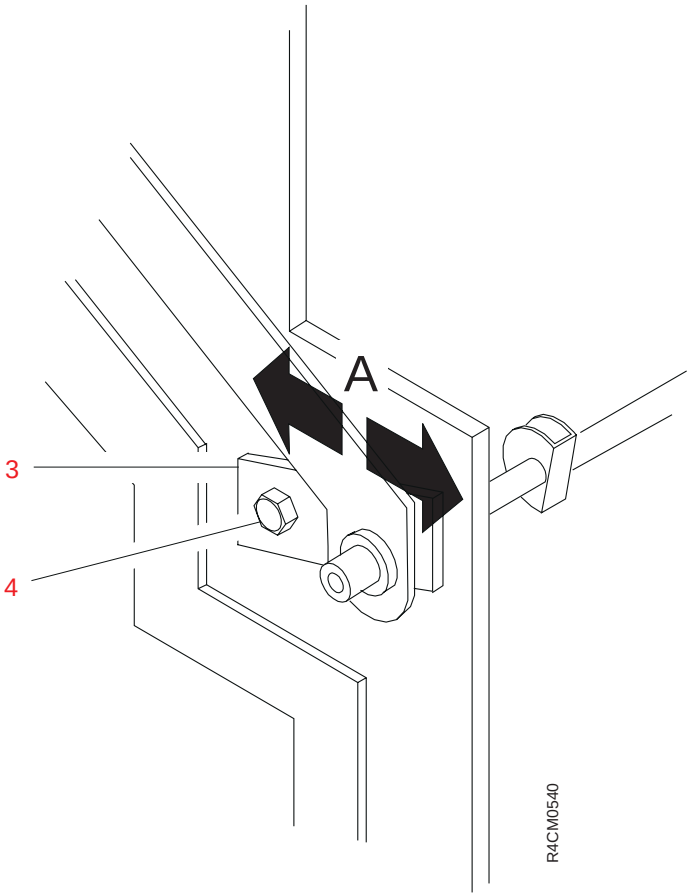


Check

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the PC drum cover.
3. Run Driver Routine 13 to lower the pre-measure shaft.
4. Press **Enter** when the tone sounds to stop the test.
5. Ensure that the gap between the bottom of the pre-measure shaft **(1)** and the bottom of the square opening **(2)** is 4.5 +1.0 mm.
6. If the gap is not correct, perform the Pre-Measure Unitadjustment.

(continued on next page)

Table 895. Pre-Measure Unit (continued)



Adjustment

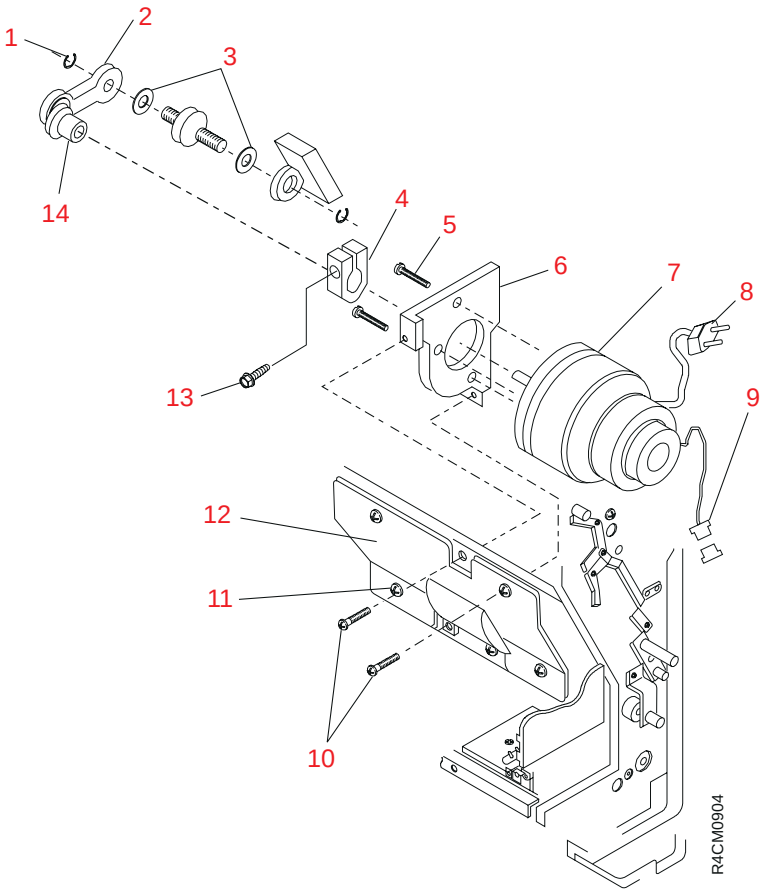
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the transfer station front cover.
3. Remove the PC drum cover.
4. Run Driver Routine 13 to lower the pre-measure shaft.
5. Press **Enter** when the tone sounds to stop the test.
6. Loosen the screw **(4)** and slide the pre-measure link plate **(3)** in either **(A)** direction as necessary to adjust the gap to 4.5 +1.0 mm.
7. Tighten the screw **(4)**.
8. Run the auto load procedure to ensure that the forms are loading correctly. See the Operator's Guide.

Verify

Run Print Pack to verify print quality.

Retractor Motor (M304)

Table 896. Retractor Motor (M304)



Special Tools

Drum shaft extension (PN 06F1025)

Drum bag or empty box

Lint free cloth (PN 2108930)

Molycoat G (PN 0357830)

Gloves, plastic (PN 2200041)

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

3. Remove the forms.
4. Open the transfer station.
5. Remove the four screws **(11)**. Remove the motor cover **(12)**.
6. Remove the C-Clip **(1)** from the connecting rod **(2)** on the retractor plate.
7. Disconnect connectors PJ309 **(8)** and PJ313 **(9)**.
8. Remove the two screws **(10)**. Remove the motor **(7)** and housing **(6)**. Rotate the motor to dislodge the locating pins from the frame.

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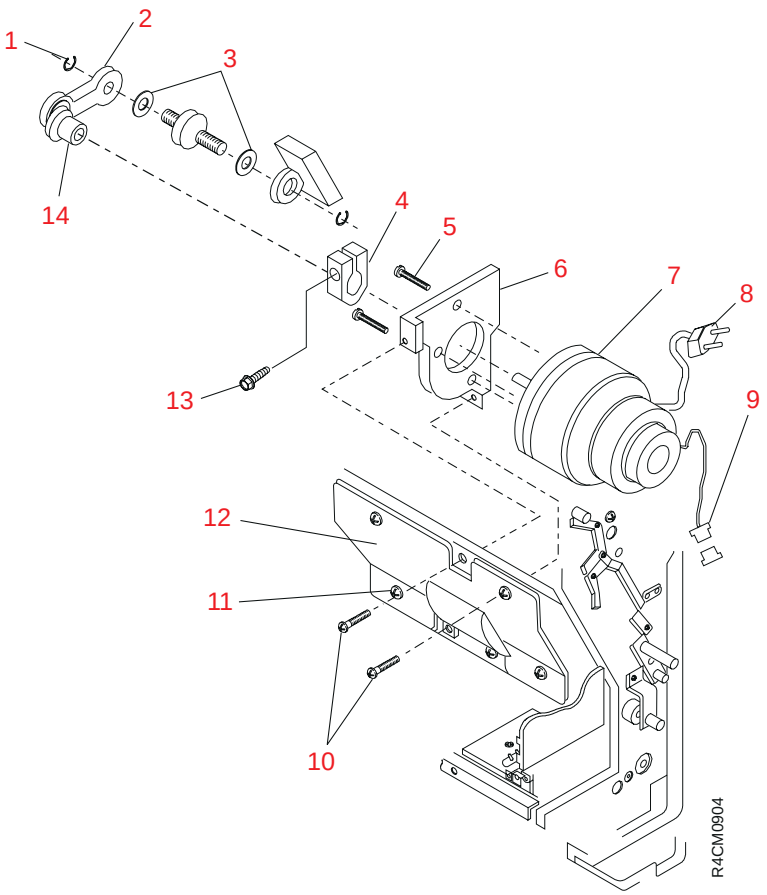
Table 896. Retractor Motor (M304) (continued)



9. Move the motor to the rear of the printer and slide the connecting rod from the pin, remove the motor from the transfer station.
10. Loosen the screw **(13)** on the clamping ring **(4)** and slide the shaft **(14)**, with connecting rod **(2)** still attached, from the motor shaft.
11. Remove the three screws **(5)**. Remove the motor **(7)** from the housing **(6)**.

Installation

Reverse the removal procedure. Do not replace the PC drum until after adjustment.

Adjustment

1. Perform the Retractor Detent Position adjustment.
2. Install the PC drum.
3. Power-On the printer.
4. Check the Retrator Acceleration Time Switch Setting setting and if needed perform the Adjustment.

Check

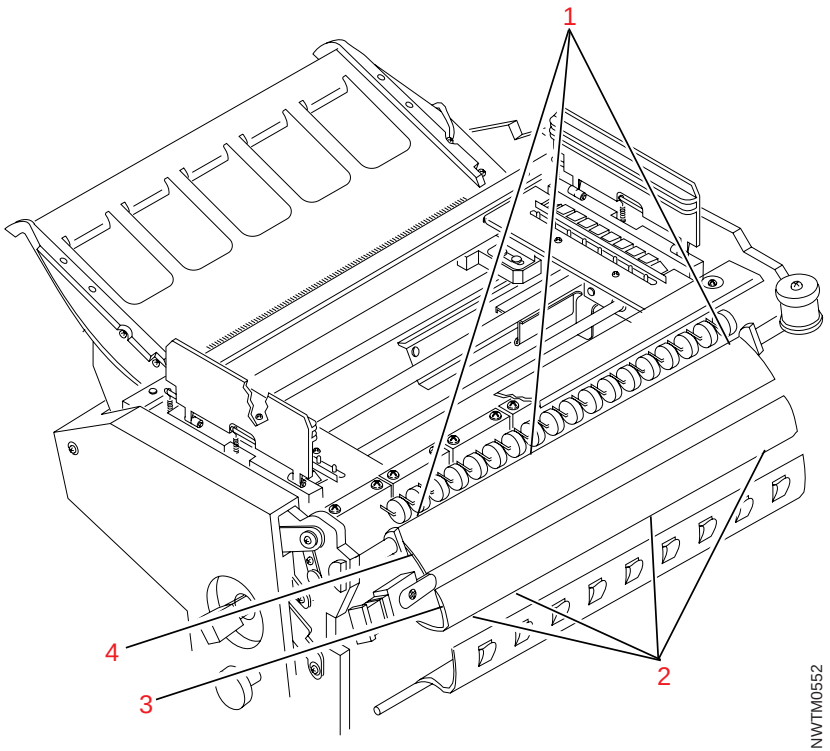
Run Driver Routine 11 to ensure that the retractor motor runs correctly.

Verify

Run Print Pack to verify print quality.

Lower Retractor

Table 897. Retractor, Lower



Special Tools

Drum shaft extension (PN 06F1025)

Drum bag or empty box

Drum clearance gauge (PN 06F1029)

Lint free cloth (PN 2108930)

Molycoat G (PN 0357830)

Gloves, plastic (PN 2200041)

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

3. Remove the forms.
4. Open the transfer station.
5. Remove the Path Modifier and Springs assembly.
6. Remove the four screws **(2)**, and then remove the lower retractor **(3)**.

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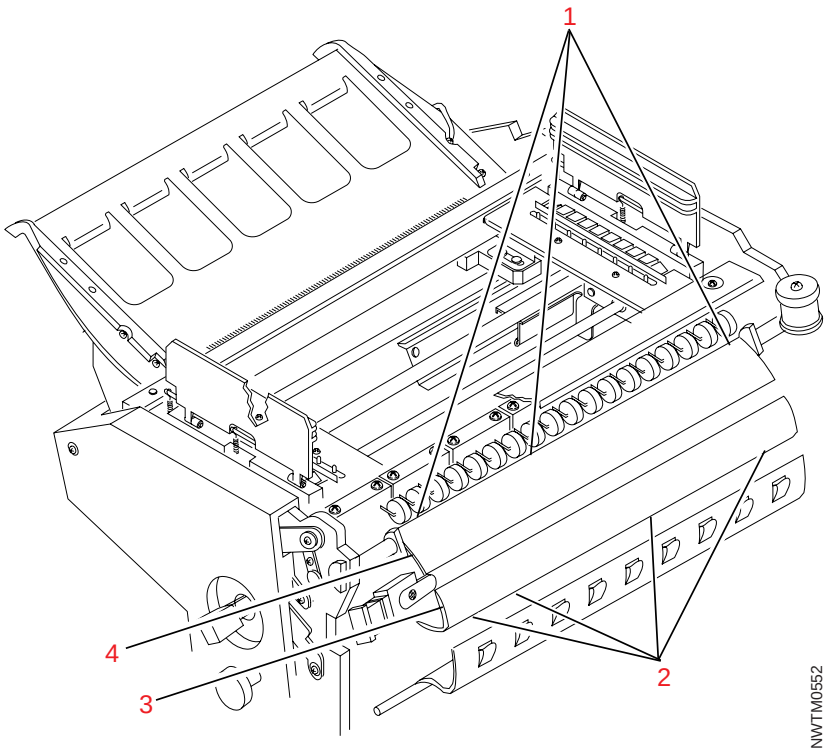
Table 897. Retractor, Lower (continued)



Installation and Adjustment

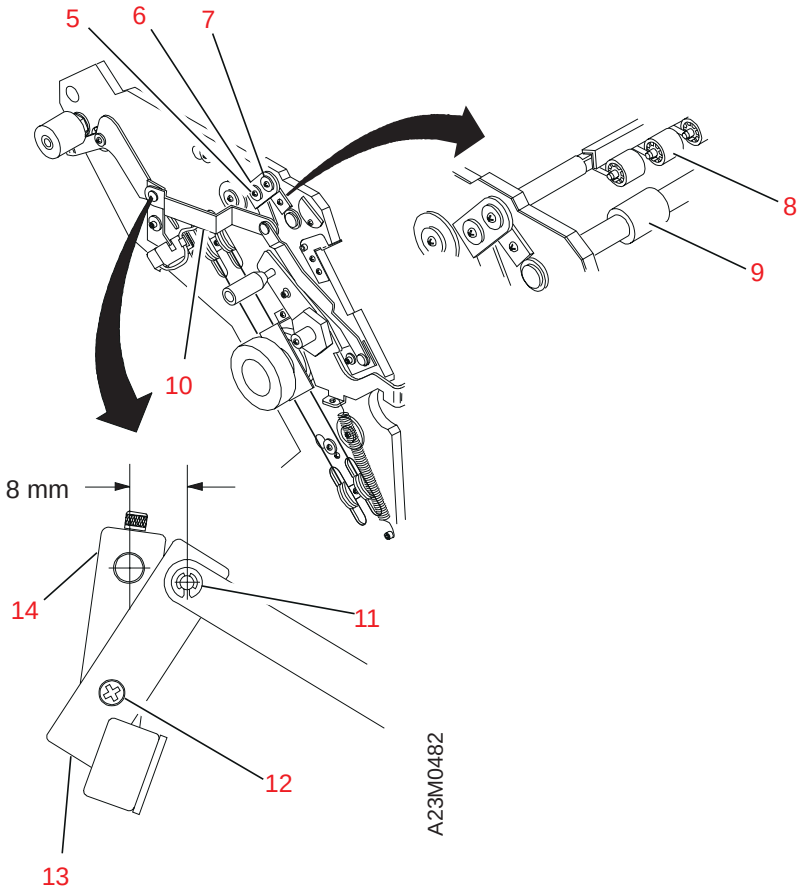
1. Install the lower retractor **(3)** with the four screws **(2)**.
2. Check the Retractor Detent Position adjustment.
3. Check the Retractor to PC Drum Gap adjustment
4. Install the Path Modifier and Springs assembly.
5. Perform the Path Modifier Position adjustment
6. Reverse the remaining removal steps.

Verify

Run Print Pack to verify print quality.

Upper Retractor

Table 898. Retractor, Upper



Special Tools

Drum shaft extension (PN 06F1025)

Drum bag or empty box

Drum clearance gauge (PN 06F1029)

Lint free cloth (PN 2108930)

Molycoat G (PN 0357830)

Gloves, plastic (PN 2200041)

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

3. Remove the forms.
4. Open the transfer station.
5. Remove the Upper Forms Guide.
6. Remove the screw **(7)** holding the linkage to the capstan pinch roll shaft and rotate the rolls towards the tractors to move them out of the way.

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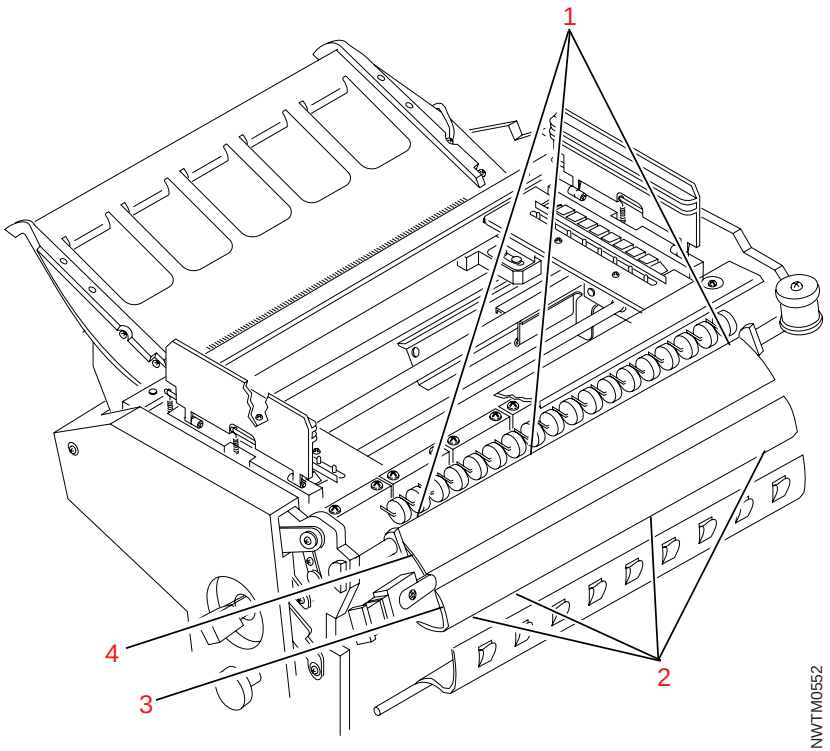
Table 898. Retractor, Upper (continued)



7. Remove the three screws **(1)** Remove the upper retractor **(4)**.

Installation and Adjustment

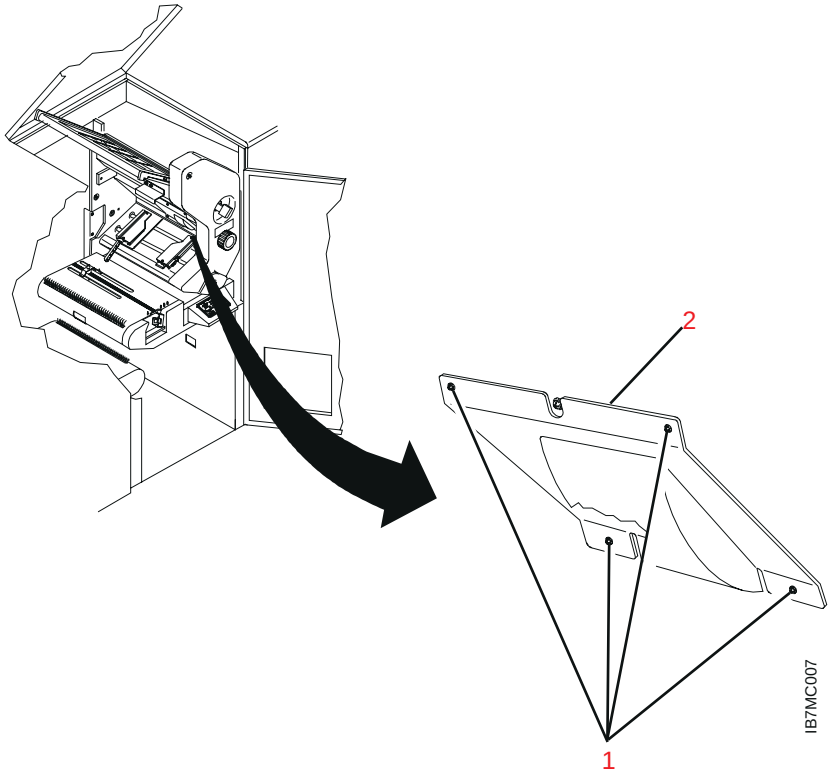
1. Install the upper retractor **(4)** with the three screws **(1)**.
2. Check the Retractor Detent Position adjustment.
3. Check the Retractor to PC Drum Gap adjustment
4. Perform the Lower Tractor Guide Plates adjustment
5. Reverse the removal procedure.

Verify

Run Print Pack to verify print quality.

Retractor Detent Position

Table 899. Retractor Detent Position



Special Tools

Drum shaft extension (PN 06F1025)

Drum clearance gauge (PN 06F1029)

Drum bag or empty box

Check

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Close the laser shutter.
3. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Remove the printer center front cover.
5. Calibrate and install the Drum Clearance Gauge.
6. Reinstall the PC drum knob.
7. Pull the drum gauge against the drum knob to use as a reference point for all of the following gap checks.
8. Remove the four screws **(1)**. Remove the retractor motor cover **(2)**.
9. Manually turn the retractor crank mechanism while checking the lower retractor to PC drum gap. Record the smallest gap (lowest reading).

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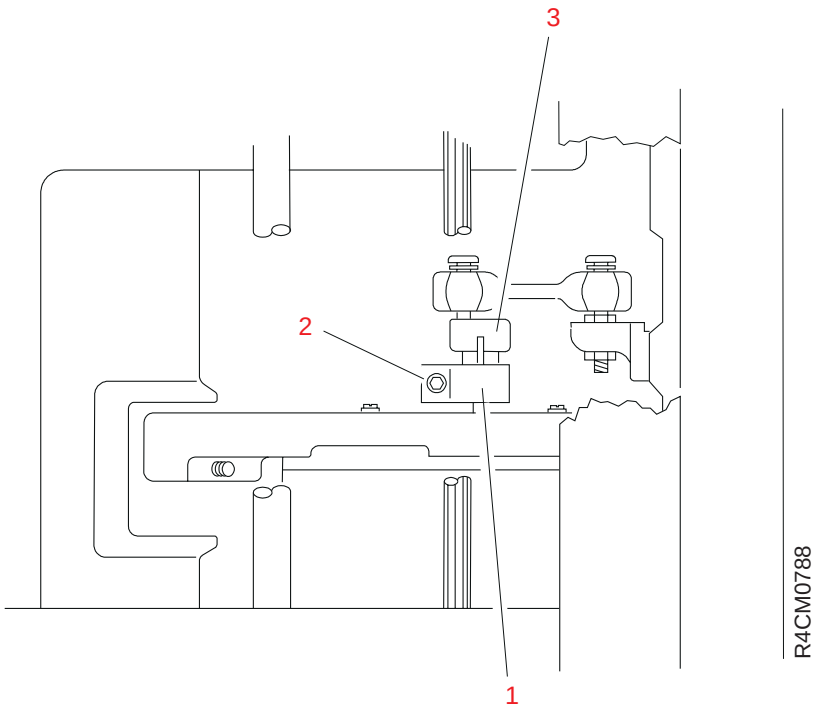
Table 899. Retractor Detent Position (continued)



10. Remove the drum gauge.
11. Set the diagnostic function switch to **3**.
12. Power on the printer.
13. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
14. Install the drum gauge.
15. Ensure that the retractors are fully extended (the value recorded in step 9 above with a tolerance of +0.08 mm). If they are not, perform the Retractor Detent Position adjustment.
16. Shutdown and power off the printer.
17. Reverse steps 1 through 8.

Adjustment

1. Perform steps 1 through 8 under **Check**.

Note: You may find it helpful to have someone help you measure the PC drum clearance while you adjust the retractor mechanism.

2. Power on the printer.
3. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
4. Loosen the screw **(2)** on the clamping ring **(1)**
5. Manually rotate the retractor drive shaft **(3)** until the retractors are fully extended.

Note: Visually check the retractors from the front as you rotate the drive shaft. This way it will be easier to see the retractors when they are fully extended.

6. Tighten the screw **(2)**.

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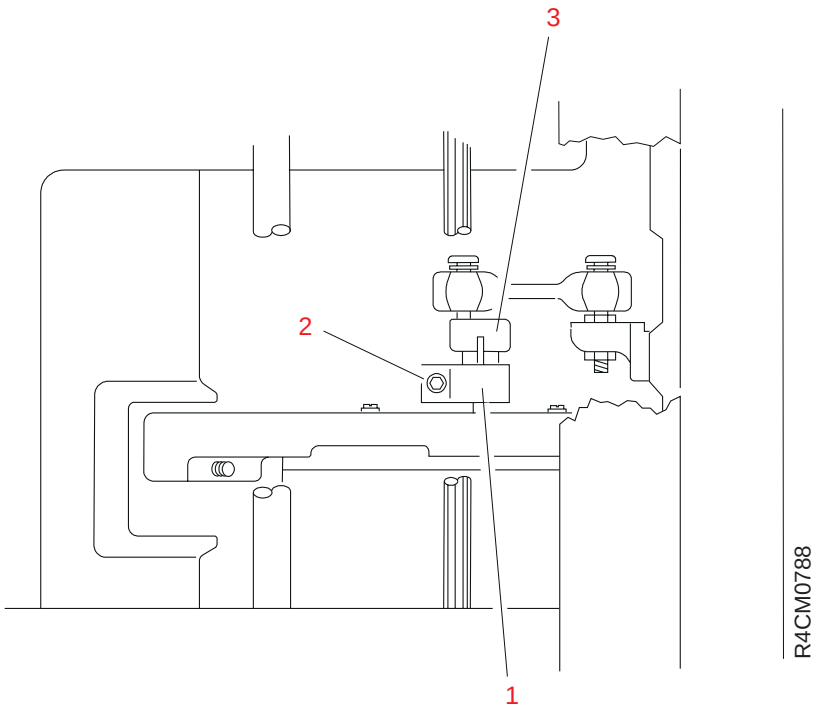
Table 899. Retractor Detent Position (continued)



7. Ensure that the retractors are fully extended (the value recorded in step 9, under **Check** with a tolerance of +0.08 mm).
8. Check the Retractor to PC Drum Gap.
9. Perform the Lower Tractor Timing check. Adjust if necessary.
10. Shutdown and power off the printer.
11. Reinstall the PC drum and cover.
12. Reinstall the retractor motor cover.
13. Set the diagnostic function switch to **0**.
14. Open the laser shutter.
15. Power on the printer.

Verify

Run Print Pack to verify print quality.

Retractor to PC Drum Gap

Table 900. Retractor to PC Drum Gap

Special Tools

- Drum shaft extension (PN 06F1025)
- Drum clearance gauge (PN 06F1029)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Molycoat G (PN 0357830)
- Gloves, plastic (PN 2200041)

Check

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Ensure that the Retractor Detent Position is correct before beginning.
3. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Set the diagnostic function switch to **3**.
5. Power on the printer.

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Table 900. Retractor to PC Drum Gap (continued)

6. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
7. Install the Drum Clearance Gauge on the drum shaft. Rotate the gauge away from the transfer station.
8. You will be measuring the gap at four points, the front and the of the upper and the lower retractors.
9. Ensure that the gap between the upper and lower retractors and the PC drum is as stated in PC Drum & Developer Clearances/Gaps.
10. Press **Enter** to retract the retractors.
11. If the gap is not within the specified range, perform the Upper Retractor to PC Drum Gap Adjustment or the Lower Retractor to PC Drum Gap Adjustment.

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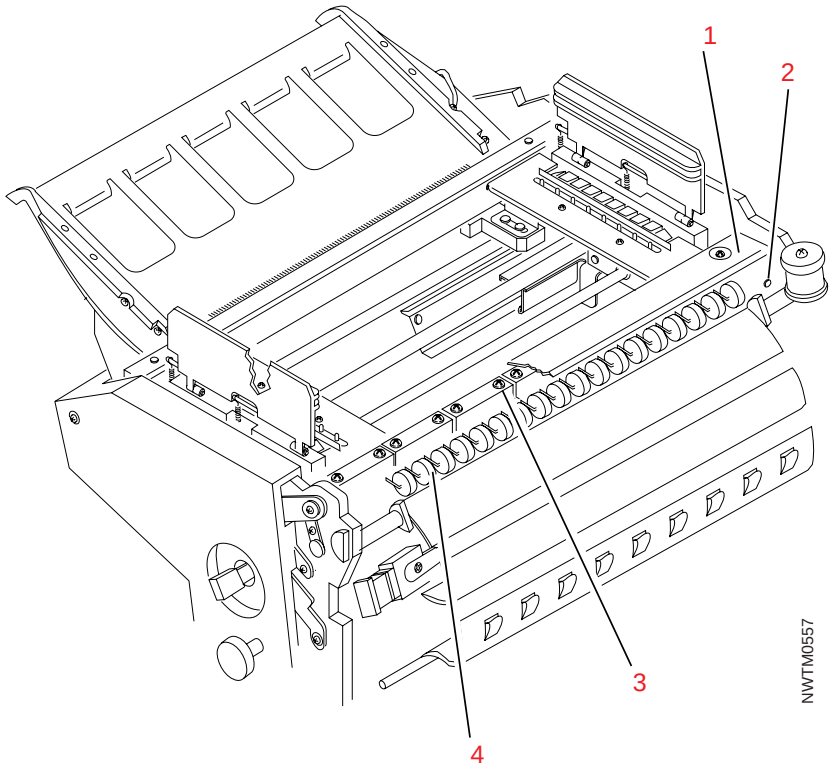
Table 900. Retractor to PC Drum Gap (continued)



Upper Retractor to PC Drum Gap Adjustment

1. Ensure that the Retractor Detent Position is correct before beginning.
2. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Set the diagnostic function switch to **3**.
5. Power on the printer. See Power On the Printer Only.
6. Open the transfer station.
7. Loosen the two screws **(2)** and remove the capstan pinch roll cover **(1)**.

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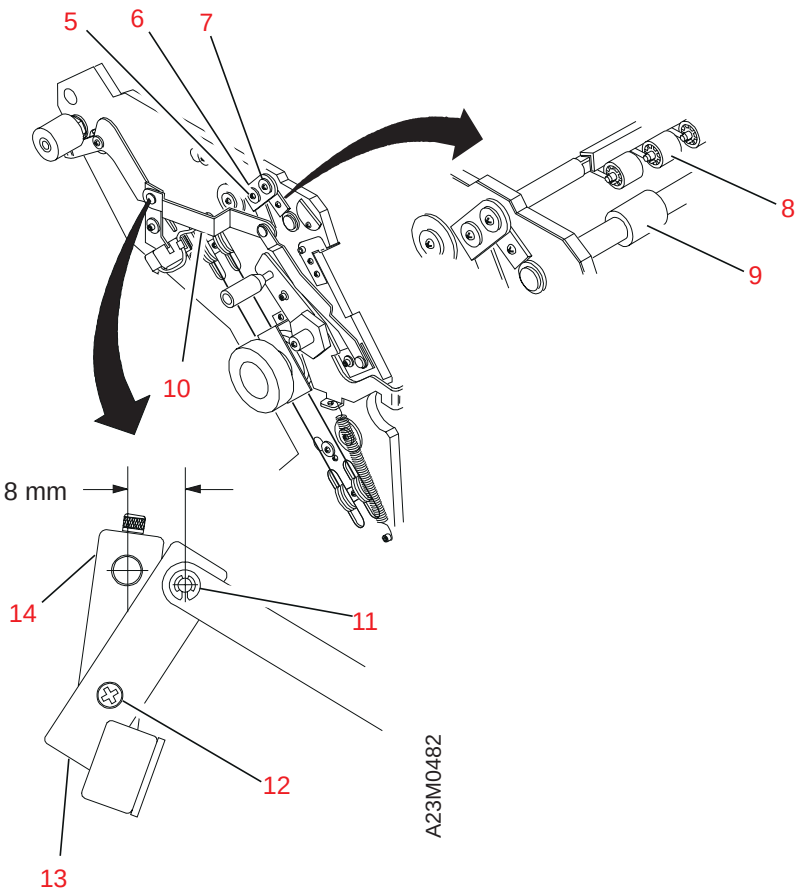
Table 900. Retractor to PC Drum Gap (continued)



8. Remove the screw **(7)** holding the linkage to the capstan pinch roll shaft and rotate the rolls toward the tractors.
9. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.

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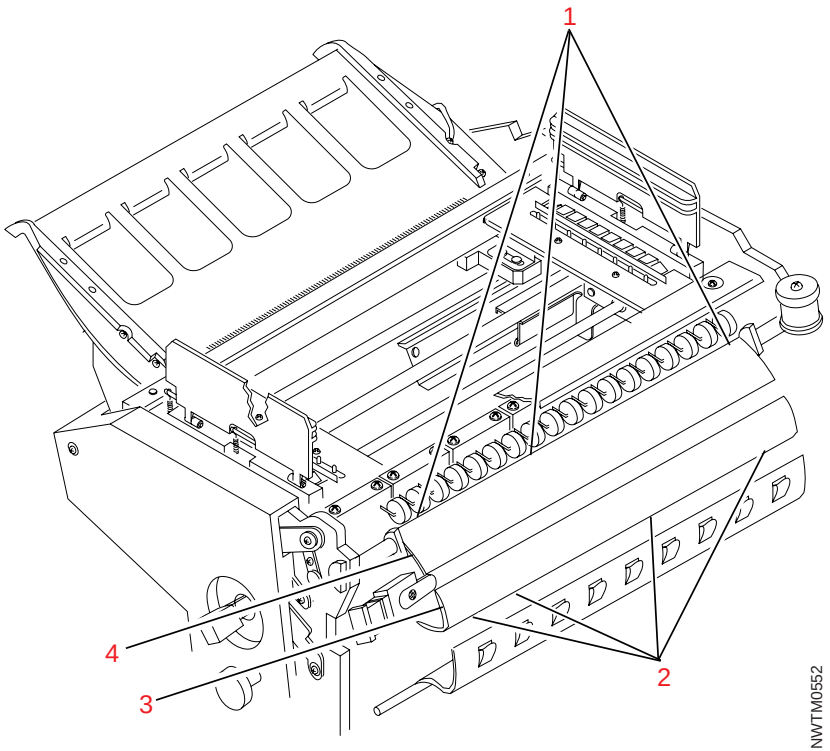
Table 900. Retractor to PC Drum Gap (continued)



10. Loosen the three screws **(1)** on the upper retractor **(4)**.

Notes:

a. Loosen the retractor and pull it outward (toward the drum).
b. Lightly tighten the screws so that the retractor will move with some resistance or drag.
c. Close the transfer station.
d. Lightly tap the retractor as necessary to move it into position.

11. Move the upper retractor until the front and center gaps between the upper retractor and the PC drum is as stated in PC Drum & Developer Clearances/Gaps.
12. Tighten the three screws **(1)** on the upper retractor **(4)**.
13. Recheck the gap set in step 11.

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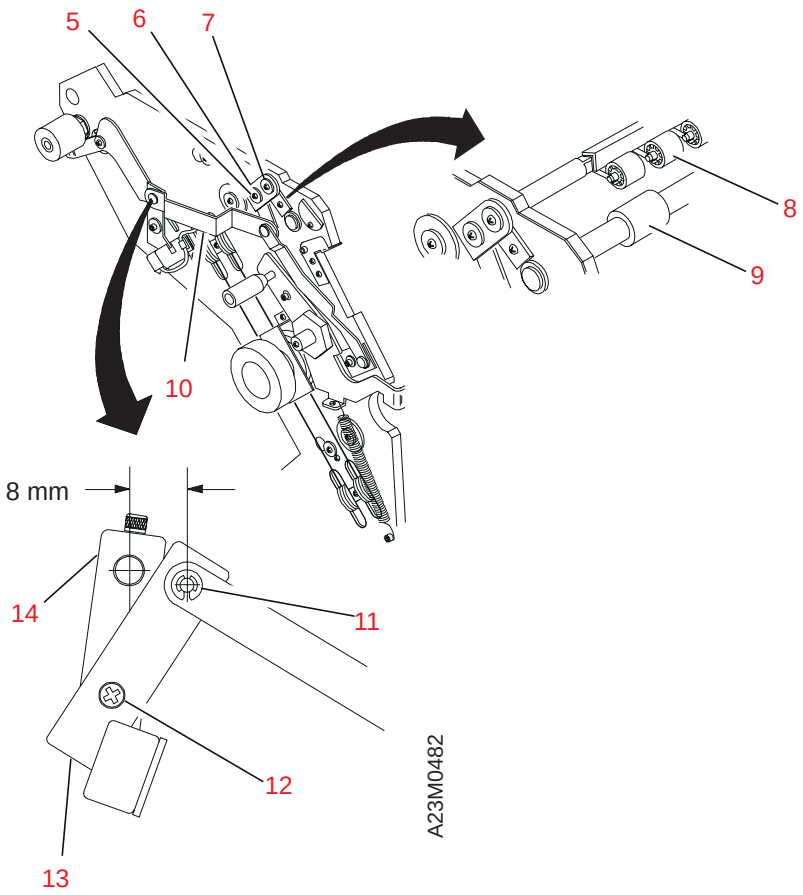
Table 900. Retractor to PC Drum Gap (continued)



14. Rotate the capstan pinch rolls back into position and tighten the screw **(7)**.

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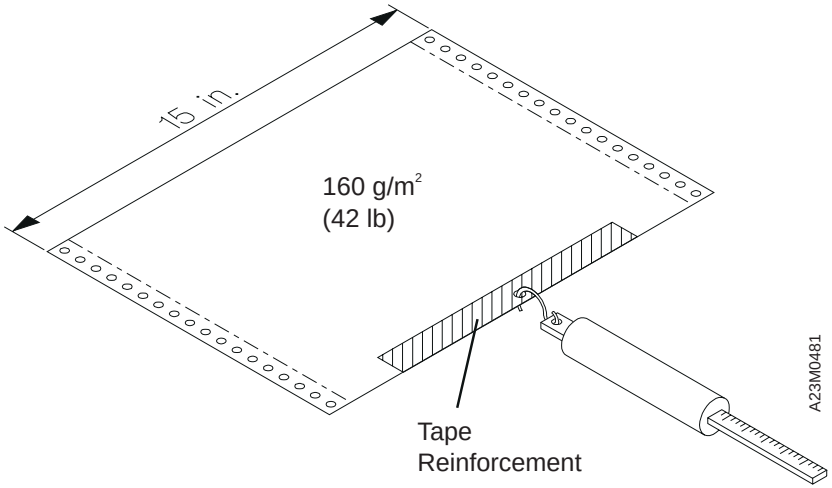
Table 900. Retractor to PC Drum Gap (continued)



15. Steps 16 through 22 check the pinch roll adjustment.
16. Reinforce the perforation edge of a 15 in. wide, 42 lb form with tape as shown. Punch a hole in the center to attach the hook of the spring scale.
17. Insert the form between the pinch rolls and the capstan drive roll, then Run Driver Routine 13 to close the pinch rolls. Stop the routine when the rolls are closed on the test form.

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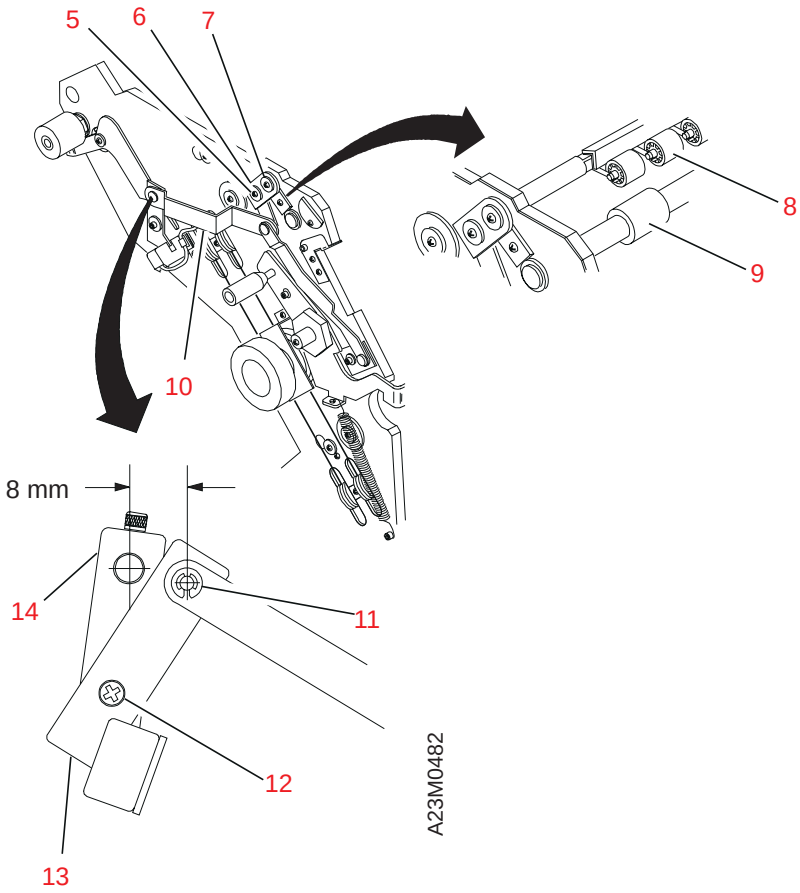
Table 900. Retractor to PC Drum Gap (continued)



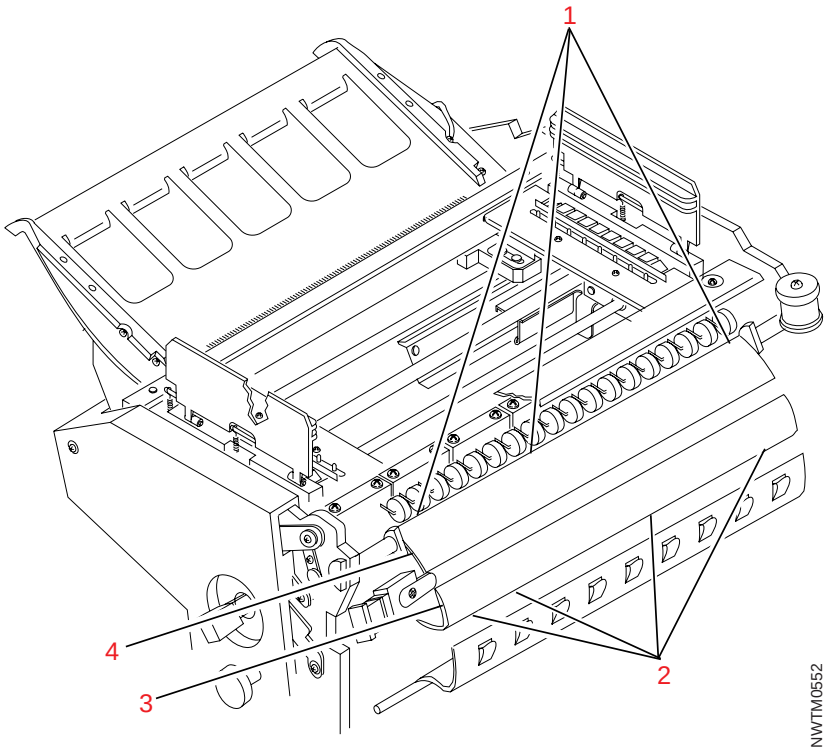
18. Hold the spring scale while running the capstan pinch rolls with driver routine **12**.
19. The tension on the form should be 1200 ±300 g (2.65 ±0.65 lb).
20. If the tension is not correct, loosen the screws **(5)** and **(7)** and adjust the link **(6)** to increase or decrease the clearance between the capstan roll **(9)** and the pinch rollers **(8)**.
21. Tighten the screws **(5)** and **(7)**.
22. Return to step 17 and repeat the test procedure until the tension is correct.

(continued on next page)

Table 900. Retractor to PC Drum Gap (continued)

23. Install the capstan pinch roll cover.
24. If the lower retractor **does not require** adjustment, perform the following checks, and adjust if necessary:
    a. Perform the Lower Tractor Timing Check .
    b. Perform the Upper Tractor Timing Check.
25. If the lower retractor **requires** adjustment, perform the Lower Retractor to PC Drum Gap Adjustment.
26. Reinstall the PC drum.

Table 900. Retractor to PC Drum Gap (continued)



Lower Retractor to PC Drum Gap Adjustment

1. Ensure that the Retractor Detent Position is correct before beginning.
2. Remove the Path Modifier and Springs.
3. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
4. Open the transfer station.
5. Loosen the four screws **(2)** on the lower retractor **(3)**.

Notes:

a. Loosen the retractor and pull it outward (toward the drum).
b. Lightly tighten the screws so that the retractor will move with some resistance or drag.
c. Close the transfer station.
d. Lightly tap the retractor as necessary to move it into position.

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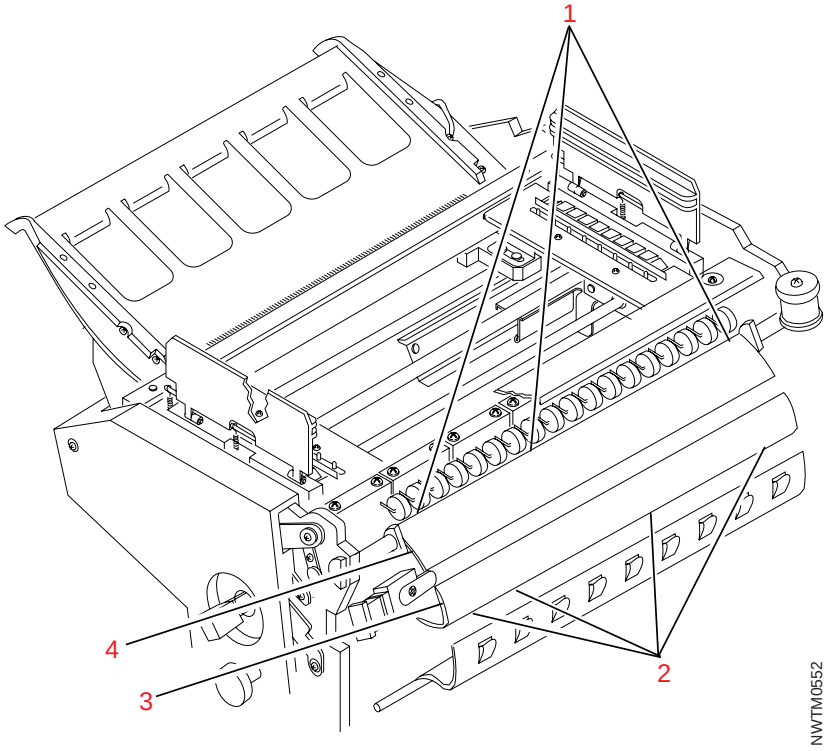
Table 900. Retractor to PC Drum Gap (continued)



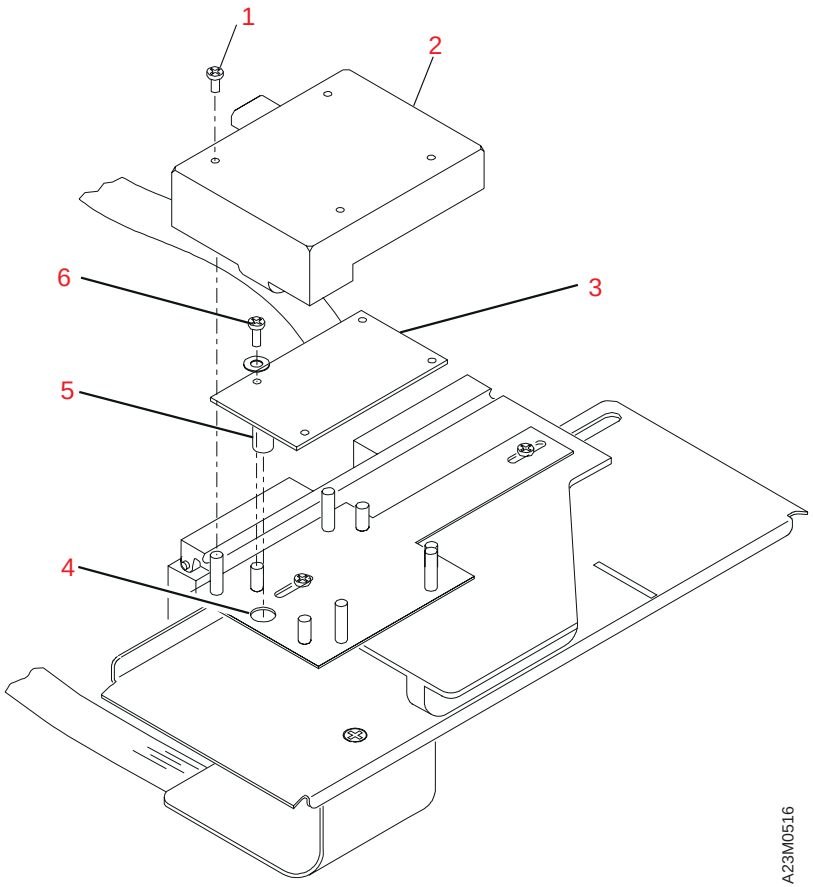
6. Move the lower retractor until the front and center gaps between the lower retractor and the PC drum are as stated in PC Drum & Developer Clearances/Gaps.
7. Tighten the four screws **(2)** on the lower retractor **(3)**.
8. Recheck the gap set in step 6.
9. Install and adjust the path modifier, lower forms guide, and the lower front tractor guide plate. See Path Modifier and Springs.
10. Perform the following checks and adjust if necessary:
    a. Perform the Lower Tractor Timing Check .
    b. Perform the Upper Tractor Timing Check.
11. Reinstall the PC drum.

Verify

Run Print Pack to verify print quality.

Side 1/Side 2 Verification Sensor Card

Table 901. Side 1/Side 2 Verification Sensor Card



Special Tool

ESD kit.

Removal

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the printer center top and the center front covers.
4. Remove the forms from printer 2.

Attention: Use ESD procedures when working with ESD sensitive parts.

5. Remove the four screws **(1)** and remove the verification sensor card cover **(2)**.

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Table 901. Side 1/Side 2 Verification Sensor Card (continued)

6. Unplug connector P324 from the sensor card.

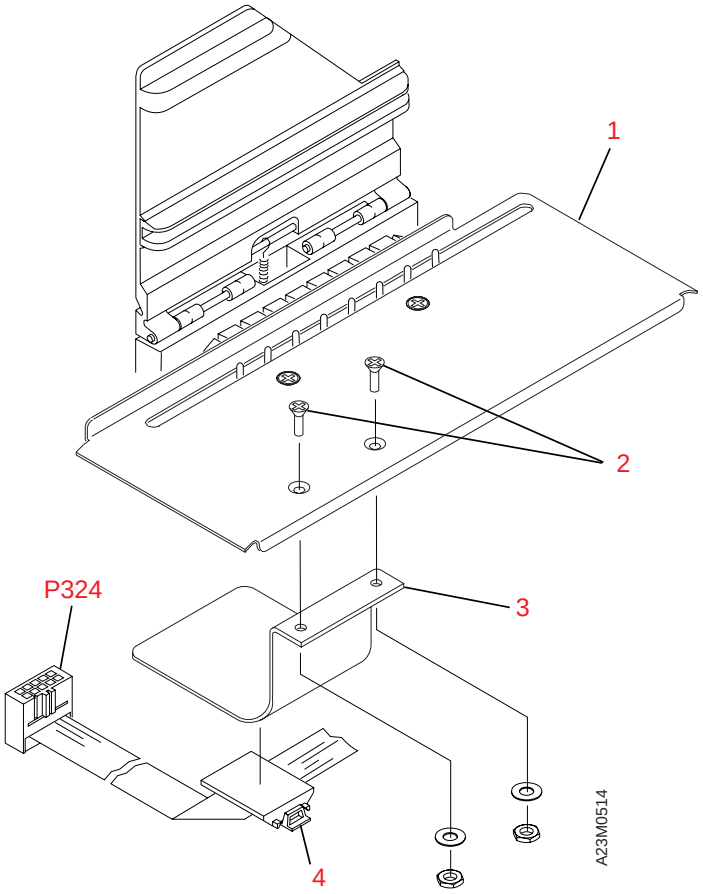

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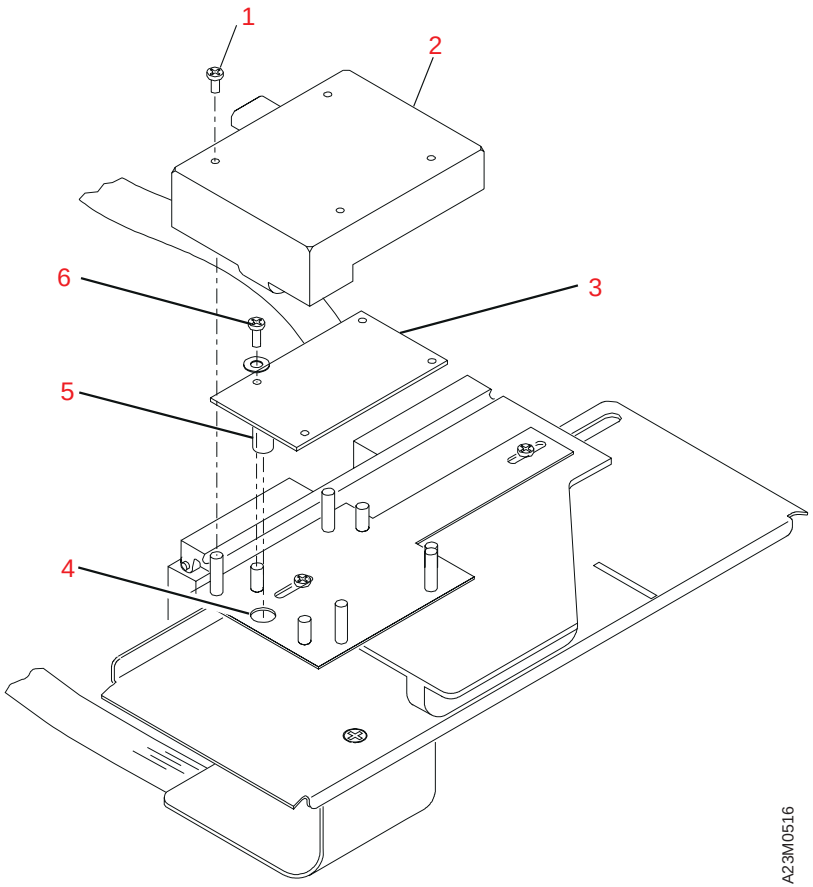
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



7. Remove the four screws **(6)** and remove the verification sensor card **(3)**.

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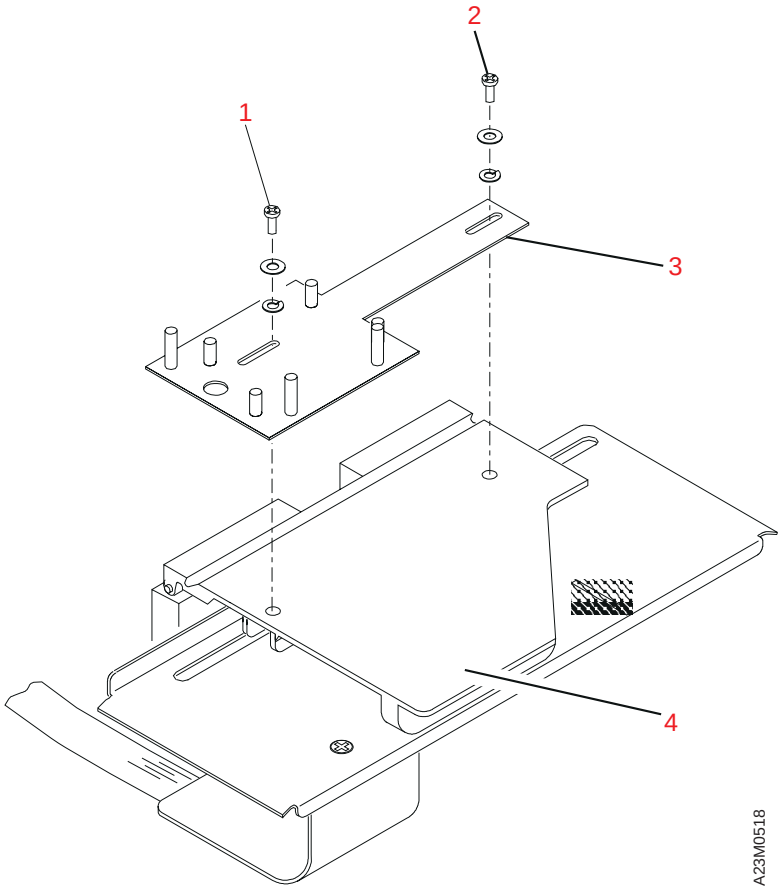
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



8. Remove the two screws **(1)**, and **(2)** and remove the mounting plate **(3)**.

Note: Removing these two screws also loosens the tractor pin guide underneath.

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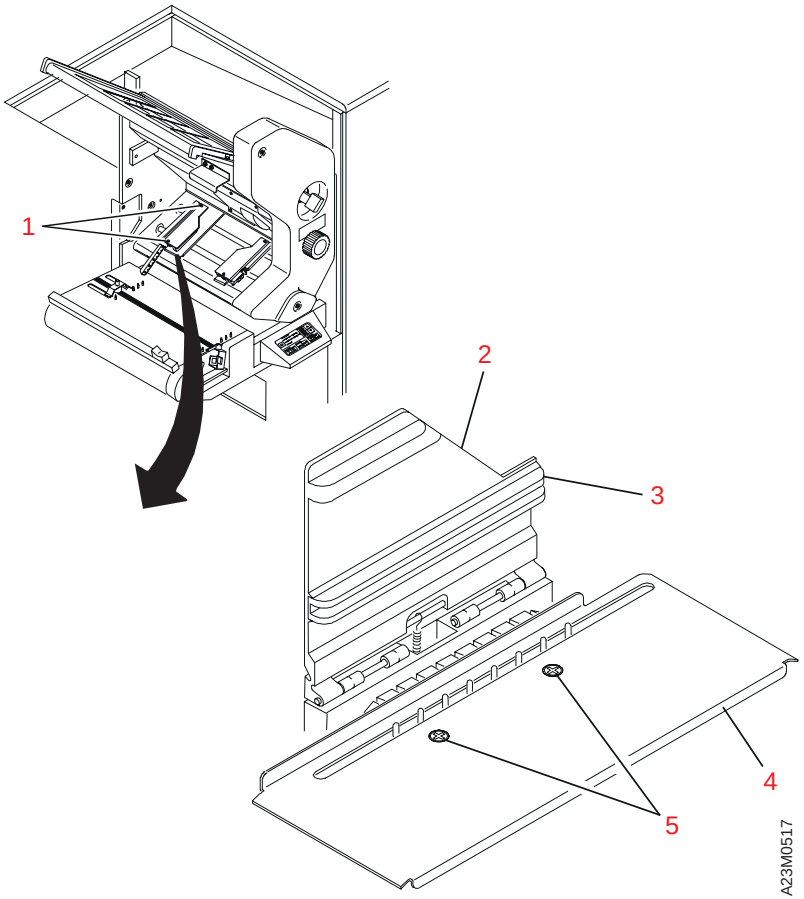
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



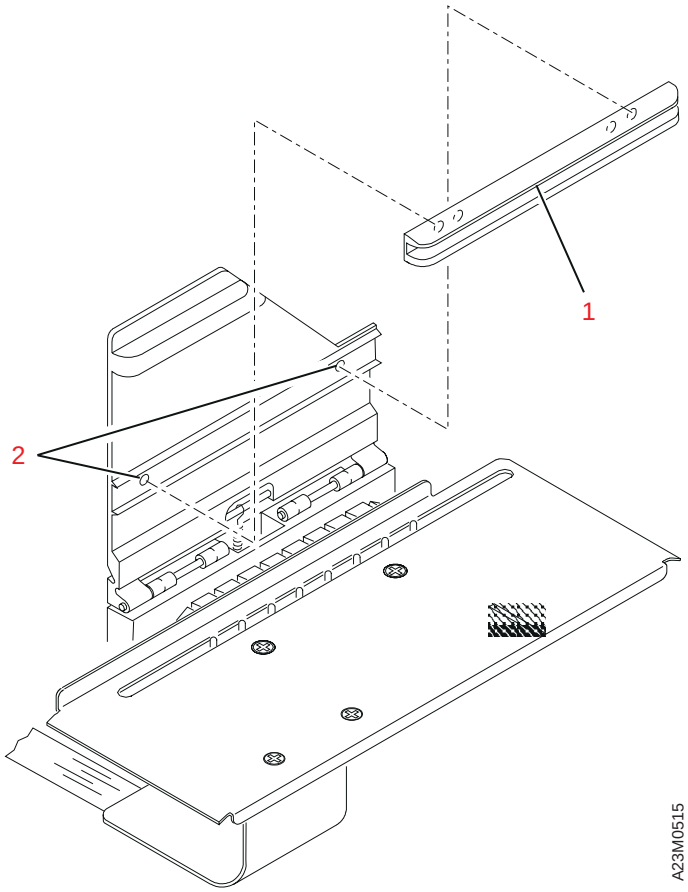
9. Open the lower rear tractor cover **(2)** and remove the lower rear tractor pin guide **(3)**.

Installation

1. Open the printer center top and the center front covers.
2. Open the lower rear tractor cover **(2)**.

(continued on next page)

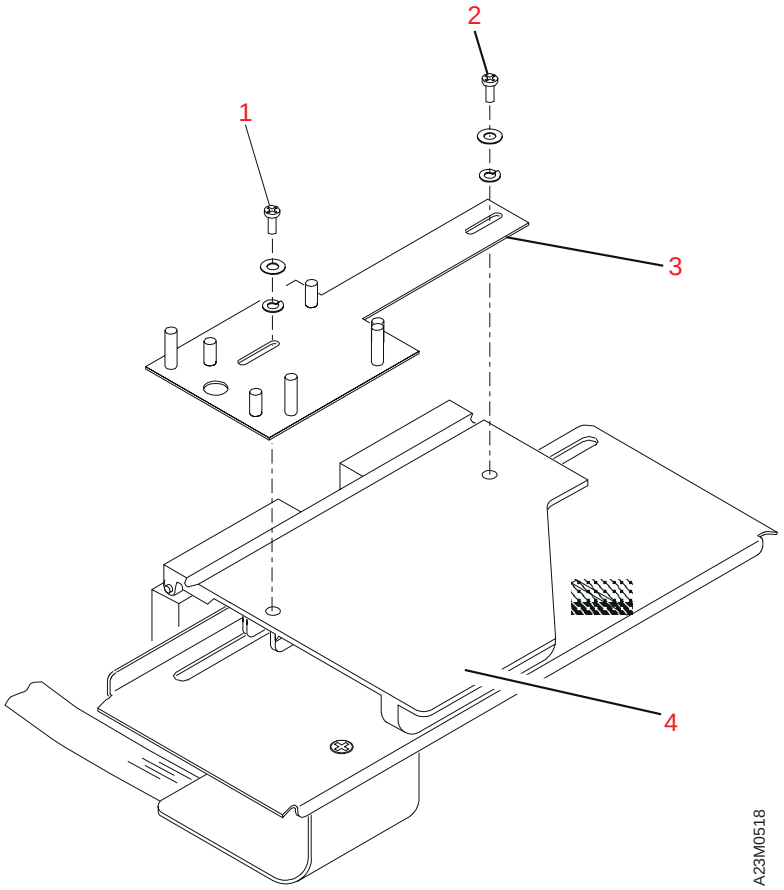
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



3. Position the beveled edge of the tractor pin guide **(1)** towards the front of the printer.
4. Carefully close the lower rear tractor cover.
5. Align the mounting holes (outside set of holes) on the pin guide with the holes **(2)** in the tractor cover.

(continued on next page)

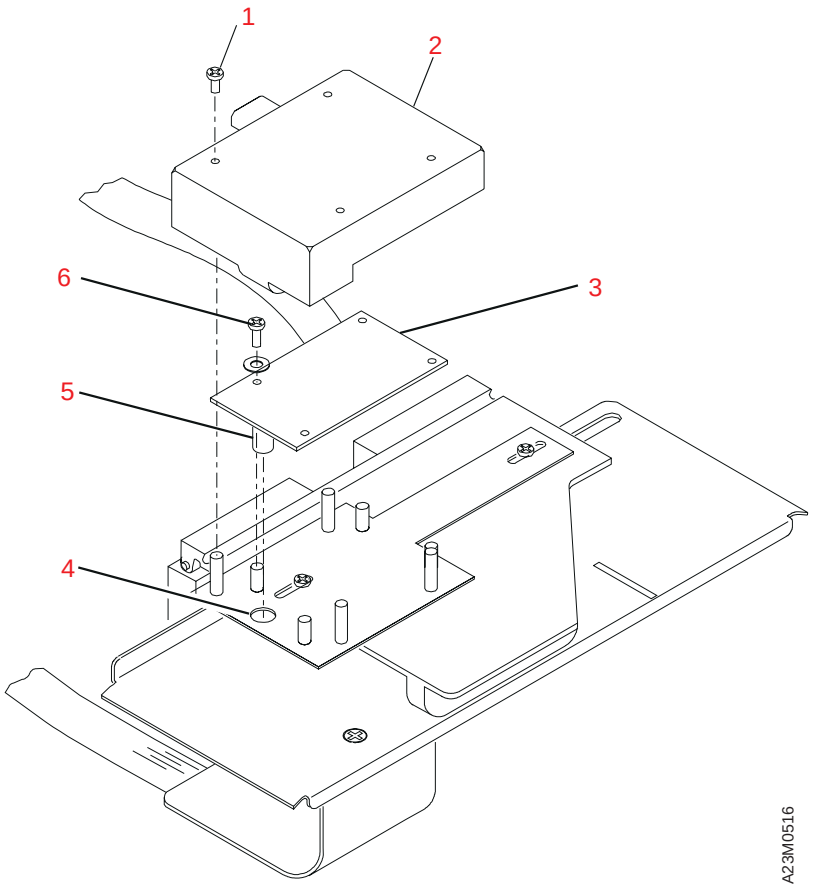
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



6. Place the sensor mounting plate on top of the tractor cover and align the holes in the mounting plate **(3)** with the tractor cover holes.
7. Install the two screws **(1)**, and **(2)** with two flat washers and two lock washers to fasten the mounting plate and the tractor pin guide. Leave the screws just loose enough so that the mounting plate will slide during the adjustment procedure.

(continued on next page)

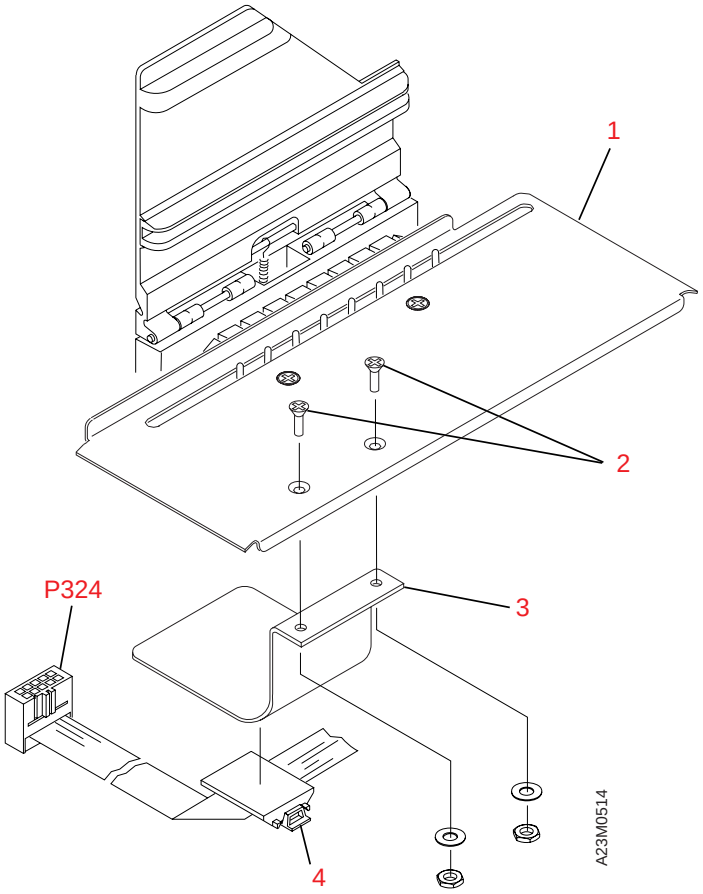
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



8. Install the verification sensor card **(3)** on the mounting plate so that the sensor **(5)** extends through the hole **(4)** in the mounting plate.
9. Attach the verification sensor card to the mounting plate using four screws **(6)** and four flat washers.

(continued on next page)

Table 901. Side 1/Side 2 Verification Sensor Card (continued)



10. Plug cable connector P324 into the verification sensor card.
11. Ensure that the cable does not rub on any portion of the lower rear tractor.

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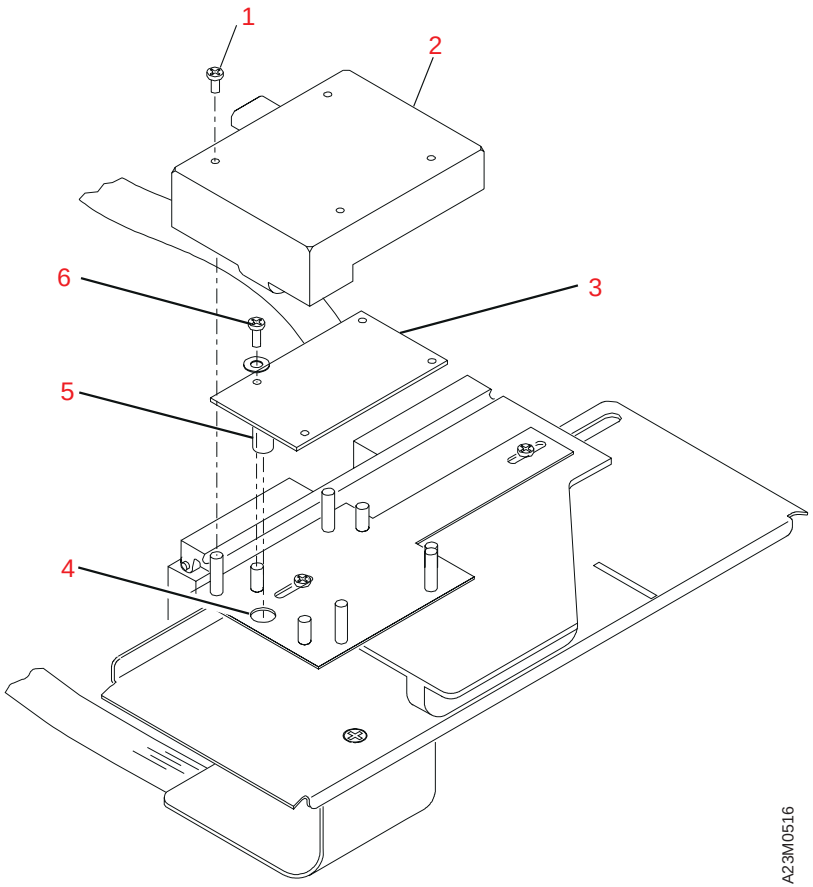
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



12. Attach the sensor card cover **(2)** with four screws **(1)**.
13. Power-on the printer system.
14. Perform the Side 1/ Side 2 Adjustment procedure.

(continued on next page)

Table 901. Side 1/Side 2 Verification Sensor Card (continued)

Note: The verification marks are checked to be within 2.1 mm (1/12 in.); therefore, precise registration in both the process and scan directions on printer 1 is required. Registration must also be correct on printer 2 so that the verification marks are visible.

S1/S2 Adjustment

1. Mark the forms before printing so that you will know which side of the forms was printed on Printer 1 and which was printed on Printer 2.
2. Perform the Registration Check and adjust if necessary.
   - For single beam printheads, see “Registration” on page 2721.
   - For two beam 240 printheads, see “Registration” on page 2821.
   - For two beam 240/300 printheads, see “Registration” on page 2932.
3. Perform the Side 1 / Side 2 Verification Test. See Side 1/Side 2 Diagnostics. Continue with step 4.

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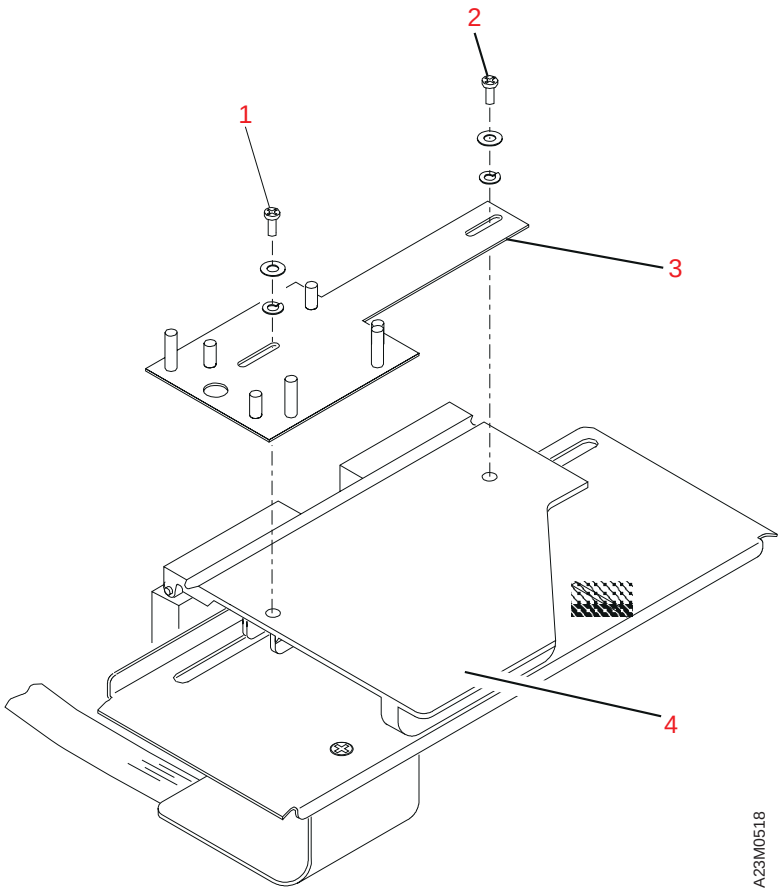
Table 901. Side 1/Side 2 Verification Sensor Card (continued)



4. Move the sensor mounting plate carefully to the left or right while printing until **POSITION = 0**. If printing stops before the adjustment is complete, run more copies of the text print sample.

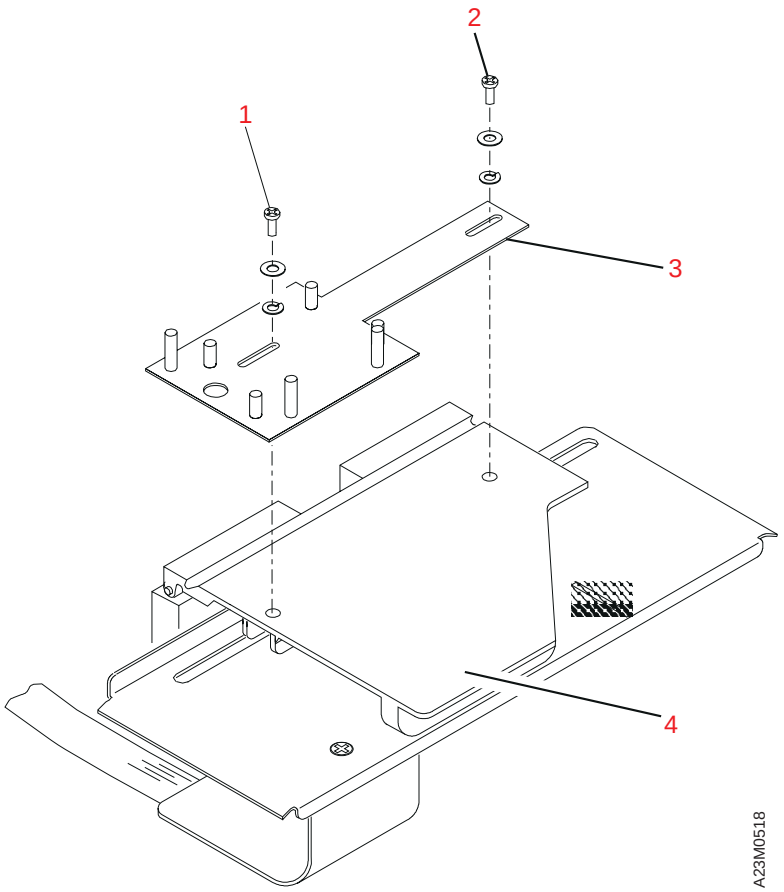
Notes

- For 240 DPI, 6 pels equals 0.64 mm (0.025 in).
- For 300 DPI, 8 pels equals 0.67 mm (0.027 in).
- For 480 DPI, 12 pels equals 0.64 mm (0.025 in).
- For 600 DPI, 16 pels equals 0.67 mm (0.027 in).
- If the **POSITION** value is negative (-), the marks were late. Move the mounting plate the indicated amount towards the right.
- If the **POSITION** value is positive (+), the marks were early. Move the mounting plate the indicated amount towards the left.

5. When **POSITION = 0** is displayed, tighten screw **(2)**.
6. After printing stops, remove the sensor card cover by removing the four screws.
7. Remove the Side 1/Side 2 Verification sensor card.

(continued on next page)

Table 901. Side 1/Side 2 Verification Sensor Card (continued)



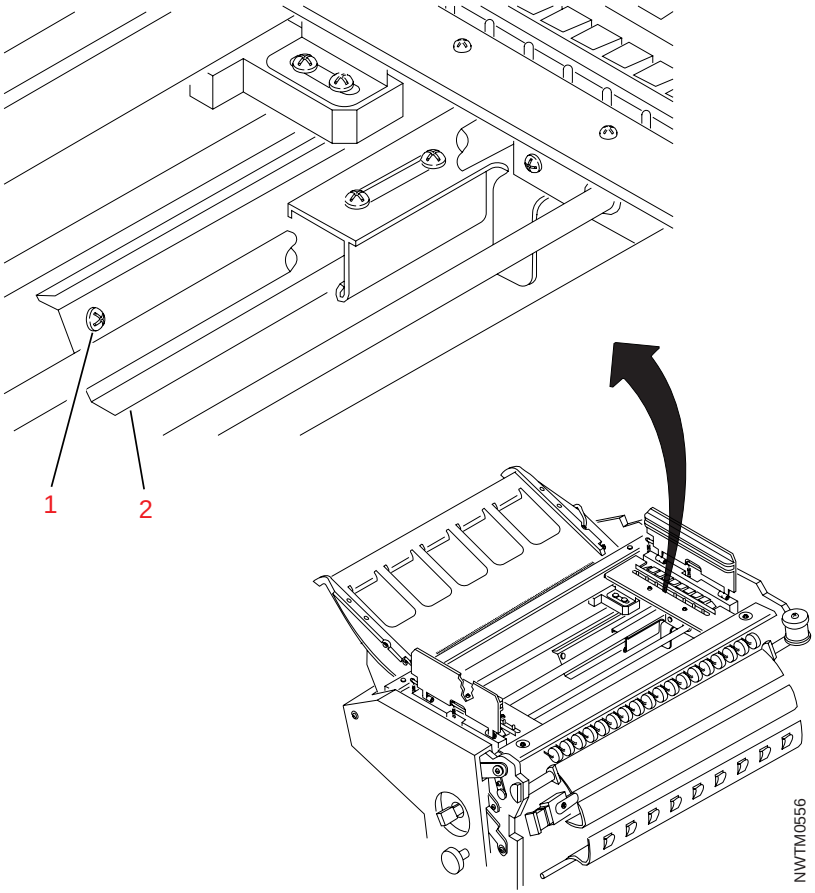
8. Align the sensor in the scan direction so that it is centered above the verification mark and tighten screw **(1)**.
9. Reinstall the verification sensor card.
10. Run 20 more text print samples and ensure that **POSITION = 0**.
11. Reinstall the sensor card cover.
12. Select **STOP** on the Display/Touch Screen.

Verify

- Run Print Pack to verify print quality.

Tension Arm Encoders

Table 902. Tension Arm Encoders

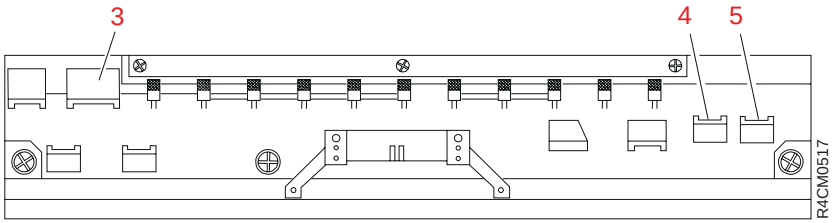


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the Transfer Station Discharge Brush Plate.
3. Open the transfer station.
4. Loosen, but do not remove, the two screws **(1)**. Remove the transfer station cable shield **(2)**.

(continued on next page)

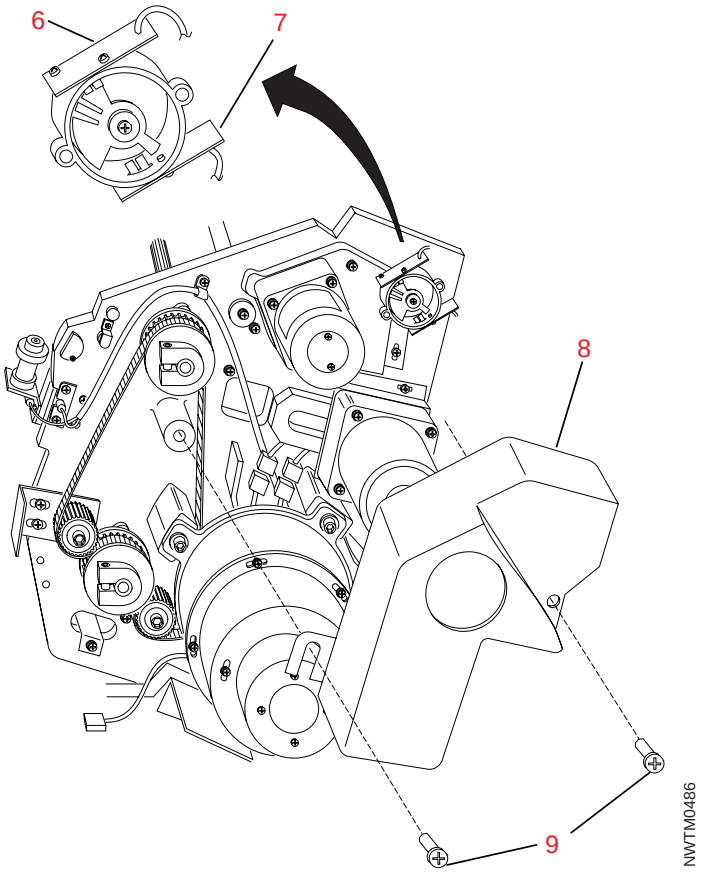
Table 902. Tension Arm Encoders (continued)



5. Disconnect connectors PJ302 **(3)**, PJ305 **(4)**, and PJ306 **(5)** and pull the cables out the rear of the transfer station.
6. Open the printer left front and center front covers.
7. Remove the transfer station center rear cover.

(continued on next page)

Table 902. Tension Arm Encoders (continued)



8. Remove the two screws **(9)** on the tension arm encoder cover **(8)**. Remove the cover carefully to avoid damaging the encoder board cables.
9. Remove the Encoder Board mounting screws and then remove the EN123 **(7)** and EN122 **(6)** encoders.

Installation

Reverse the removal procedure.

Check

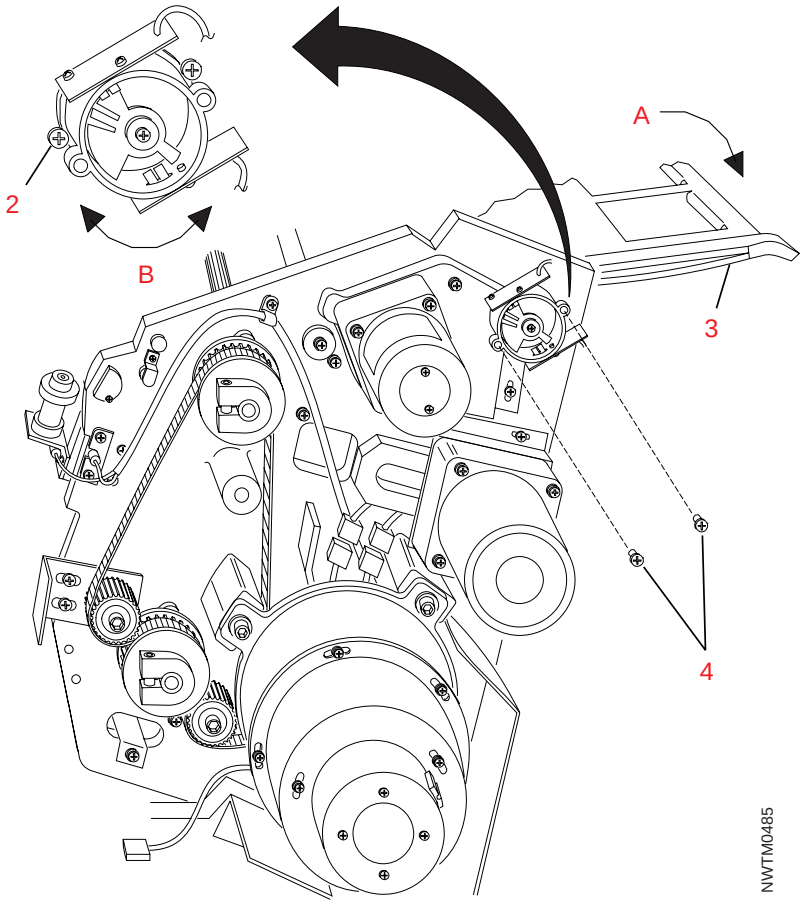
1. Power-on the printer.
2. Run Sensor Routine 64 to ensure that the encoders are working correctly.

Verify

Run Print Pack to verify print quality.

Tension Arm Encoder Position

Table 903. Tension Arm Encoder Position



<50> Unguarded mechanisms will be running. Keep hands, hair, and clothing away from all running mechanisms.

Purpose

Adjustment routine C6 feeds a small length, or buffer, of forms to position the tension arm at the running angle. The encoder position can then be checked or adjusted for the correct reading.

Check

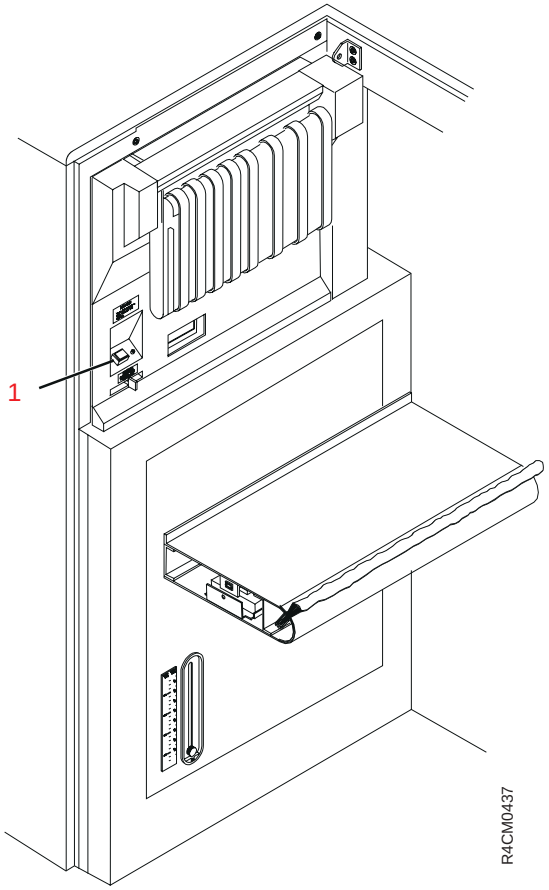
1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Load forms. See the Operator's Guide.

Note: If it is not possible to load forms, Run Adjustment Routine C6 to ensure that the forms feed keys operate correctly.

3. Run Adjustment Routine C6. See step 4.
4. Press down on the tension arm **(3)** in the **(A)** direction and hold the arm down.

(continued on next page)

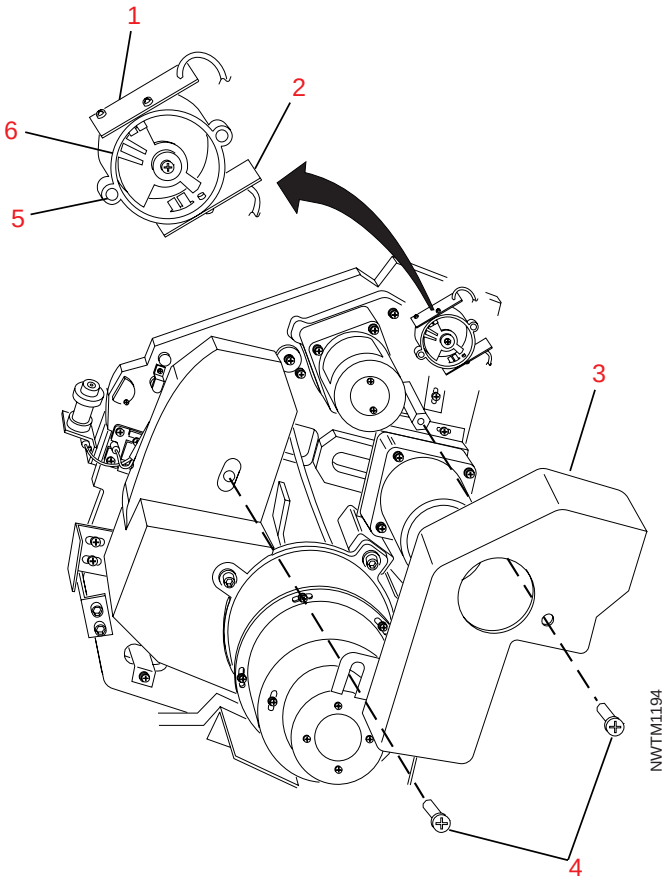
Table 903. Tension Arm Encoder Position (continued)



5. Press the vacuum switch **(1)**.
6. The alarm will sound and forms will be fed into the transfer station.
7. Slowly release the tension arm.
8. Ensure that the maintenance panel displays **3 C6**. If not, perform the Tension Arm Encoder adjustment.

(continued on next page)

Table 903. Tension Arm Encoder Position (continued)

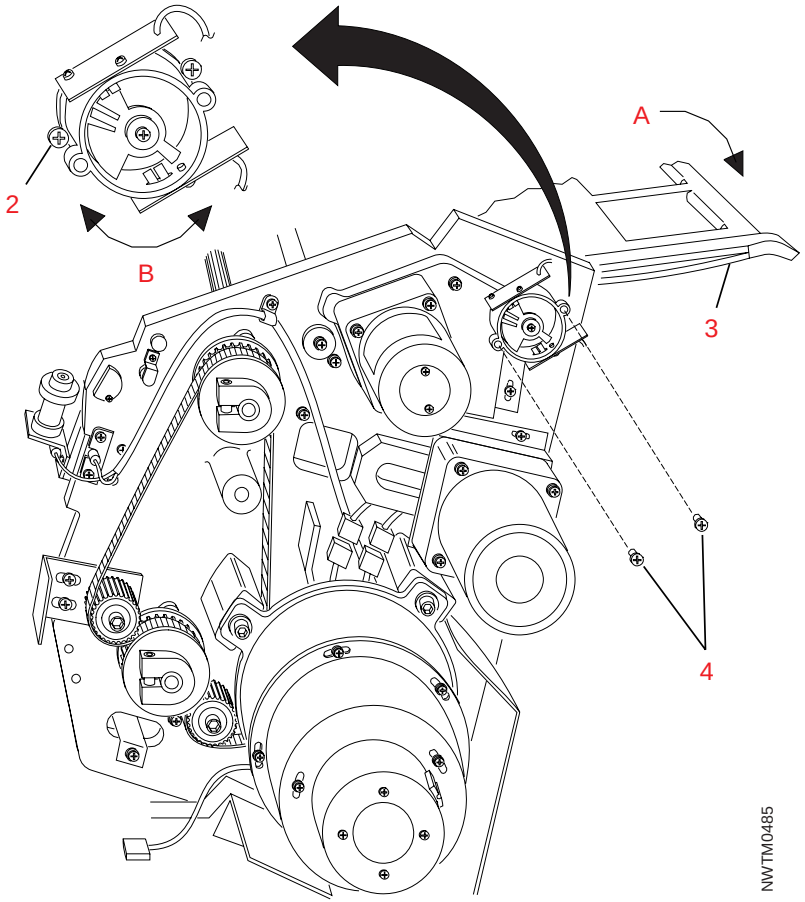


Adjustment

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Install the maintenance panel extension cable.
3. Remove two screws **(4)** and remove the tension arm encoder cover, being careful not to damage the encoder board cables.
4. Power on the printer.

(continued on next page)

Table 903. Tension Arm Encoder Position (continued)



5. Perform steps 1 through 7 under **Check**.

Attention: Do not touch the encoder circuit boards with the screwdriver.

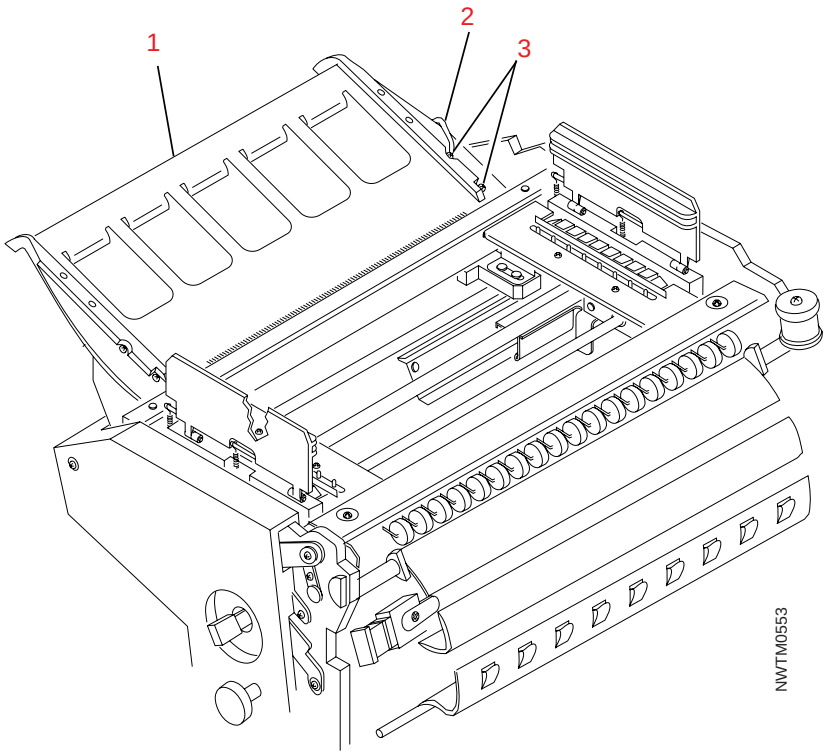
6. Loosen the two screws **(2)**.
7. Turn the encoder housing in the **(B)** direction until **UL** appears in the maintenance panel display. Tension arm encoder values displayed on the maintenance panel are: **UL** (Upper Limit), **3**, **6**, **0**, **−6**, **−3**, **LL** (Lower Limit). Then turn the encoder housing slowly until **3** appears.
8. Alternately tighten the two screws **(2)**.
9. Run the auto load procedure to ensure that the forms are loading correctly. See the Operator's Guide.
10. Shutdown and power off the printer..
11. Reverse **Adjustment** steps 1 through 4 to remove the maintenance panel extension cable and replace the encoder cover.

Verify

1. Run Print Pack to verify print quality.

Tension Arm Plate

Table 904. Tension Arm Plate



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the forms from the transfer station.
3. Open the transfer station.
4. Remove the two screws **(3)** from each side, remove the ground strap **(2)** and the tension arm plate **(1)**.

Installation

Reverse the removal procedure.

Check

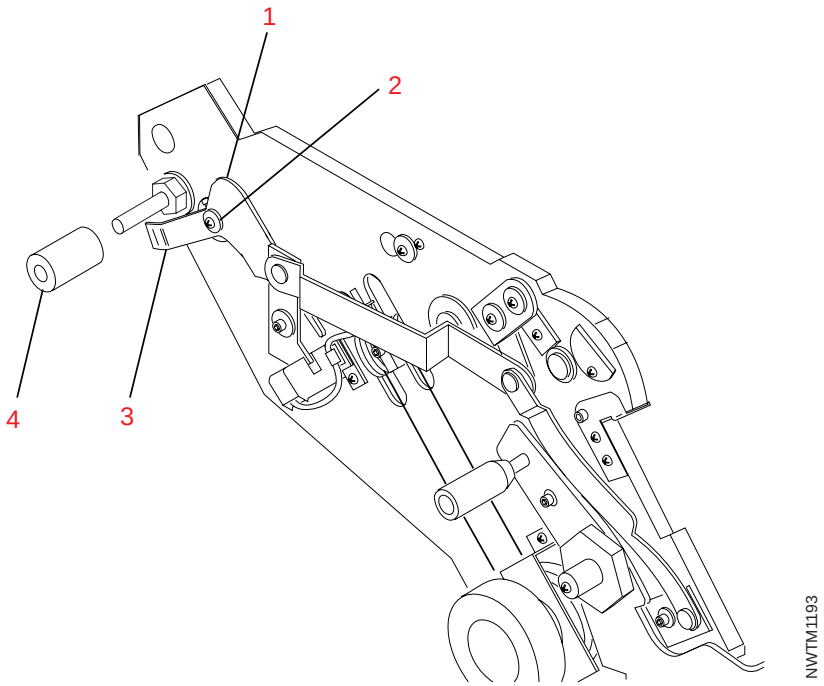
1. Check the following:
   a. Tension Arm Position.
   b. Tension Arm Parallelism.
   c. Tension Arm Encoder Position.

Verify

Run Print Pack to verify print quality.

Tension Arm Shaft and Springs

Table 905. Tension Arm Shaft and Springs



Special Tools

Metric Allen wrenches

Gram gauge with 10X blade (PN 450459)

Retaining ring removal tool

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the forms.
3. Remove the transfer station front cover.
4. Push down on the tension arm and remove the silicon sleeve **(4)**.
5. Remove screw and washer **(2)**. Loosen set screw **(1)** push down on the tension arm, and remove the tension arm cam **(3)**.
6. Open the transfer station half way to make the tension arm encoder cover removal easier in a later step.
7. Remove the transfer station center rear cover.

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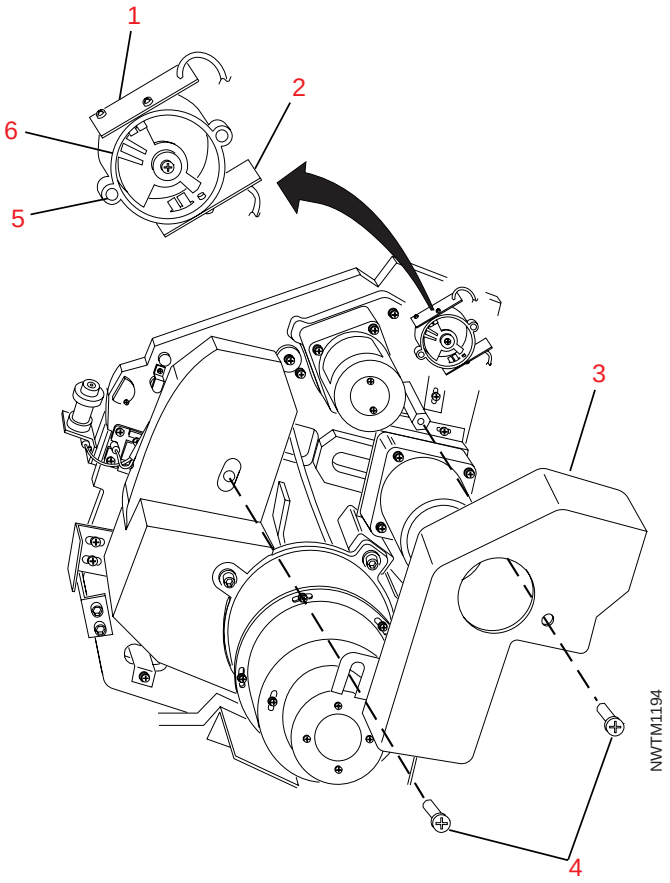
Table 905. Tension Arm Shaft and Springs (continued)



8. Remove screws **(4)** and remove the tension arm encoder cover **(3)**. Remove the cover carefully to avoid damaging the encoder board cables.
9. Remove the screws and remove the encoder board **(1)** (EN122). Leave the encoder board hanging by its electrical cable.

Encoder board installation notes:

- Install the encoder boards with the cables at the top.
- Install encoder board **(2)** (EN123) (two cables) towards the fuser.

For printers **with a tension arm brake**, go to step 12.

For printers **without a tension arm brake**, perform steps 10 and 11.

10. Mark the following parts to ensure correct reassembly:
    - The top of the encoder housing **(6)**.
    - The front (outward) side of the tension arm encoder disk.

Attention: Use care not to lose the washer behind the encoder disk in step 11. If you have removed encoder board **(2)**, place tape over the lower opening in the encoder housing **(6)**.

11. Remove the screw in the center of the encoder disk. Carefully remove the encoder disk and the washer behind it. Go to step 18.

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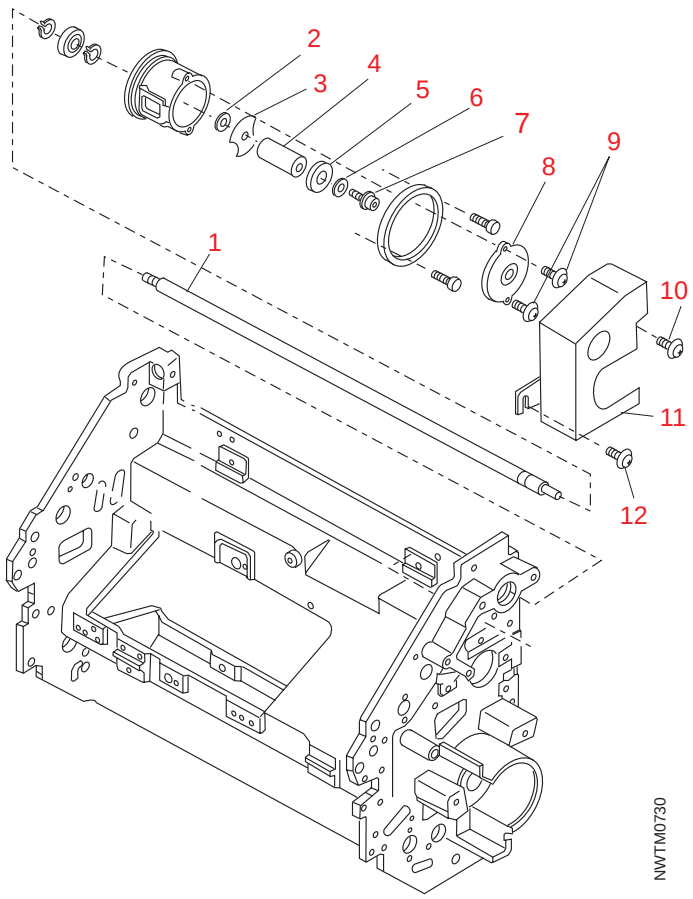
Table 905. Tension Arm Shaft and Springs (continued)



12. Remove the two screws **(9)** and the Tension Arm Brake **(8)**.
13. Remove the screw **(7)** and washer **(6)**.
14. Remove the Disk Plate **(5)**.
15. Remove the Disk Spacer **(4)**.
16. Mark the following parts to ensure correct reassembly:
    - The top of the encoder housing **(6)**.
    - The front (outward) side of the tension arm encoder disk.

Attention: Use care not to lose the washer behind the encoder disk in step 17. If you have removed encoder board **(2)**, place tape over the lower opening in the encoder housing **(6)**.

17. Remove the screw **(7)** in the center of the encoder disk. Carefully remove the encoder disk and the washer behind it.

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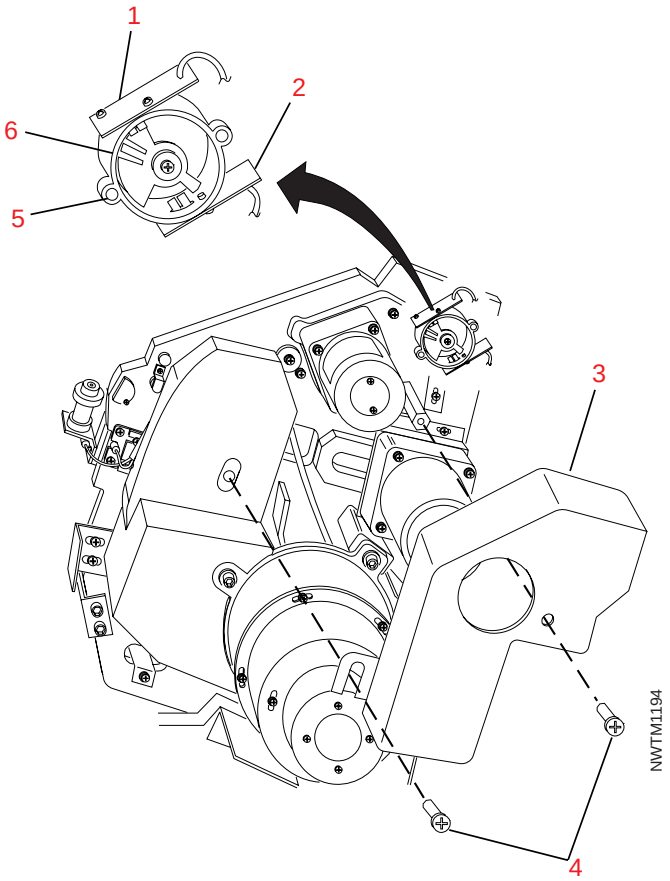
Table 905. Tension Arm Shaft and Springs (continued)



18. Remove the screws **(5)** and remove the tension arm encoder housing **(6)** and its clamping ring. Encoder board **(2)** is still attached.

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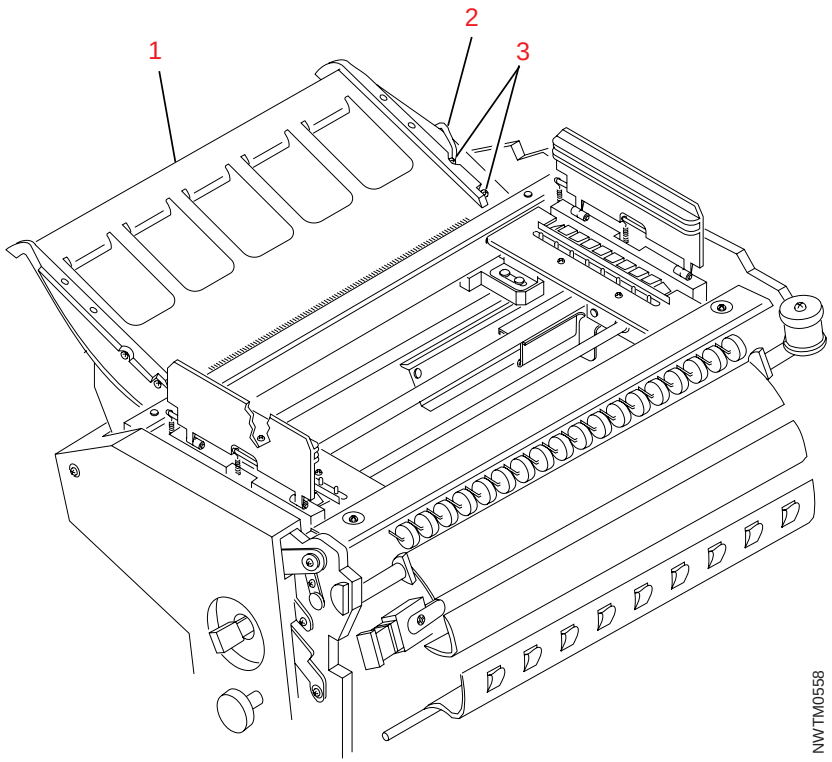
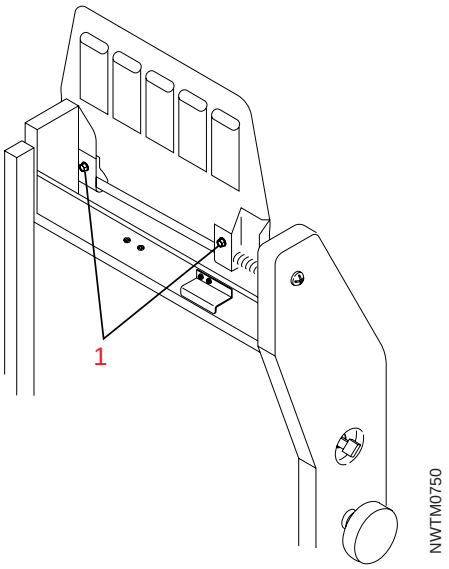
Table 905. Tension Arm Shaft and Springs (continued)



19. Remove the four screws **(3)** and star washer from the front and rear side of the tension arm plate **(1)**, disconnect the ground **(2)** and remove the tension arm plate.

(continued on next page)

Table 905. Tension Arm Shaft and Springs (continued)



Attention: Remove **only the rear screw** in step 20. Removal of the front screw will cause loss of adjustment in the following areas:

- Tension arm position
- Shaft horizontal position (not documented)

20. Loosen screw **(1) only on the rear tension arm support**.

Attention: Be aware that the tension arm springs will be suddenly released in the next step. They are captured by the shaft, however, the ends will uncoil suddenly. Use pliers to unhook the springs from the transfer station side plates.

21. Push the tension arm shaft to the rear and remove the rear bearing retaining clip (not shown).
22. Remove the rear bearing from the shaft.
23. Push the shaft toward the rear to free the front bearing. Then remove the shaft by guiding it at an angle towards the front.
24. Remove the following parts from the shaft in this order:
    a. Rear bearing retaining clip
    b. Rear sleeve
    c. Rear spring
    d. Rear tension arm support
25. Remove the front retaining clip and bearing from the shaft.
26. Remove the front spring.

(continued on next page)

Table 905. Tension Arm Shaft and Springs (continued)

Installation

1. There are two types of tension arm springs:
   - 650 gram springs (Used with EC C87554C)—when relaxed, the ends of this spring are inline.
   - Other springs—the ends of this spring are 180 degrees apart.
2. For both type springs, the front spring winds clockwise, and the rear spring winds counterclockwise.
3. Replace the rear spring and front spring together.
4. Preloaded each spring by winding one full turn during installation.
5. Reverse the removal procedure.

Notes:

a. Slide the rear sleeve against the tension arm support during reassembly.

b. Do not install the tension arm encoder cover or the transfer station center rear cover until the encoder position is adjusted.

6. Perform the Tension Arm Spring adjustment.

Adjustment

1. Power-on the printer.
2. Perform the Tension Arm Position adjustment.
3. Perform the Tension Arm Parallelism adjustment.
4. Perform theTension Arm Encoder Position adjustment.

Check

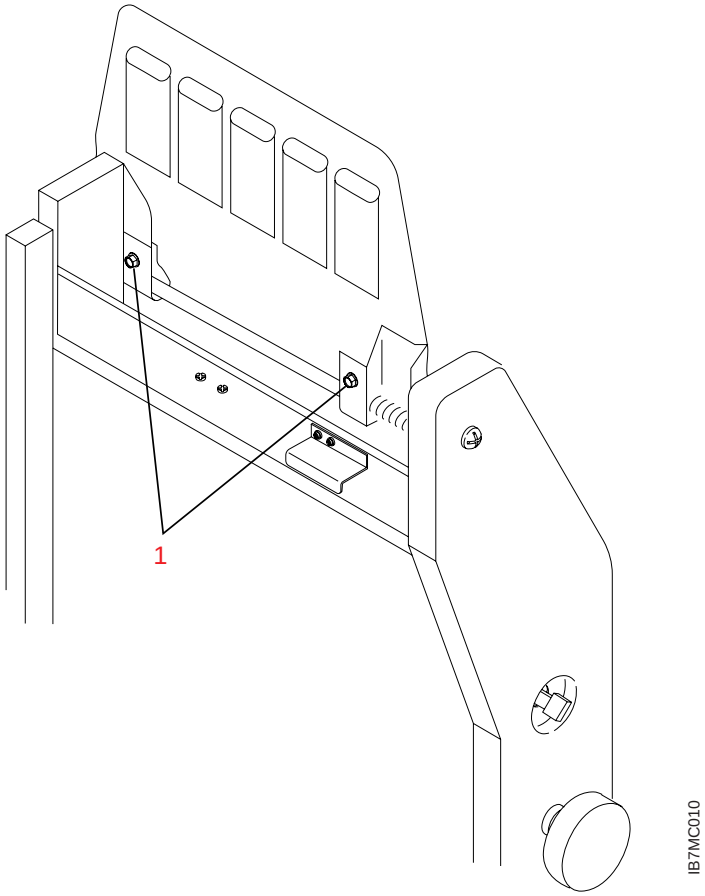
1. The 650 gram springs may cause exceptionally smooth, porous, or narrow forms to be pulled upwards through the fuser while printing. It is normal for the tension arm to rise up when power is removed from the machine due to the higher force springs. In this case, expect to see the message **Check Tension Arm** displayed after the printer is powered on.
2. Run Sensor Routine 64 to ensure that the encoders are working correctly.
3. Check the Tension Arm Encoder Position.

Verify

Run Print Pack to verify print quality.

Tension Arm Parallelism

Table 906. Tension Arm Parallelism



Check

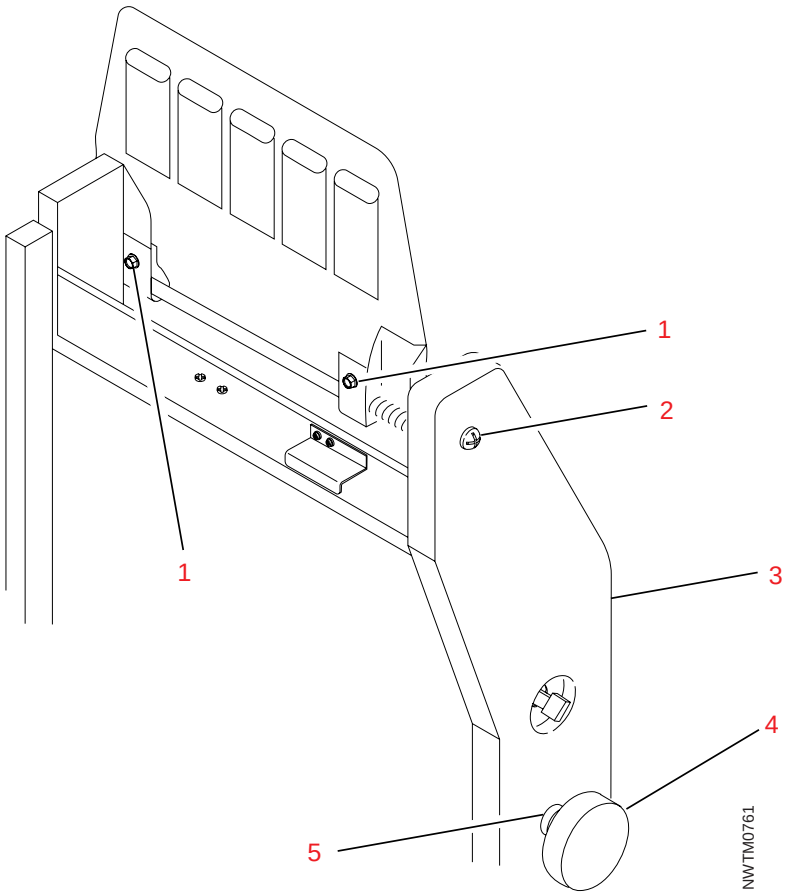
1. Use the maintenance switch cover plate or a straight edge to hold the tension arm down. Ensure that the plate extends to the left beyond the tension arm and lies flat along the upper front tractor guide plate.
2. Hold the tension arm in place, or use a second straight edge.
3. Use the straight edge at the rear, and ensure that the straight edge lies flat along the upper rear tractor guide plate.
4. There should be no difference between the front and the rear of the tension arm.

Adjustment

1. Loosen the screw **(1)** at the rear of the tension arm and move the rear of the tension arm until it is parallel with the front. It may be necessary to loosen screw **(1)** at the front of the tension arm also to make it parallel.
2. Tighten the screws **(1)**.
3. Repeat the Check procedure.
4. Perform the Tension Arm Encoder adjustment.

Tension Arm Position

Table 907. Tension Arm (Lower View)

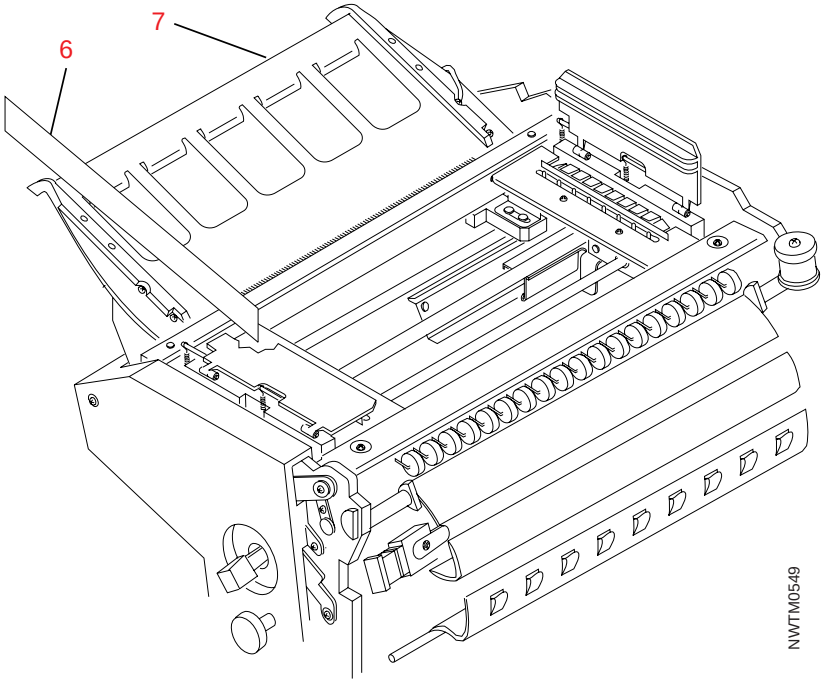


Check

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Open the transfer station.
3. Loosen the screw **(5)**. Remove the tractor control knob **(4)**.
4. Remove the three screws **(2)**. Remove the transfer station cover **(3)**.
5. Close the transfer station.
6. Remove the maintenance switch cover plate (over the printer B1 logic unit) to use as a straight edge.

(continued on next page)

Table 907. Tension Arm (Lower View) (continued)



7. Use a straight edge **(6)** to ensure that the Transfer Station Discharge Brush plate is level with the front tractor forms guide plate and with the rear tractor forms guide plate.
8. Press the tension arm **(7)** and remove the silicon sleeve (shown in the figure on page 3109) **(9)** .

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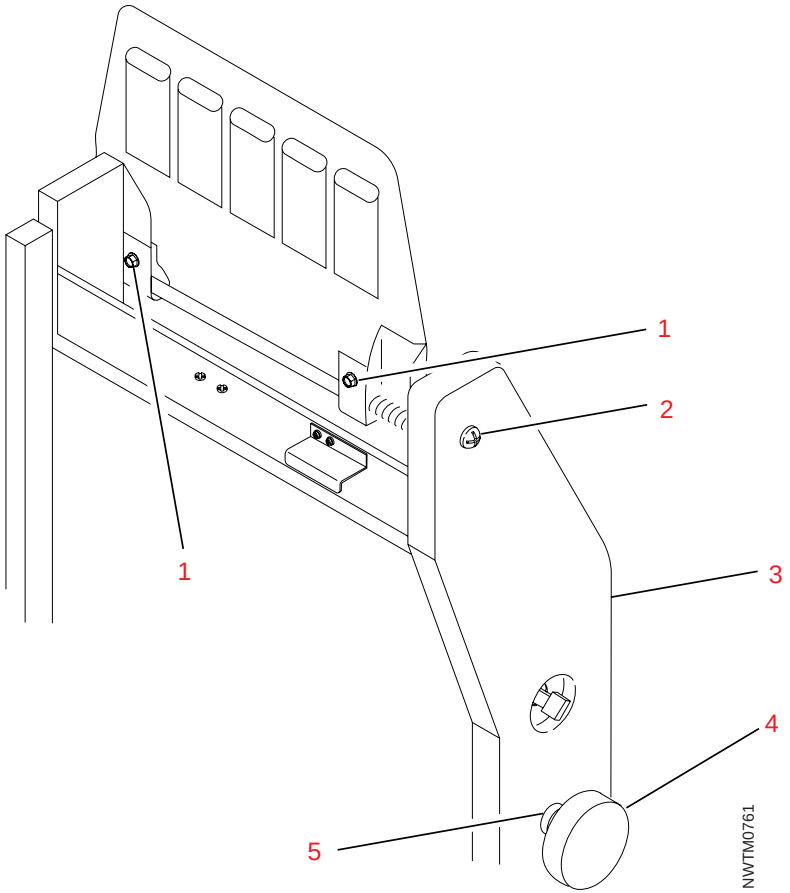
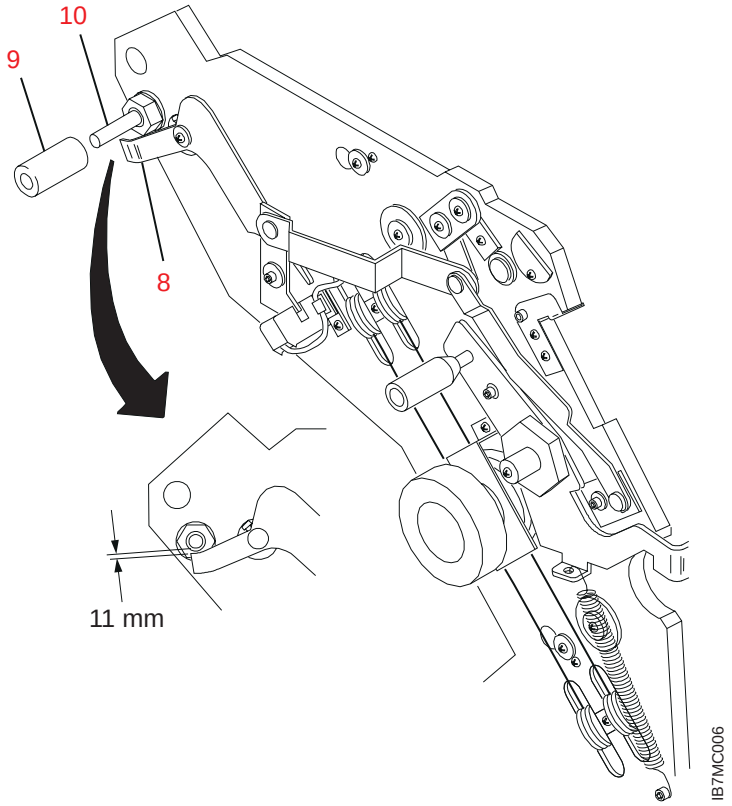
Table 907. Tension Arm (Lower View) (continued)



9. Use the maintenance switch cover plate or a straight edge **(6)** to hold the tension arm **(7)** down. The straight edge must lie (on edge) along the tractor guide plate and extend to the left beyond the tension arm.

(continued on next page)

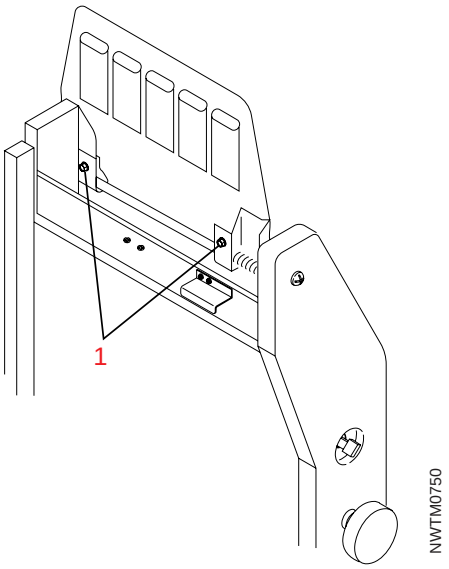
Table 907. Tension Arm (Lower View) (continued)

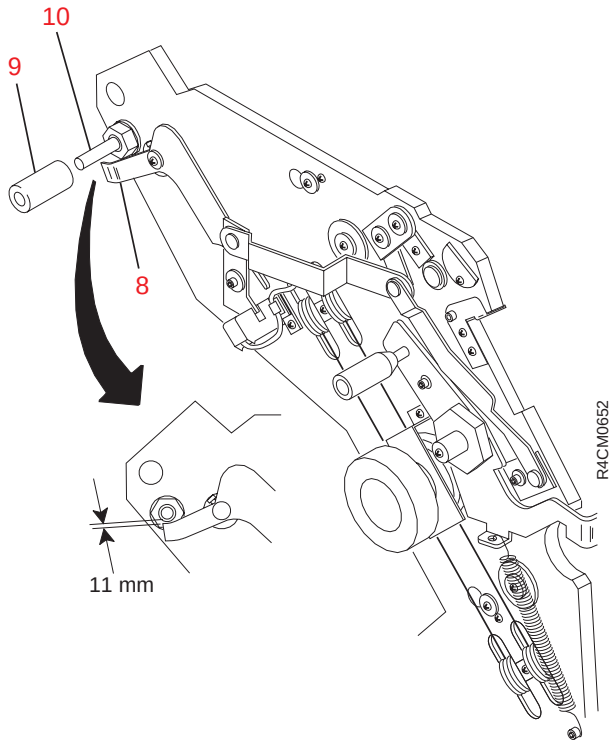


10. Measure the gap between the lower surface of the silicon sleeve shaft **(10)** and the upper surface of the tension arm cam **(8)**. The gap should be 11 mm (0.433 in.), if not, perform the Tension Arm Position adjustment.

(continued on next page)

Table 907. Tension Arm (Lower View) (continued)



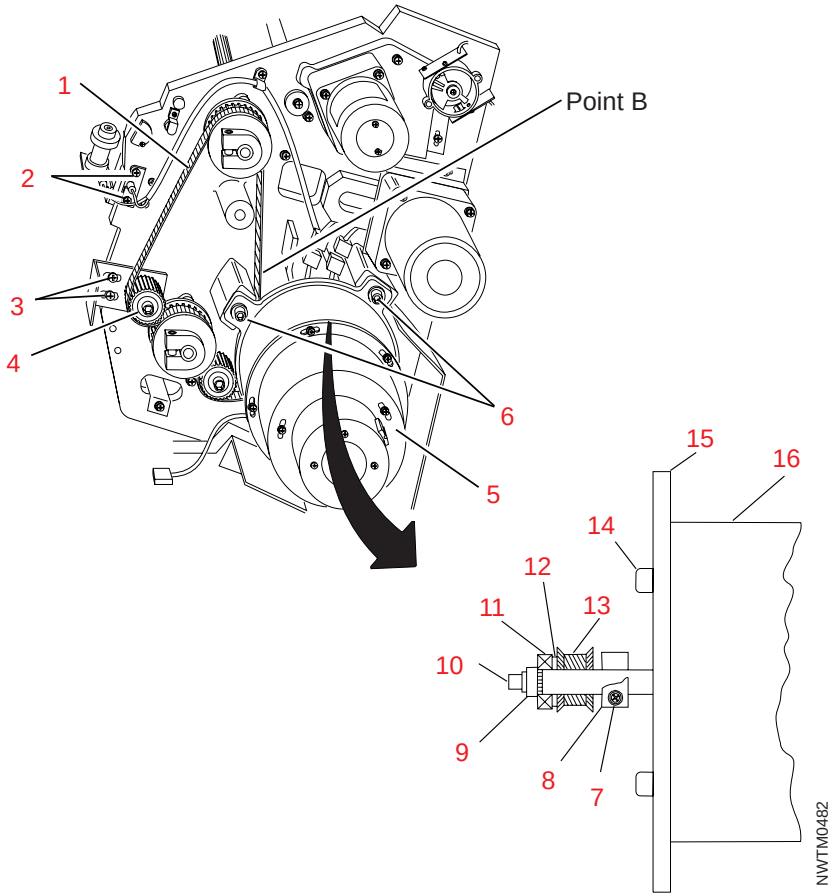


Adjustment

1. Loosen the two screws **(1)**.
2. Use the maintenance switch cover or straight edge to hold the tension arm down during this procedure.
3. Rotate the tension arm cam **(8)** to adjust the gap to 11 mm (0.433 in.).
4. Tighten the front screw **(1)**.
5. Adjust the Transfer Station Discharge Brush to set the rear position of the tension arm.

Tractor Motor (M303) and Drive Belt

Table 908. Tractor Motor (M303) and Drive Belt



Special Tool

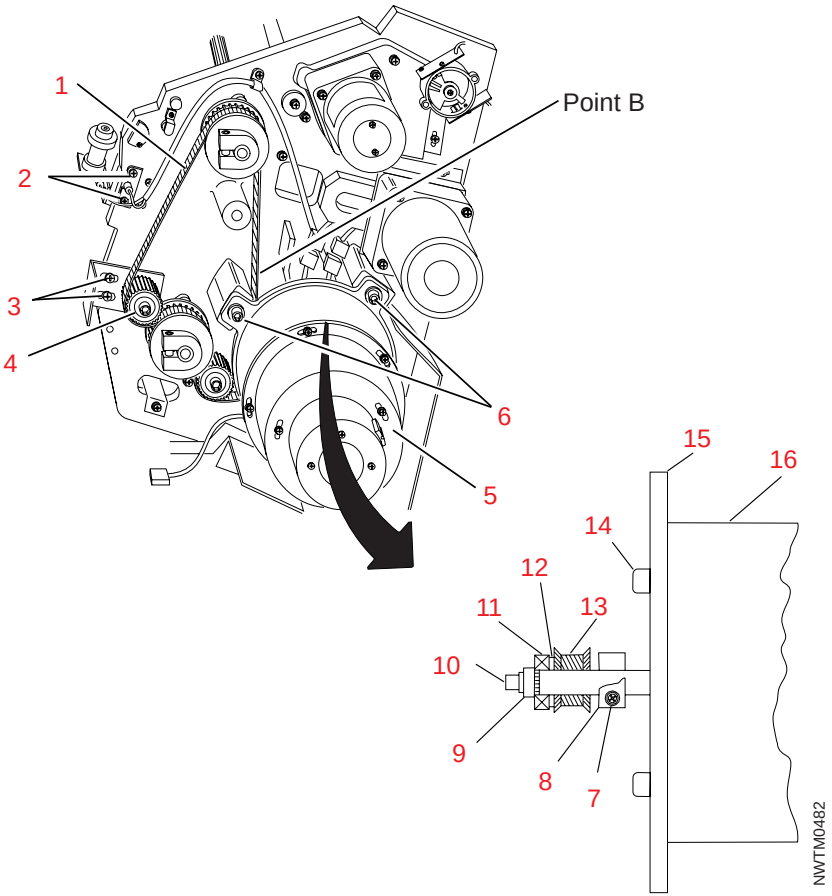
Push-pull scale (PN 0460870)

Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Open the printer left rear and center rear covers.
3. Remove the transfer station center rear cover.
4. Remove the tension arm encoder cover. See step 8 under Tension Arm Encoders.
5. Remove the tractor motor drive belt cover. See steps 8 and 9 under Lower Front Tractor.
6. Disconnect motor connectors PJ308 and PJ312.
7. Loosen the two screws **(3)** and slide the idler pulley **(4)** to release the belt tension.
8. Remove the three screws **(6)**. Remove the motor assembly **(5)** and bearing.
9. If only the motor **(16)** is to be replaced, skip to step 11.
10. Remove the drive belt **(1)**.
11. Remove the screws **(7)** and **(10)**.
12. Remove the collar **(9)** bearing **(11)**, spacer **(12)** , pulley **(13)** and clamping ring **(8)**
13. Remove the four screws **(14)**. Remove the tractor motor **(16)** from the motor base **(15)**.

(continued on next page)

Table 908. Tractor Motor (M303) and Drive Belt (continued)



Installation

1. Before installing a new motor, remove the rubber plugs in the motor base plate.
2. Before tightening the screw **(7)** on the clamping ring **(8)**, slide all the parts to the front of the motor drive shaft.
3. Reverse steps 6 through 13 of the removal procedure.
4. Perform the tractor motor drive belt adjustment.
5. Reverse the remaining removal steps.

Adjustment

1. Adjust the tractor motor drive belt tension by positioning the idler pulley **(4)** so that the belt **(1)** deflects 2.5 mm (0.10 in.) when 0.3 to 0.4 kg (0.66 to 0.88 lb) of force is applied at point **(B)**.
2. Power-on the printer.
3. Perform the Upper Tractor Timing adjustment.
4. Perform the Lower Tractor Timing adjustment.

Check

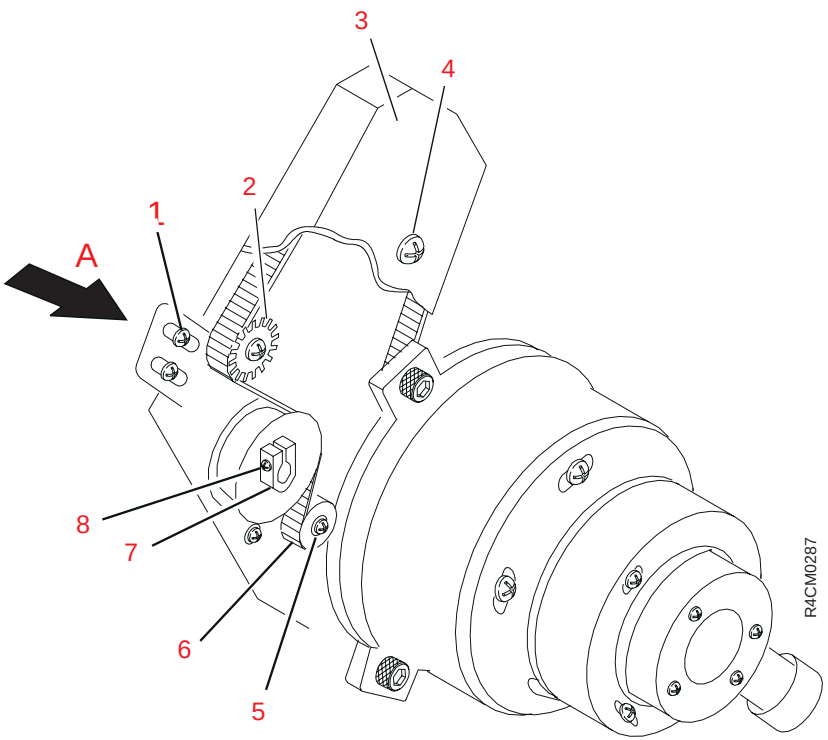
1. Run Driver Routine 10 to ensure that the tractor motor works correctly.
2. Perform the Registration Check and adjust if necessary.
   - For single beam printheads, see “Registration” on page 2721.
   - For two beam 240 printheads, see “Registration” on page 2821.
   - For two beam 240/300 printheads, see “Registration” on page 2932.

Verify

Run Print Pack to verify print quality.

Lower Front Tractor

Table 909. Lower Front Tractor



Special Tools

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Molycoat G (PN 0357830)
- Gloves, plastic (PN 2200041)

Removal

1. Check the registration in the process direction. After reinstalling the tractors, the registration should be same.
   - For single beam printheads, see “Registration” on page 2721.
   - For two beam 240 printheads, see “Registration” on page 2821.
   - For two beam 240/300 printheads, see “Registration” on page 2932.
2. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
3. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

4. Remove the transfer station front cover.
5. Open the printer center and left rear covers.
6. Remove the transfer station center rear cover.

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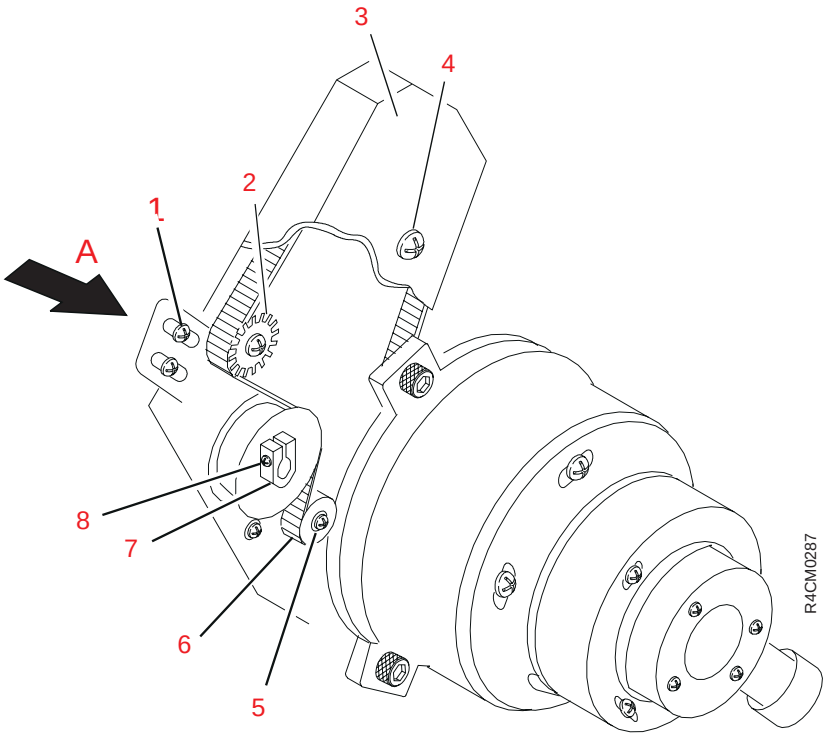
Table 909. Lower Front Tractor (continued)



7. Remove the two screws on the tension arm encoder cover, remove the cover carefully to avoid damaging the encoder board cables.
8. Remove the two screws **(4)** (one shown). Remove the tractor motor drive belt cover **(3)**.
9. Loosen the two screws **(1)** and slide the idler pulley **(2)** to loosen the drive belt. Leave the belt in the printer.
10. Loosen the screw **(8)**. Remove the clamping ring **(7)** and drive pulley.
11. Remove the screw **(5)**. Remove the idler pulley **(6)** and spacer.

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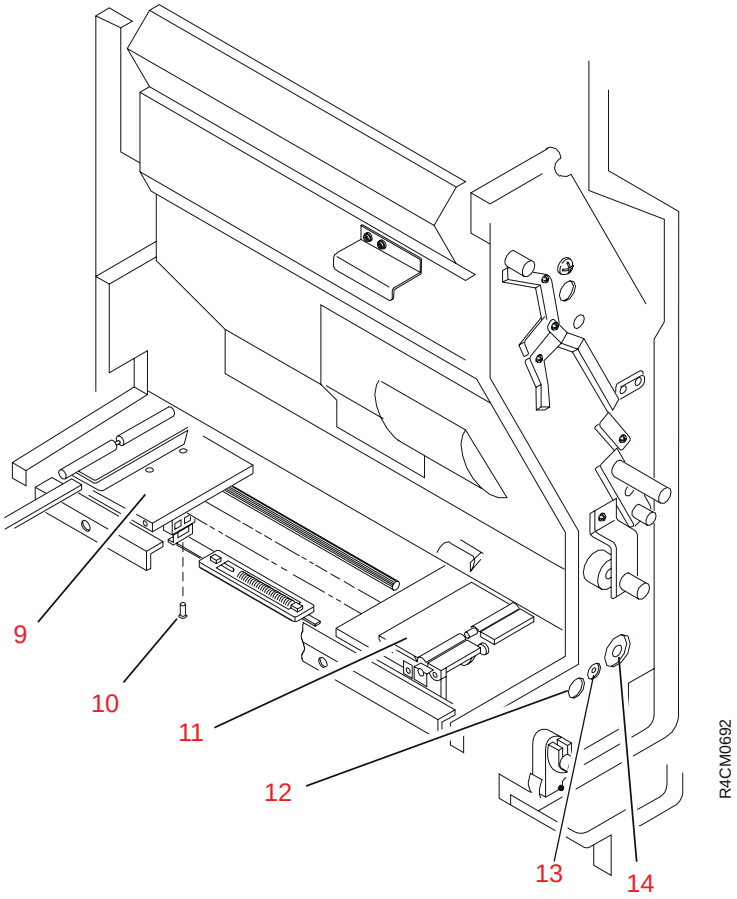
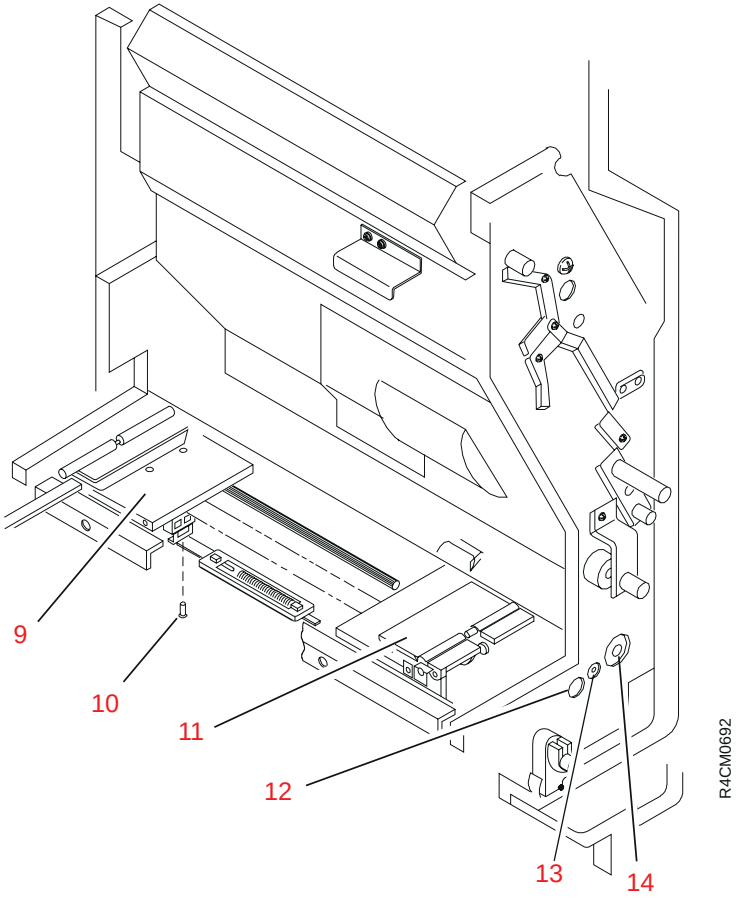
Table 909. Lower Front Tractor (continued)



12. Pull the drive shaft **(14)** with front bearing out the front of the transfer station.
13. Pull the guide shaft **(12)** to the front and remove it from the transfer station. (To ease removal of the guide shaft, apply light oil to the shaft. Wipe the shaft after applying the oil.)
14. Remove the screw **(13)** holding the tractor **(11)** to the front of the transfer station.
15. Lift the tractor out of the printer.
16. Perform the Tractor Installation and Adjustment.

Lower Rear Tractor

Table 910. Lower Rear Tractor



Special Tools

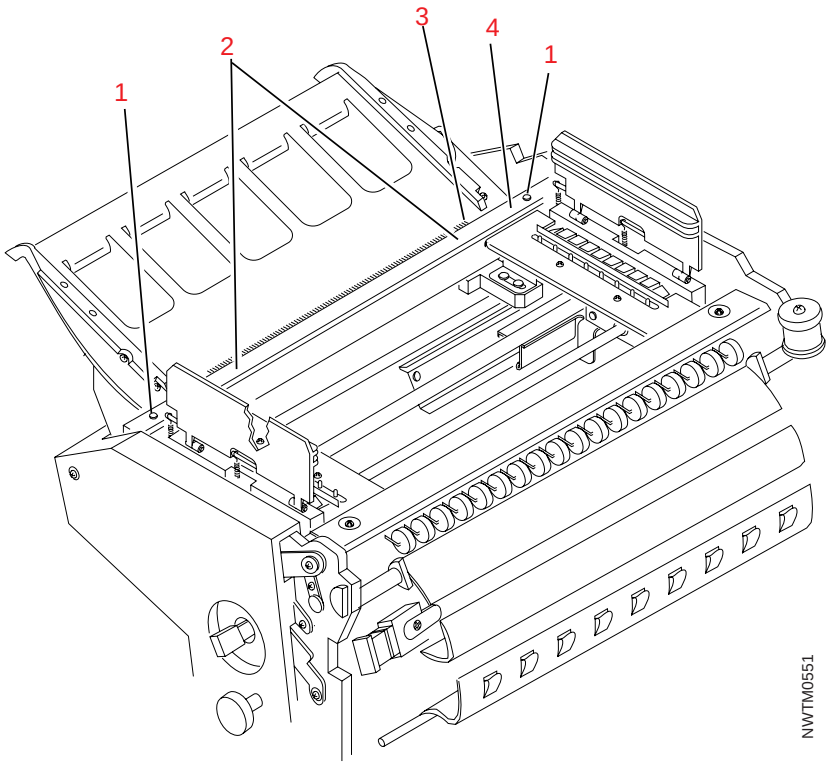
- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Molycoat G (PN 0357830)
- Gloves, plastic (PN 2200041)

Removal

1. Perform the Lower Front Tractor removal procedure.
2. Turn the tractor control knob to center the lower rear tractor.
3. Remove the screw **(10)** that attaches the positioning cable assembly to the rear tractor **(9)**.
4. Lift the tractor assembly **(9)** out of the transfer station.
5. Perform the Tractor Installation and Adjustment.

Upper Front Tractor

Table 911. Upper Front Tractor



Special Tools

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Molycoat G (PN 0357830)
- Gloves, plastic (PN 2200041)

Removal

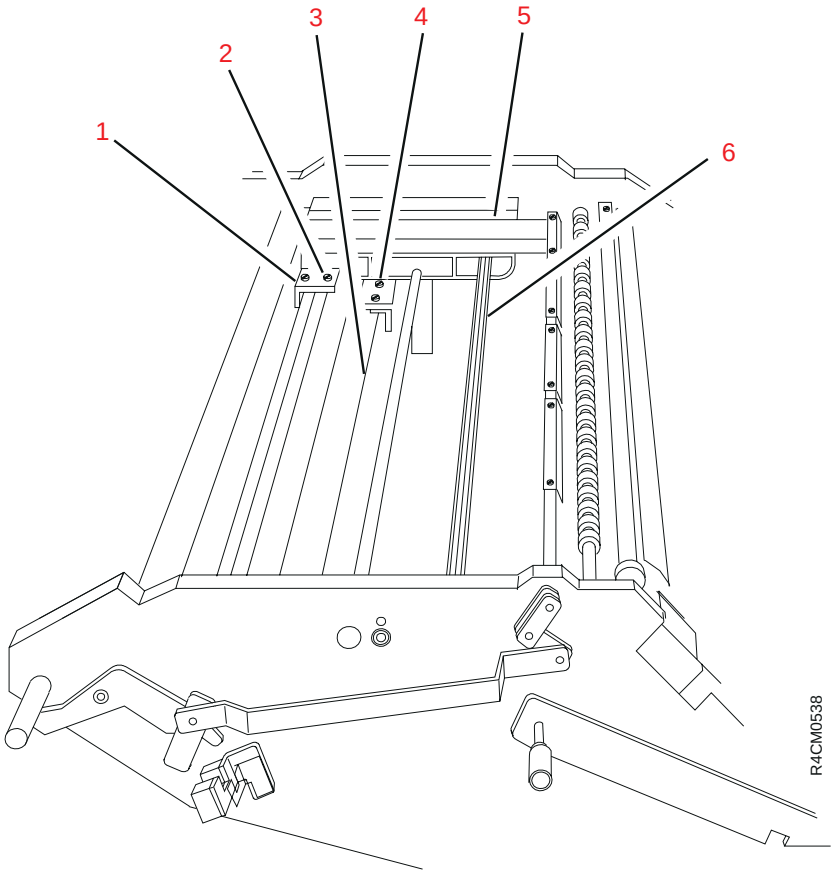
1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

3. Remove the transfer station front cover.
4. Remove the forms from the transfer station.
5. Remove the two screws **(2)**, and then lift and remove the transfer station brush plate **(4)**.

(continued on next page)

Table 911. Upper Front Tractor (continued)



6. To avoid damaging the forms width sensor board (PW091), loosen the two screws **(2)** on the magnet plate **(1)** and move the plate away from the board. Tighten the screws.

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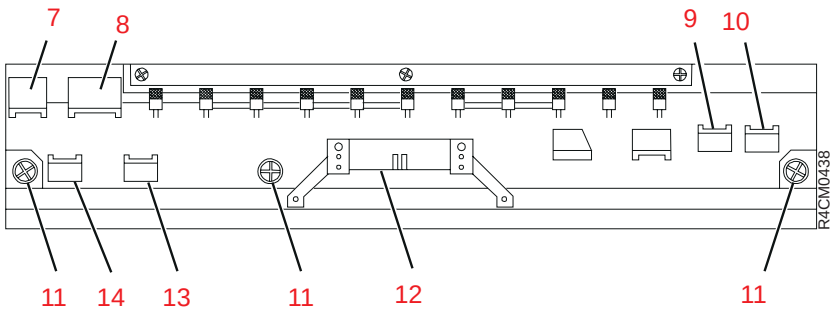
Table 911. Upper Front Tractor (continued)



7. Disconnect upper tractor jam sensor connector PJ301 **(7)** from the forms width sensor board (PW091).
8. Remove the two screws on the tension arm encoder cover, remove the cover carefully to avoid damaging the encoder board cables.

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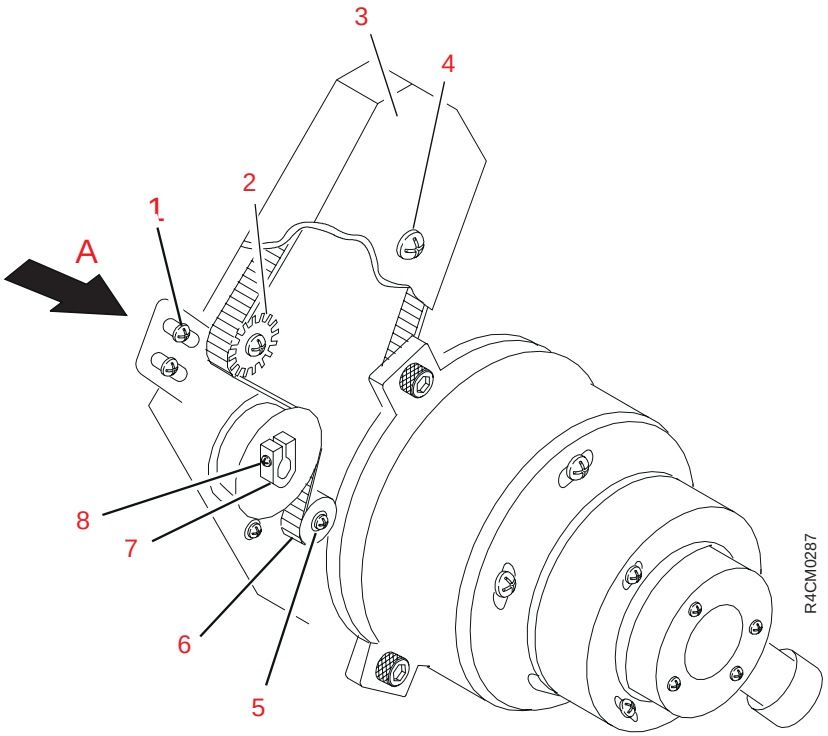
Table 911. Upper Front Tractor (continued)



9. Remove the lower cover screw, remove the tractor motor drive belt cover **(3)**.

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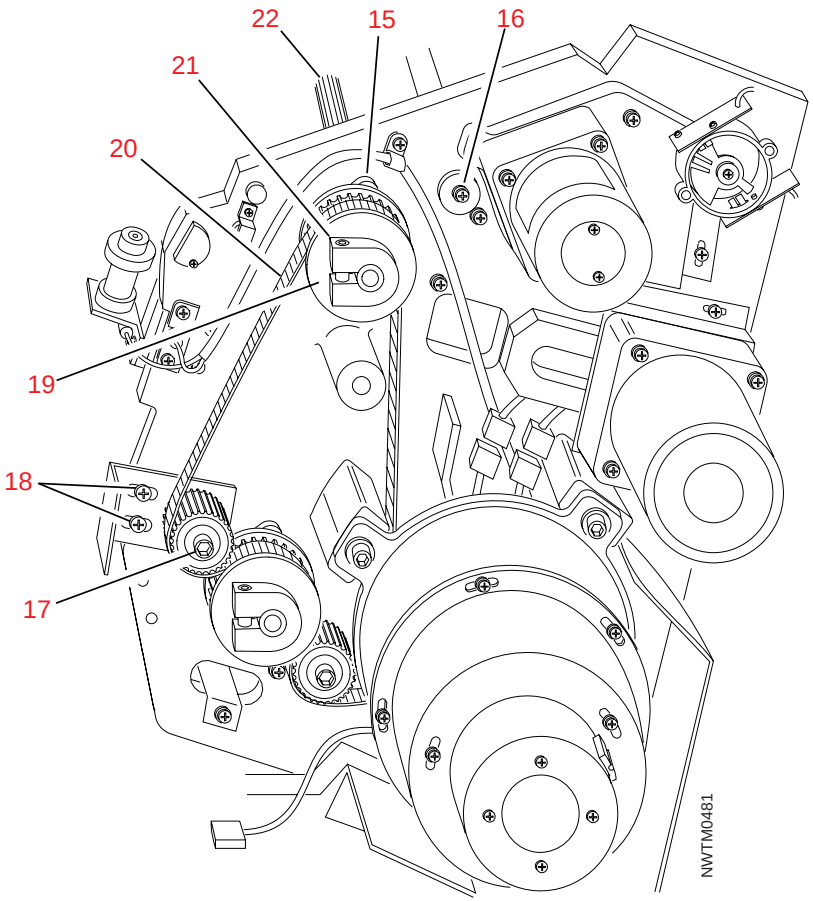
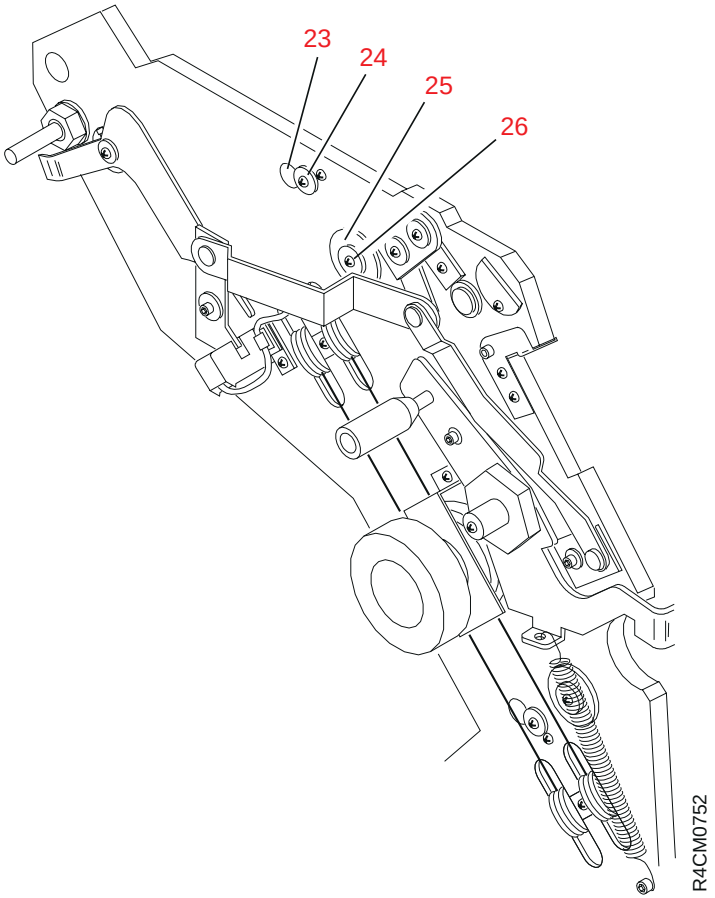
Table 911. Upper Front Tractor (continued)



10. Loosen the two screws **(18)** and slide the idler pulley **(17)** to loosen the drive belt **(20)**.
11. Remove the screw and washer at the front of the drive pulley **(19)**.
12. Loosen the screw **(21)**. Remove the clamping ring and drive pulley **(19)**
13. Remove the screw holding the cable clamp and move the cable aside to access to the guide shaft.
14. Remove the screw **(16)** at the rear of the guide shaft and pull the guide shaft out the front of the transfer station.

(continued on next page)

Table 911. Upper Front Tractor (continued)



15. Remove the bearing retaining screw and washer **(26)** in the front of the driver shaft.

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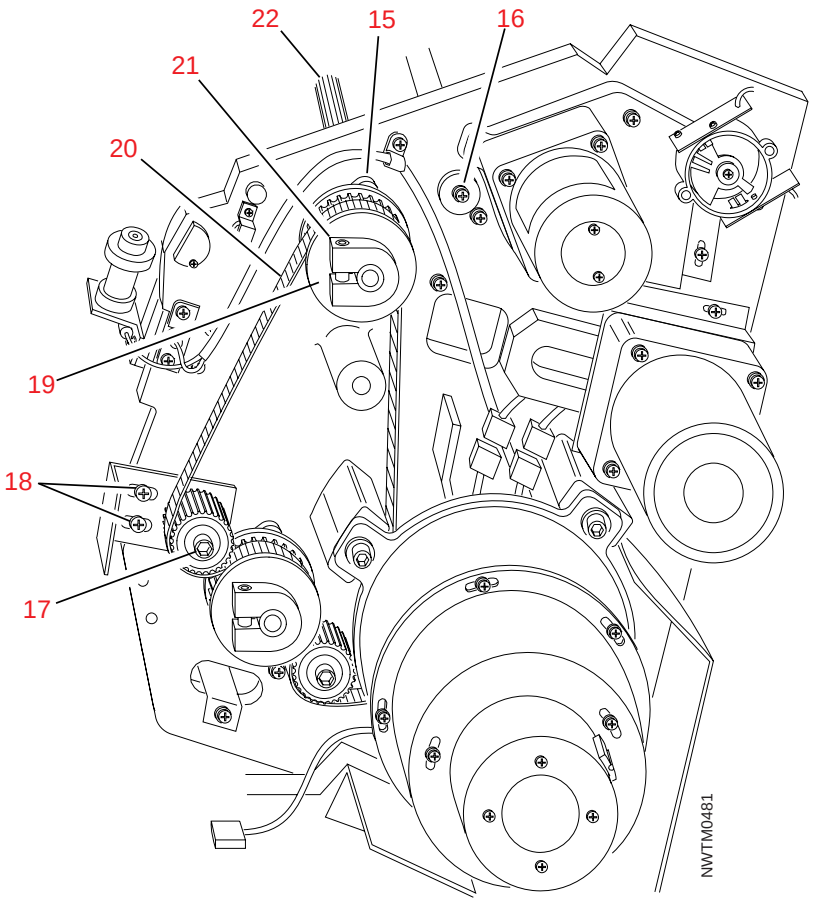
Table 911. Upper Front Tractor (continued)



16. Remove the two screws on the drive shaft rear bearing **(15)**. You do not have to remove the bearing from the drive shaft.

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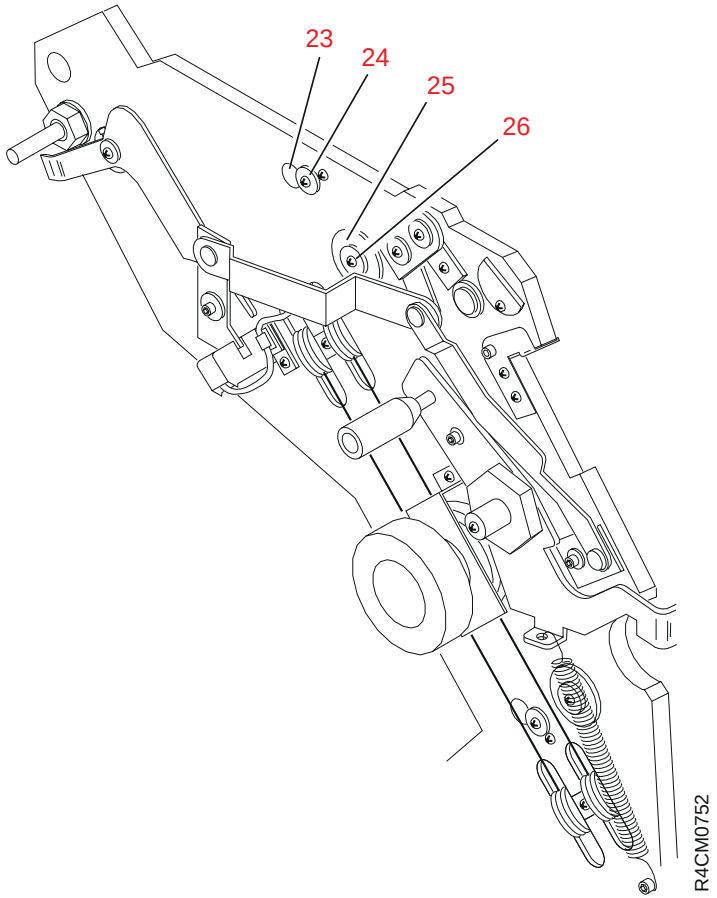
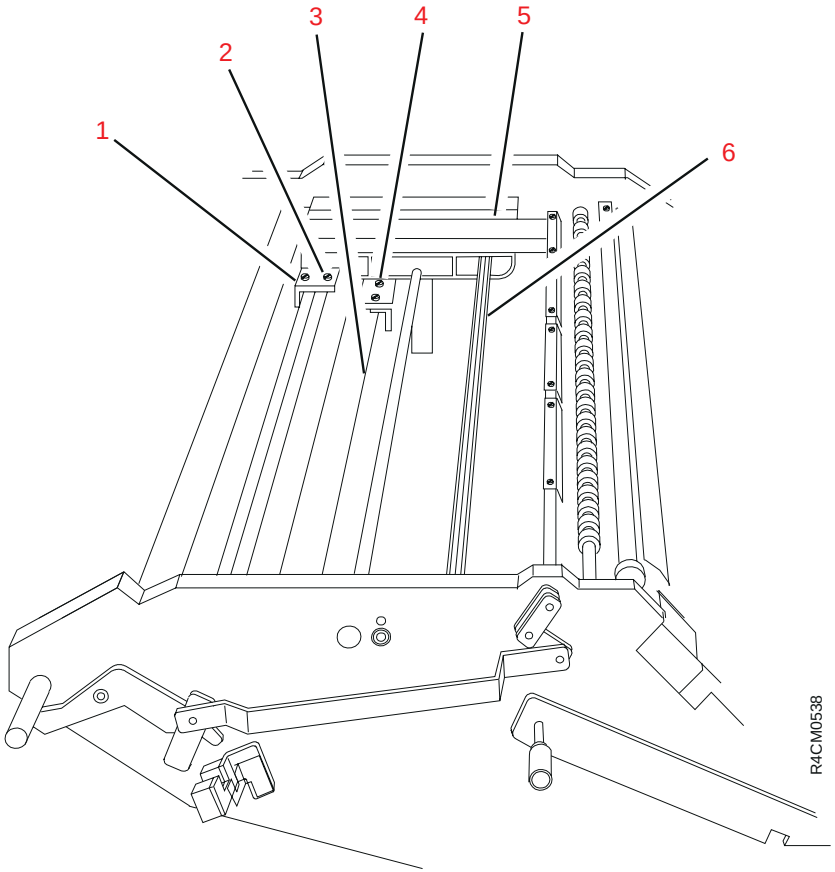
Table 911. Upper Front Tractor (continued)



17. Push the drive shaft **(22)** to the rear of the transfer station. Use care not to drop the front bearing **(25)** into the transfer station. The drive shaft only needs to be removed from the front tractor.
    Hint: Make a mark on the outside of the bearing housings before removing the bearings in the following step. This will help you remember which side of the bearings are out when you reinstall them.
18. Remove the screw **(24)** to free the tractor.
19. Perform the Tractor Installation and Adjustment.

Upper Rear Tractor

Table 912. Upper Rear Tractor



Special Tools

- Drum shaft extension (PN 06F1025)
- Drum bag or empty box
- Lint free cloth (PN 2108930)
- Molycoat G (PN 0357830)
- Gloves, plastic (PN 2200041)

Removal

1. Perform Upper Front Tractor removal procedure.
2. To avoid damaging the forms width sensor board, loosen the two screws **(2)** on the magnet plate **(1)** and move the plate away from the board. Then tighten the screws.
3. Remove the two screws **(4)**. Remove the tractor positioning cable **(3)** from the upper rear tractor **(5)**.
4. Remove the capstan pinch roll cover. See step 3 under Capstan Pinch Roll.
5. Remove the rear Upper Tractor Guide Plates.
6. Loosen the two screws holding the rear tractor assembly to the transfer corona shield bracket.
7. Pull the tractor **(5)** from the drive shaft **(6)**.
8. Perform the Tractor Installation and Adjustment.

Tractor Installation and Adjustment

Table 913. Tractor Installation and Adjustment

Installation

- Reverse the removal procedure, noting the following:
  - When installing the drive shaft in the tractors, use the tractor alignment gauge to ensure that the pins on the front and rear tractor belts are correctly aligned with each other. If the pins are not aligned correctly, forms jams can occur in the transfer station.
  - Do not install the belt and encoder covers until the adjustments are completed.
- Perform the Tractor Adjustment procedure.

Adjustment

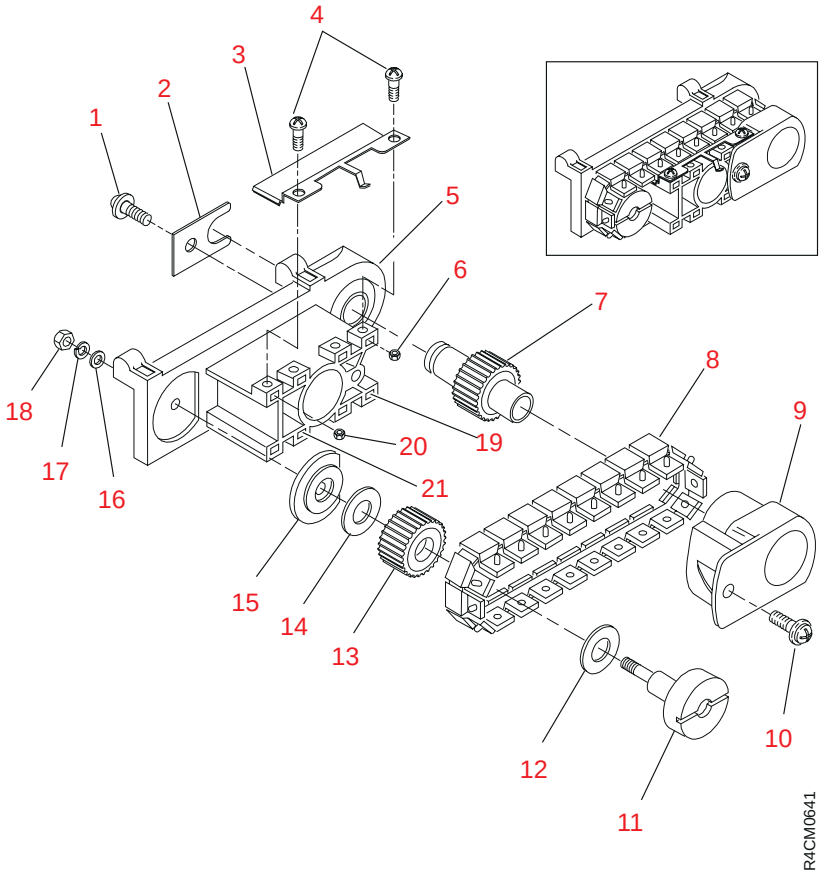
1. Adjust the gap between the magnet assembly on the upper rear tractor and the Forms Width Sensor Board (PW091).
2. Adjust the Transfer Corona Shield bracket.
3. Perform the upper rear tractor guide plate adjustment (if the guide plate was removed).
4. Perform the tractor drive belt adjustment.
5. Adjust the Transfer Station Discharge Brush plate to the upper tractor guide plates.
6. Adjust the distance between the front and rear tractors. (See Tractor Alignment.)
7. Check the Path Modifier Position.
8. Adjust the forms perforation to the Upper Tractor Timing position.
9. Adjust the forms tension between the upper and lower tractor. (See Lower Tractor Timing.)
10. Power on the printer.
11. Perform the Registration Check.
    - For single beam printheads, see “Registration” on page 2721.
    - For two beam 240 printheads, see “Registration” on page 2821.
    - For two beam 240/300 printheads, see “Registration” on page 2932.
12. Adjust the registration in the process direction to what it was before the tractors were removed. See step 1.

Verify

1. Run Print Pack to verify print quality.

Tractor Pin Feed Belts

Table 914. Tractor Pin Feed Belts



Removal

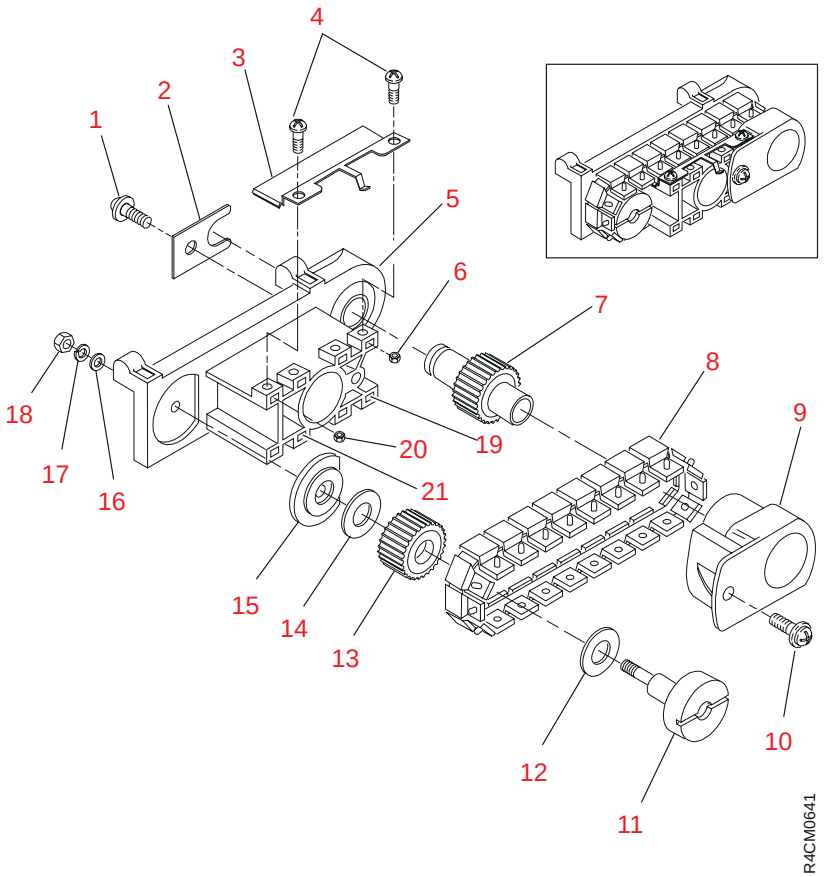
1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the appropriate tractor
   - Lower Front Tractor
   - Lower Rear Tractor
   - Upper Front Tractor
   - Upper Rear Tractor

Attention: When the screws are removed from the tractor guide plates, small nuts remain loosely held inside the tractor. Use care not to lose these nuts.

3. Remove the appropriate tractor guide plate
   - Lower Tractor Guide Plates
   - Upper Tractor Guide Plates
4. If you are removing the pin feed belt on the upper rear tractor, remove the Transfer Corona Shield bracket.
5. Remove the grounding brush **(3)**.

(continued on next page)

Table 914. Tractor Pin Feed Belts (continued)

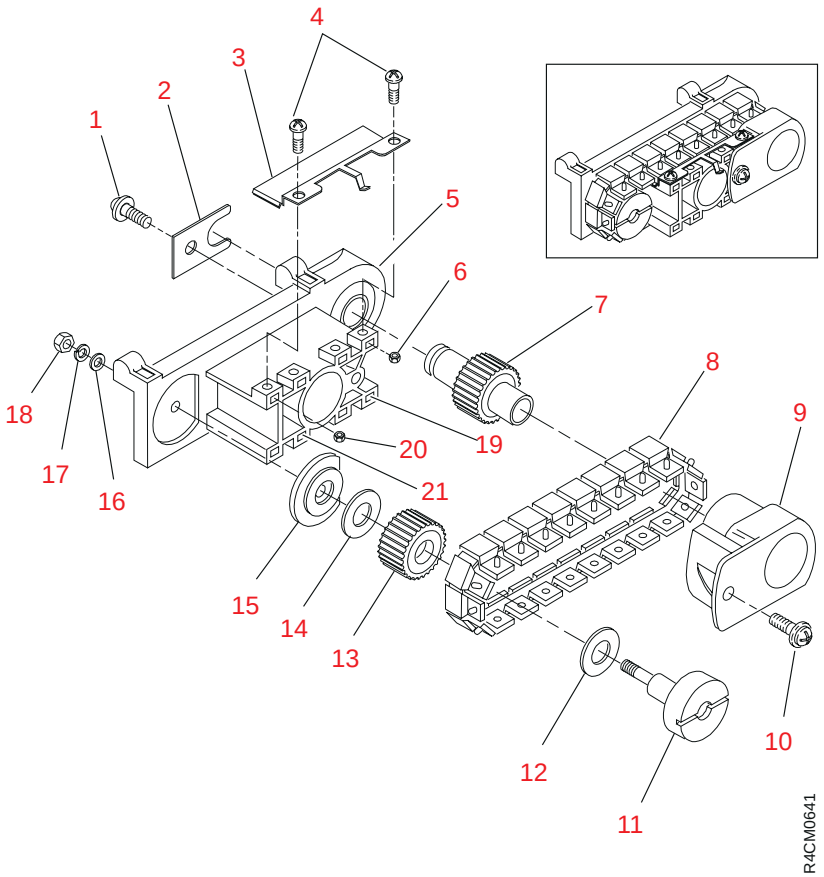


Attention: Use care not to lose the small nuts in the next step.

6. Remove the screw **(10)** and bearing housing **(9)**.
7. Hold the eccentric adjuster **(11)** with a screwdriver and remove the nut **(18)** and washers **(16)** and **(17)**
8. Remove the screw **(1)** and plate **(2)**.
9. Remove the eccentric adjuster **(11)**.
10. Remove the pin feed belt **(8)** and pulleys **(7)** and **(13)** as a unit.
11. Remove the washers **(12)** and **(14)**.

(continued on next page)

Table 914. Tractor Pin Feed Belts (continued)

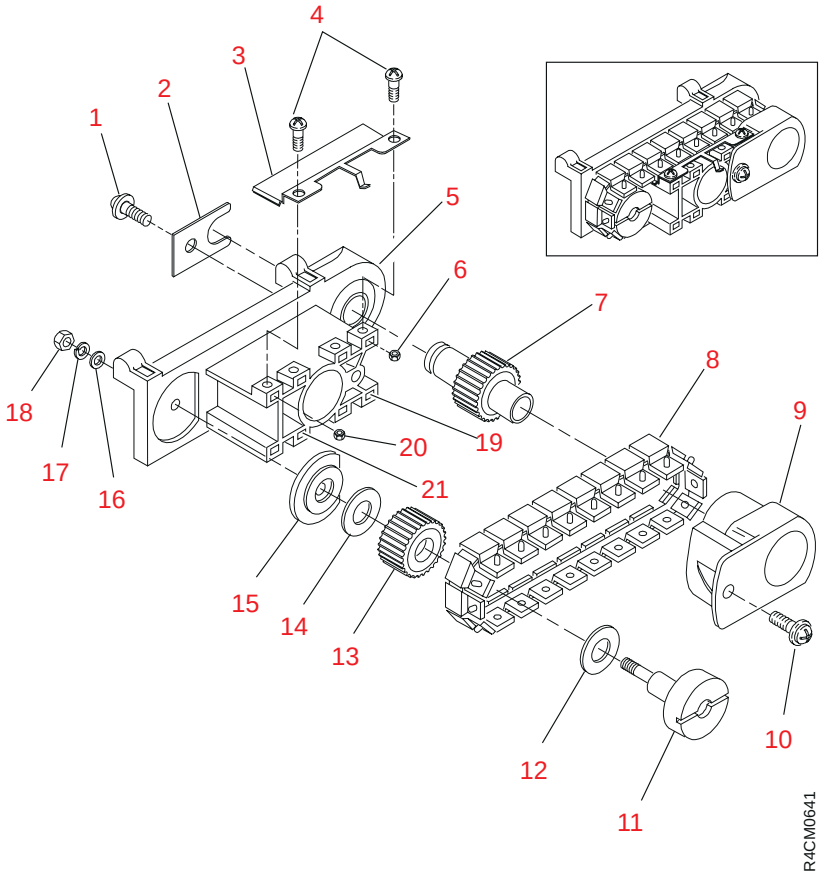


Installation and Adjustment

1. Place washer **(14)** on D-plate **(15)**.
2. Carefully match the tooth profile on the pulley to the pin feed belt **(8)**, and install the pin feed belt on the pulleys **(7)** and **(13)**.
3. Position the washer **(12)** on the pulley **(13)**.
4. Install the eccentric adjuster **(11)**
5. Install the washers **(16)** and **(17)**, and the nut **(18)**, do not tighten the nut yet.
6. Install the plate **(2)** and the screw **(1)**. Push the plate away from the shaft on the pulley **(7)** before tightening the screw.
7. Install the nuts **(6)** and **(19)** (upper rear tractor only) that will be covered by bearing housing **(9)**.
8. Install the bearing housing **(9)** and tighten screw **(10)**.
9. Install the grounding brush **(3)**.

(continued on next page)

Table 914. Tractor Pin Feed Belts (continued)



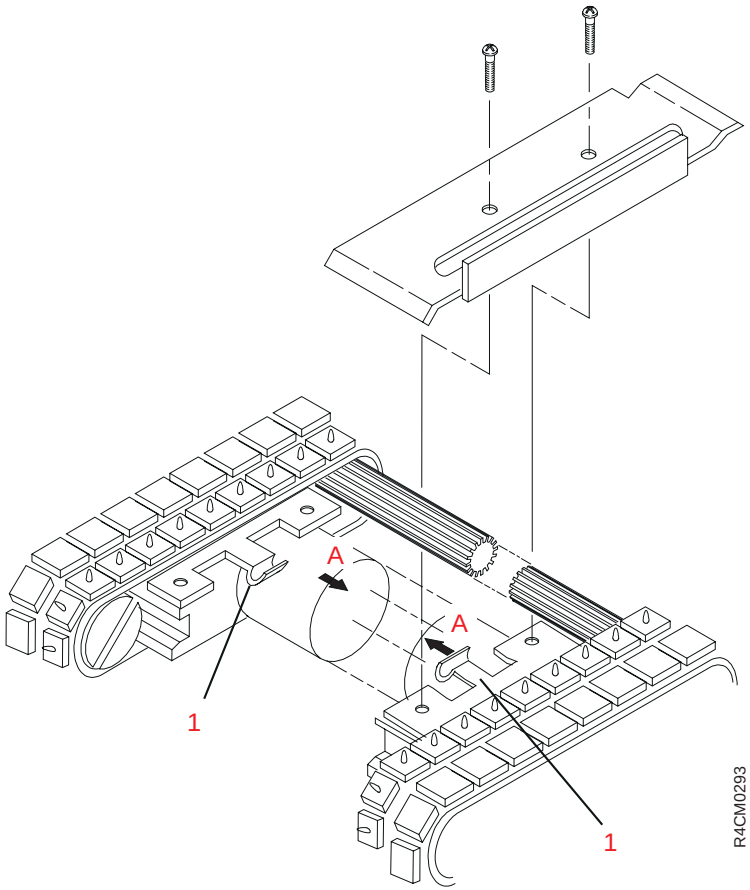
10. Adjust the eccentric adjuster **(11)** so that the center of the pin feed belt **(8)** deflects 2 to 4 mm when pulled away from the underside of the tractor block **(5)**.
11. Hold the eccentric adjuster **(11)** with a screwdriver while tightening the nut **(18)**.
12. **Upper rear tractor only**
    a. Install the nut **(21)**.
    b. Install the transfer corona shield bracket to the block **(5)** with the two screws into the nuts **(19)** and **(21)**.
13. Install the nut **(20)**.
14. Install and adjust the appropriate tractor guide plate.
    - See Lower Tractor Guide Plates.
    - See Upper Tractor Guide Plates.
15. Perform the Tractor Installation and Adjustment procedure.

Verify

Run Print Pack to verify print quality.

Tractor Belt Grounding Brushes

Table 915. Tractor Belt Grounding Brushes



Removal

Attention: When the screws are removed from the tractor guide plates, small nuts remain loosely held inside the tractor. Use care not to lose these nuts.

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the appropriate tractor guide plate:
   - See Lower Tractor Guide Plates.
   - See Upper Tractor Guide Plates.
3. Remove each grounding brush **(1)**.

Installation

1. Reverse the removal procedure.
2. Ensure that the nuts beneath the guide plate are aligned with the holes when you replace the plate.

Adjustment

Perform the appropriate tractor guide plate adjustment:

– Lower Tractor Guide Plates adjustment.

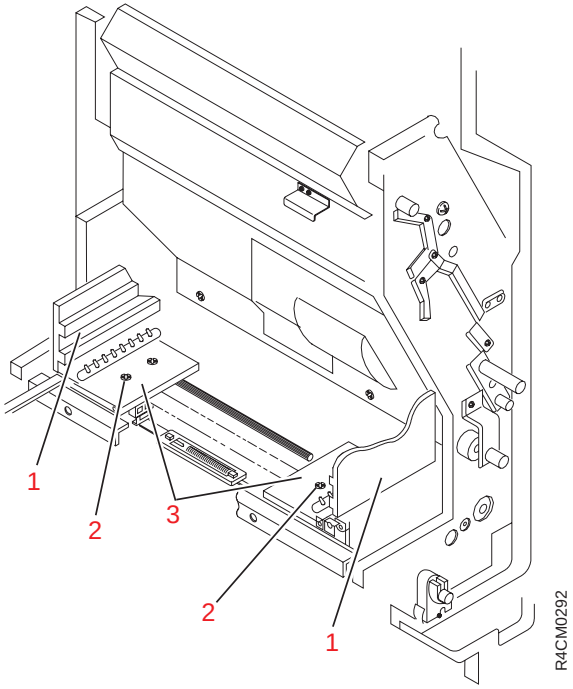
– Upper Tractor Guide Plates adjustment.

Verify

Run Print Pack to verify print quality.

Lower Tractor Guide Plates

Table 916. Tractor Guide Plates, Lower



Removal

Attention: Do not allow the lower tractor jam sensor to contact any metal if you are just moving the tractor guide plate aside. If power is applied, the jam sensor could be shorted, causing fuse F1 on the YS011 card to blow.

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.

Attention: When the screws are removed from the tractor guide plates, small nuts remain loosely held inside the tractor. Use care not to lose these nuts.

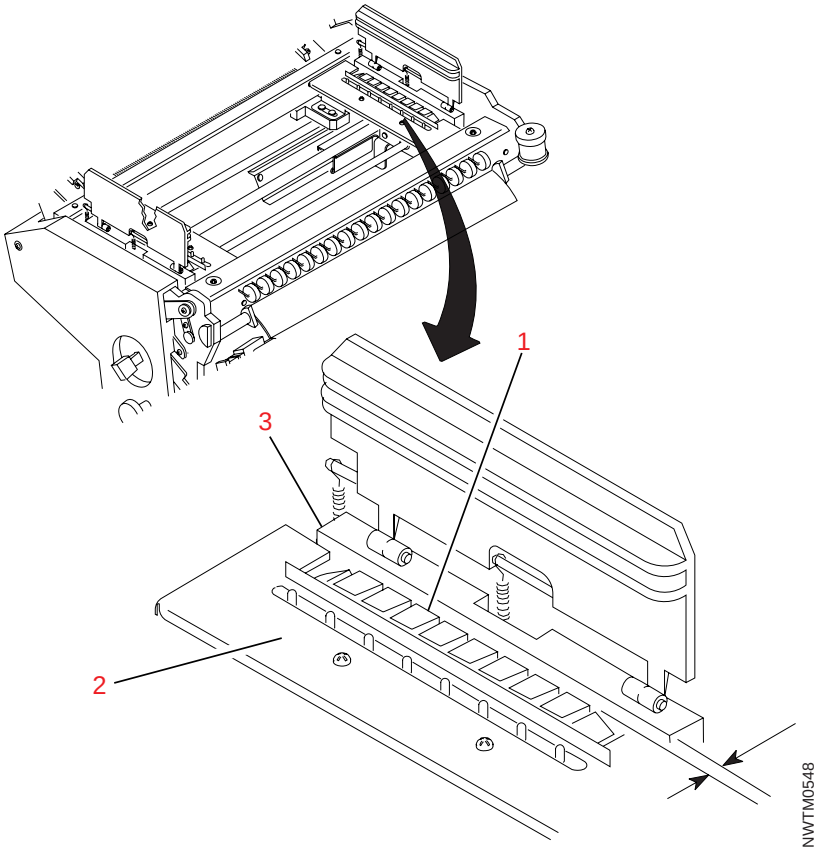
2. Open the lower front and rear tractor covers **(1)** and remove the two screws **(2)**. Remove each tractor guide plate **(3)**.

Installation

1. Reverse the removal procedure.
2. Ensure that the nuts beneath the guide plate are aligned with the holes when you replace the plate.

(continued on next page)

Table 916. Tractor Guide Plates, Lower (continued)



Adjustment

1. Adjust the position of the tractor guide plate **(2)** so that there is a gap of 0.1 ±0.02 mm (0.004 ±0.001 in.) between the tractor pin feed belt **(1)** and the tractor subassembly **(3)**.

Note: When you tighten the screws, the gap will decrease.

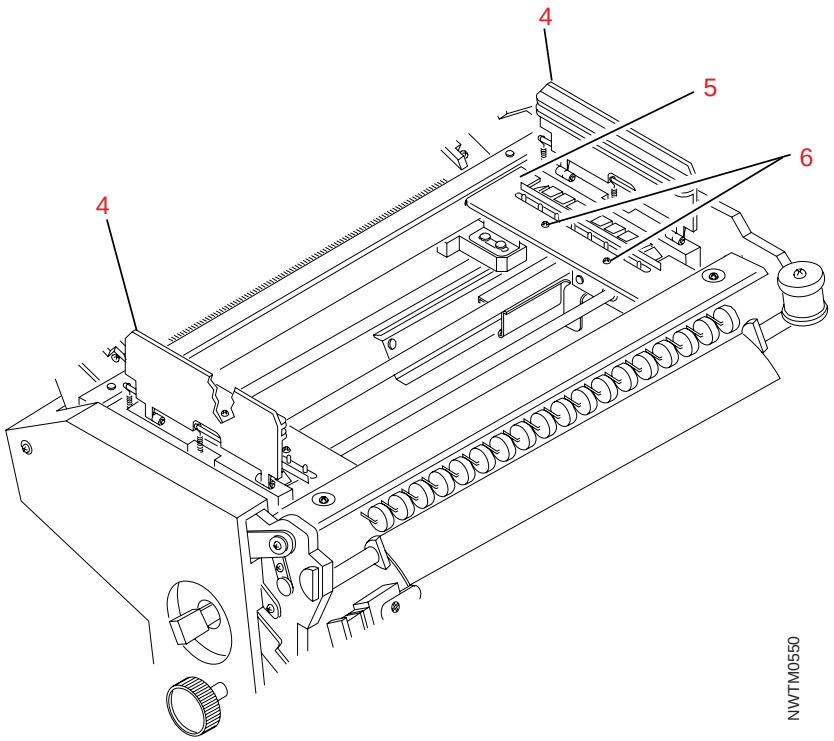
2. After tightening the screws, ensure that the gap is between 0.08 and 0.12 mm (0.003 to 0.005 in.).

Verify

Run Print Pack to verify print quality.

Upper Tractor Guide Plates

Table 917. Upper Tractor Guide Plates



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.

Attention: When the screws are removed from the tractor guide plates, small nuts remain loosely held inside the tractor. Use care not to lose these nuts.

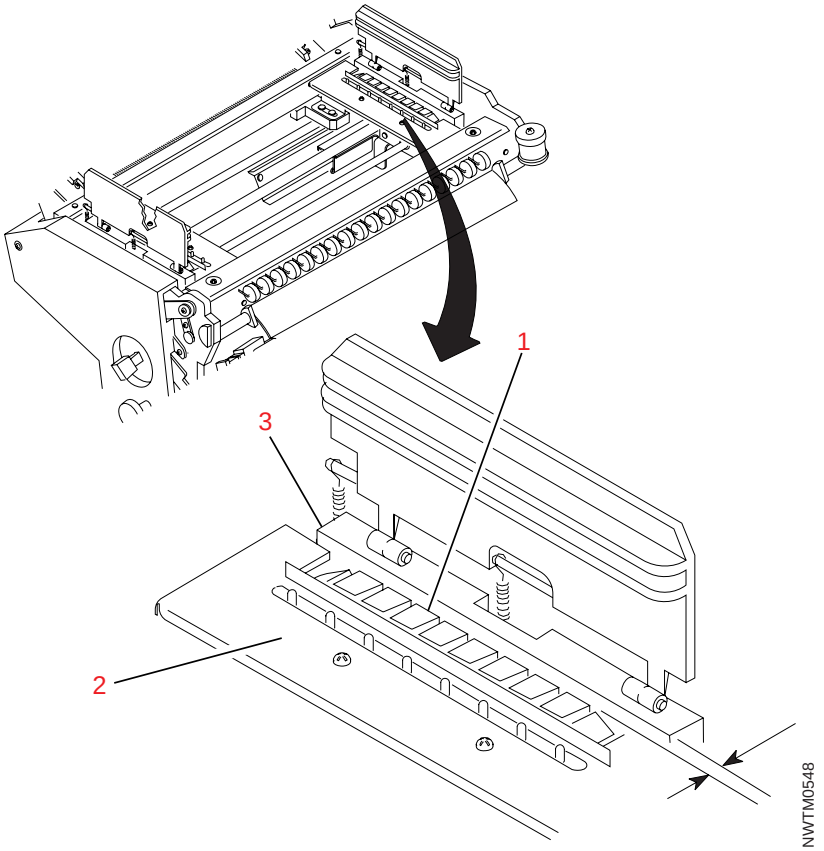
2. Open the upper front and rear tractor covers **(4)** and remove the two screws **(6)**. Remove each tractor guide plate **(5)**.

Installation

1. Reverse the removal procedure.
2. Ensure that the nuts beneath the guide plate are aligned with the holes when you replace the plate.

(continued on next page)

Table 917. Upper Tractor Guide Plates (continued)



Adjustment

1. Adjust the position of the tractor guide plate **(2)** so that there is a gap of 0.1 ±0.02 mm (0.004 ±0.001 in.) between the tractor pin feed belt **(1)** and the tractor subassembly **(3)**.

Note: When you tighten the screws, the gap will decrease.

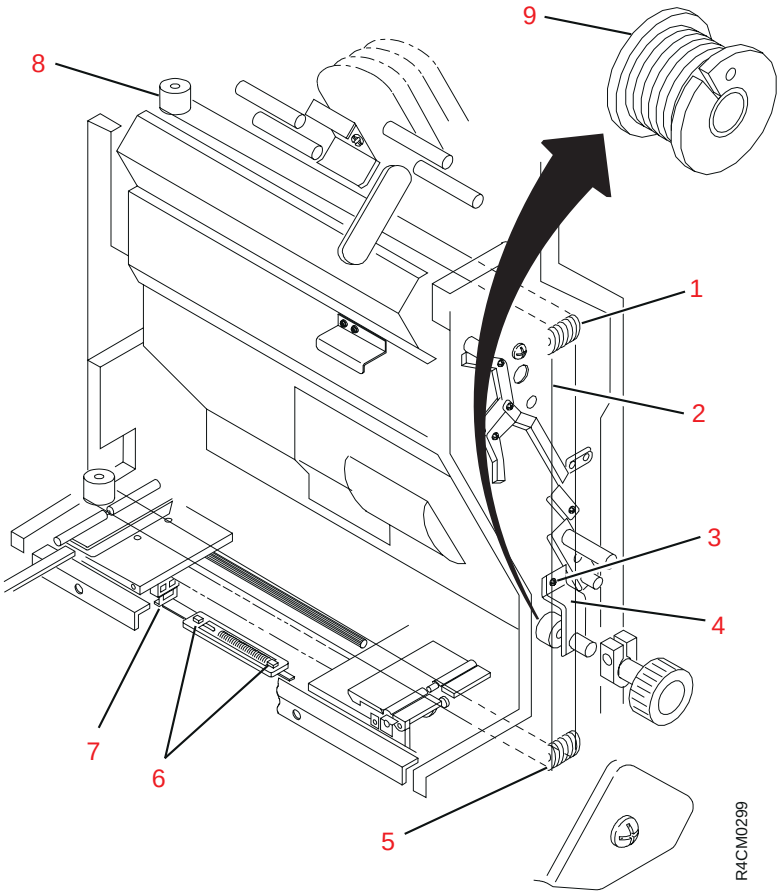
2. After tightening the screws, ensure that the gap is between 0.08 and 0.12 mm (0.003 to 0.005 in.).

Verify

Run Print Pack to verify print quality.

Upper Tractor Positioning Cable A

Table 918. Upper Tractor Positioning Cable A

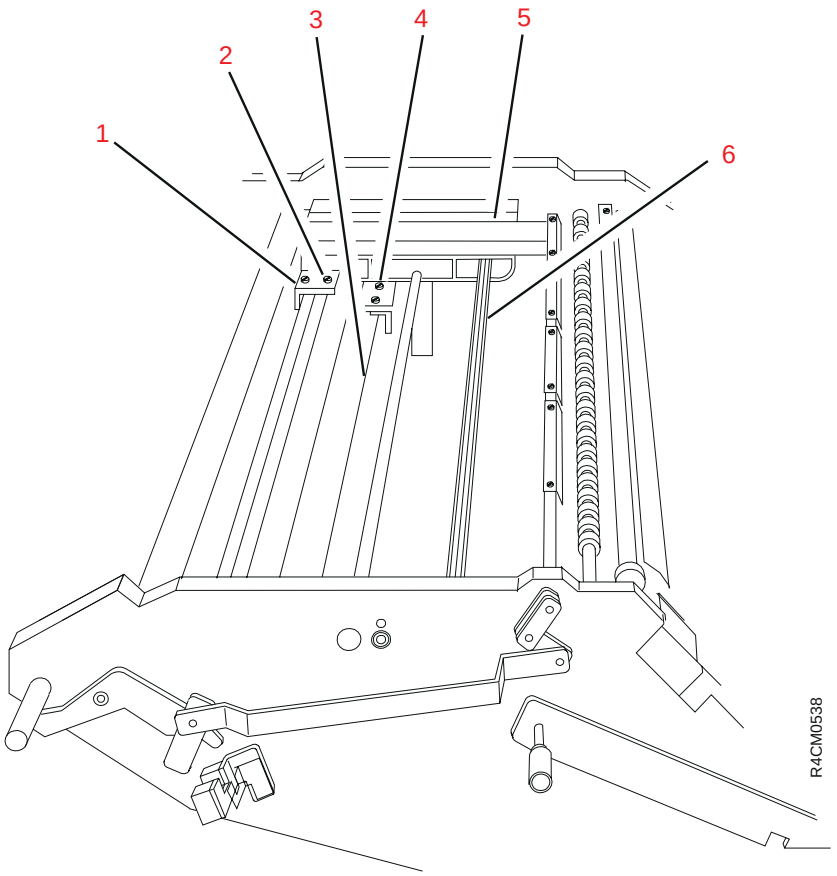


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the screw **(7)** to release the cable bracket from the lower rear tractor. Turn the tractor control knob until the spring is centered between the lower tractors.
3. Remove the transfer station front cover.

(continued on next page)

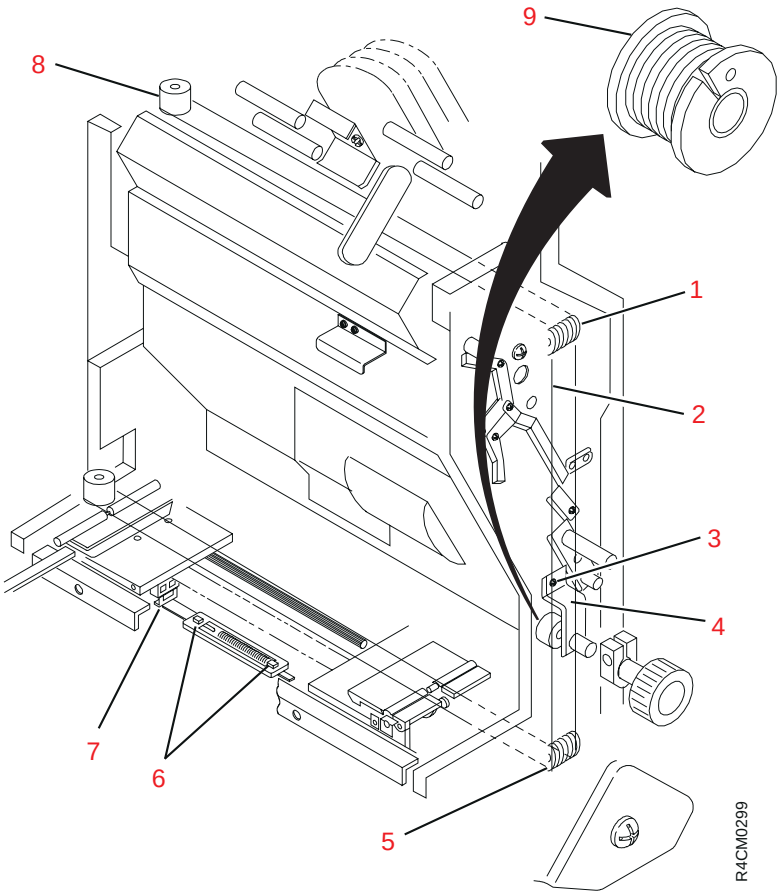
Table 918. Upper Tractor Positioning Cable A (continued)



4. Remove the two screws **(4)** to disconnect the upper rear tractor from the cable.

(continued on next page)

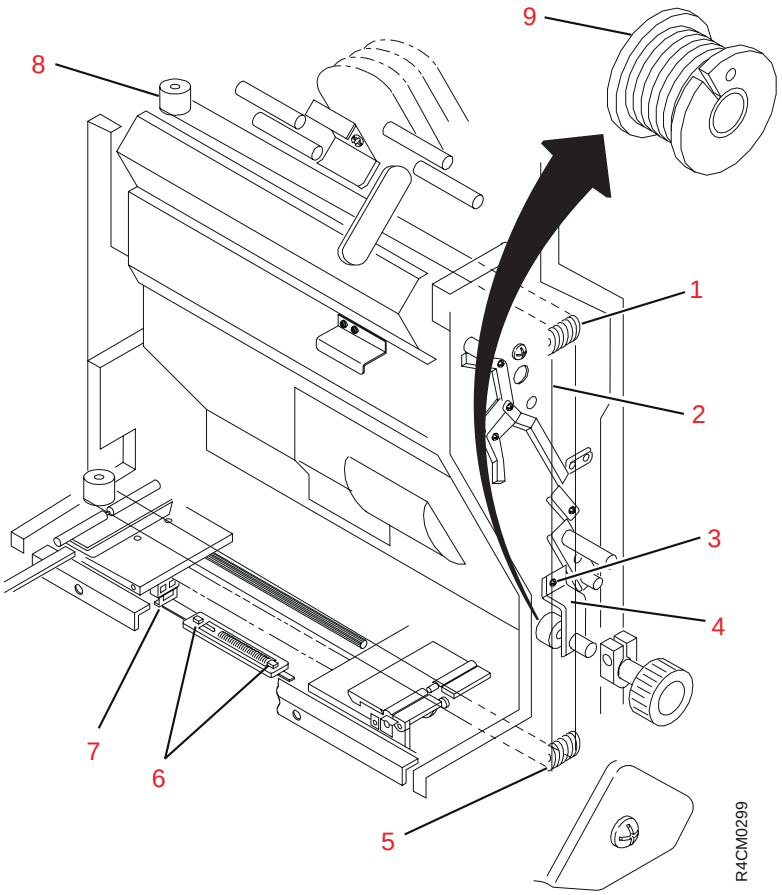
Table 918. Upper Tractor Positioning Cable A (continued)



5. Remove the two screws **(6)**. Remove the tractor positioning cable connecting plate.
6. Pull on the spring to release the cable tension as necessary, and remove the tractor positioning cable **(2)** from the pulley at points **(5)**, **(1)**, and **(8)**.
7. Unhook the spring from the tractor positioning cable.
8. Remove the screw **(3)**. Remove the positioning cable reel assembly **(4)**.
9. Remove the cable from the slot on the rear of the reel.

(continued on next page)

Table 918. Upper Tractor Positioning Cable A (continued)



Installation

1. Thread the cable from above and inside the transfer station through the side plate, over the shaft of pulley **(1)**, and down to the reel **(9)**.
2. Position the end of the cable in the slot on the rear of the reel and wrap the new cable in the direction of the slot.

Note: Each tractor adjustment cable must be wrapped around the reel **(9)** two times when the rear tractor is centered in its travel.

3. Install the reel assembly **(4)**.
4. Thread the cable through the holes in the transfer station side plates without placing the cable on the pulleys **(1)** and **(5)**.
5. Reconnect the spring to the end of the cable.
6. Pull on the spring to release the tension as you place the cable **(2)** on the pulleys **(1)** and **(5)**.
7. Reverse the removal steps, (beginning with step 5), to complete the installation of the tractor positioning cables. Install the screws **(6)** from the bottom.
8. Perform the Upper Tractor Positioning Cable A adjustment.

Adjustment

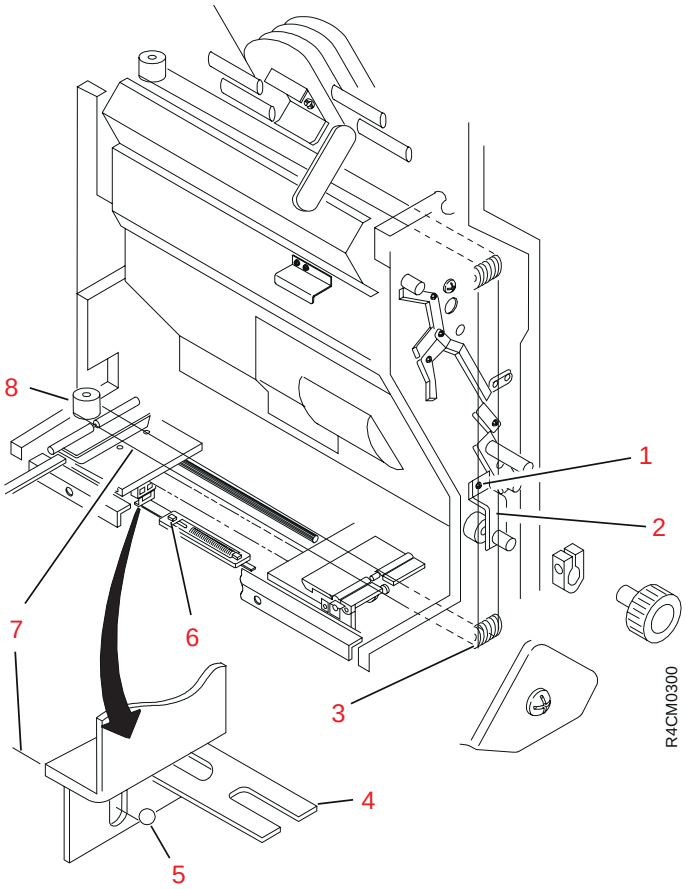
- Perform the Tractor Alignment adjustment.

Verify

- Run Print Pack to verify print quality.

Lower Tractor Positioning Cable B

Table 919. Lower Tractor Positioning Cable B

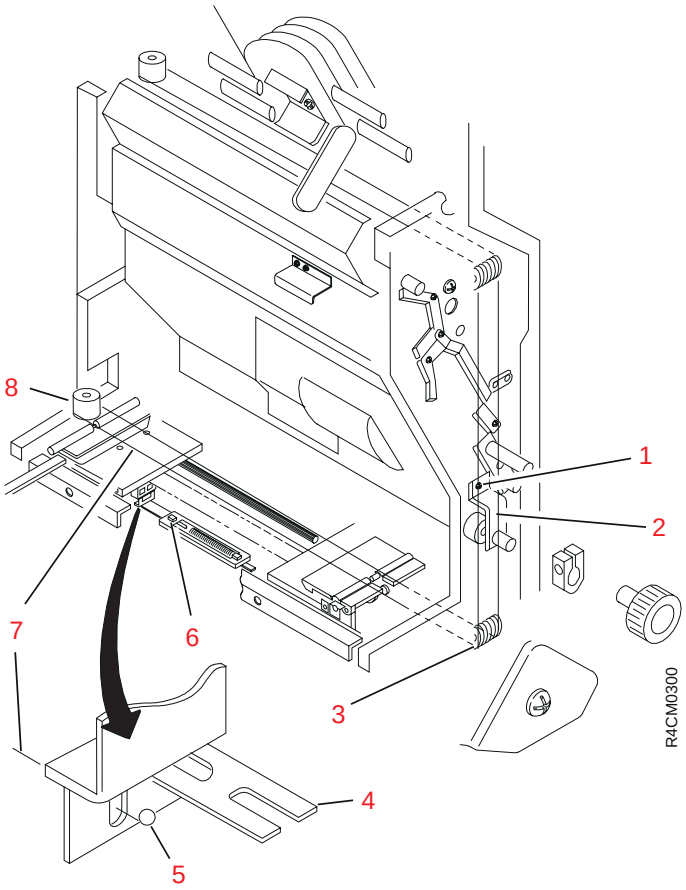


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Turn the tractor control knob until the spring is centered between the lower tractors.
3. Remove the transfer station front cover.
4. Remove the screw **(6)** Remove the tractor positioning cable connecting plate **(4)** from the lower rear tractor and push the tractor to the rear of the printer.
5. Pull on the spring to release the cable tension as necessary, and remove the tractor positioning cable **(7)** from the pulley at points **(8)** and **(3)**.
6. Unhook the ball **(5)** from the notch in the connecting plate.
7. Remove the screw **(1)**, remove the positioning cable reel assembly.
8. Move the reel away from the bracket and remove the cable from the slot in front of the reel.

(continued on next page)

Table 919. Lower Tractor Positioning Cable B (continued)



Installation

1. Position the end of the cable in the slot on the rear of the reel and wrap the new cable in the direction of the slot.

Note: Each tractor adjustment cable must be wrapped around the reel two times on the pulley when the rear tractor is centered in its travel.

2. Install the reel assembly **(2)**.
3. Thread the cable through the holes in the transfer station side plates without placing them on the pulleys.
4. Reconnect the cable to the tractor positioning cable connecting plate **(4)**
5. Pull on the spring to release the tension as you place the cable on the pulleys.
6. Reverse the removal steps, (beginning with step 4) to complete the installation of the tractor positioning cables.
7. Perform the Lower Tractor Positioning Cable adjustment.

Adjustment

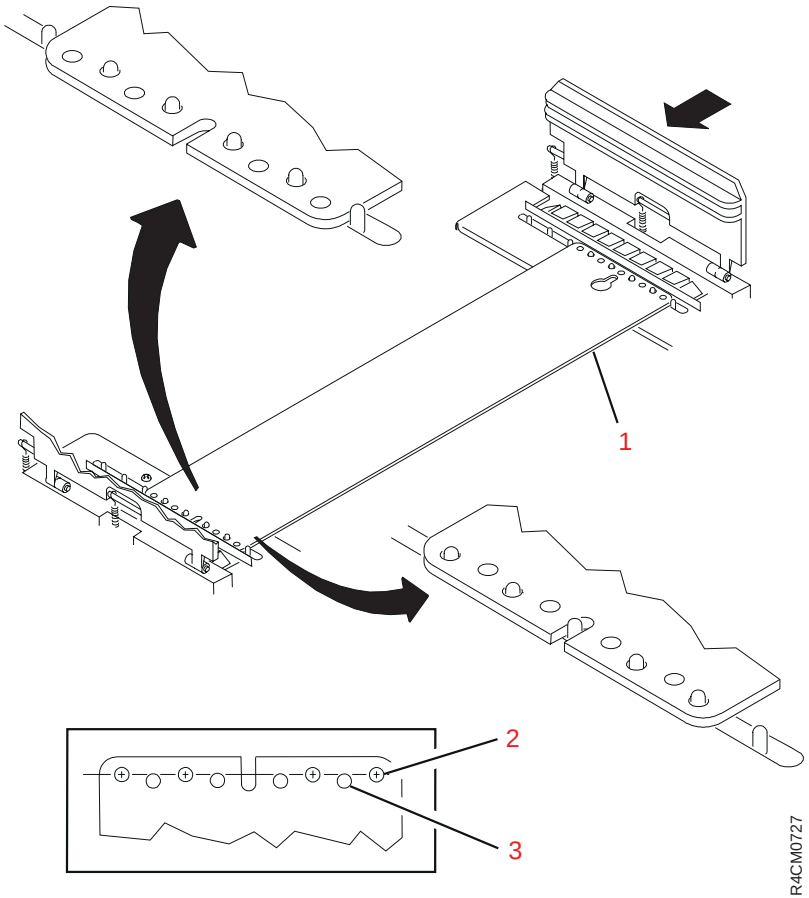
- Perform the Tractor Alignment adjustment.

Verify

Run Print Pack to verify print quality.

Tractor Alignment

Table 920. Tractor Alignment



Special Tool

Tractor alignment gauge.

The tractor alignment gauge is a metal plate used to set the positions of the rear tractors because the distance between the lower tractors is 0.5 mm more than the distance between the upper tractors. This causes greater forms tension between the lower tractors than between the upper tractors.

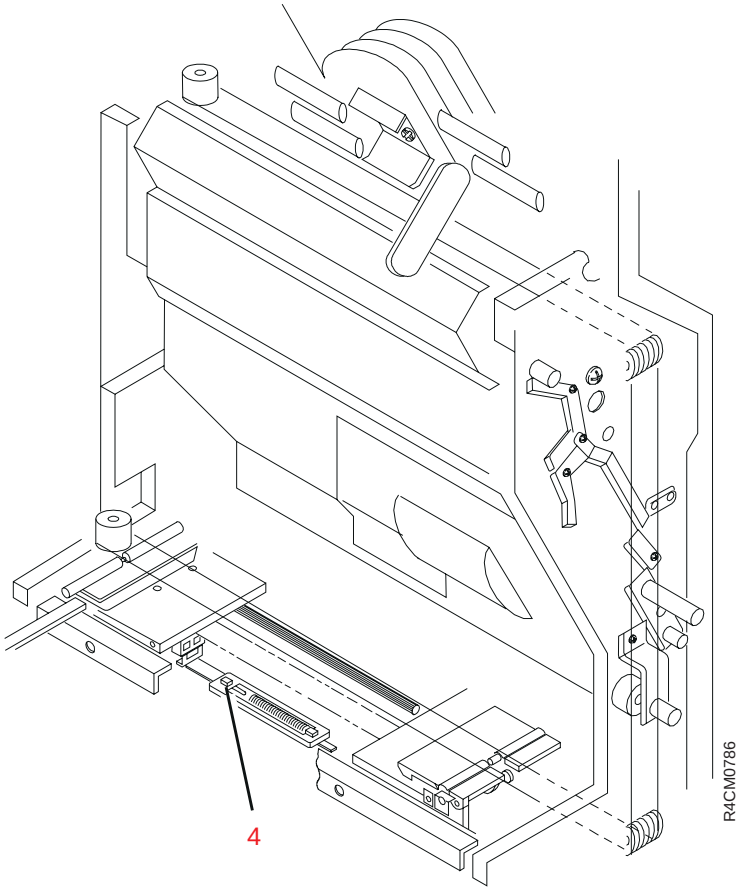
Check

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the forms from the transfer station.
3. Install the alignment gauge **(1)** on the lower tractors using the outermost holes **(2)**.
4. Use the tractor control knob to ensure that the gauge is not binding on the tractor belt pins.
5. Remove the gauge without moving the tractors.
6. Without using the tractor control knob, place the gauge **(1)** on the upper tractors.

   The gauge should fit without binding using the innermost set of holes **(3)**. If not, perform the Tractor Alignment adjustment.

(continued on next page)

Table 920. Tractor Alignment (continued)



Adjustment

1. Loosen the screw **(4)**.

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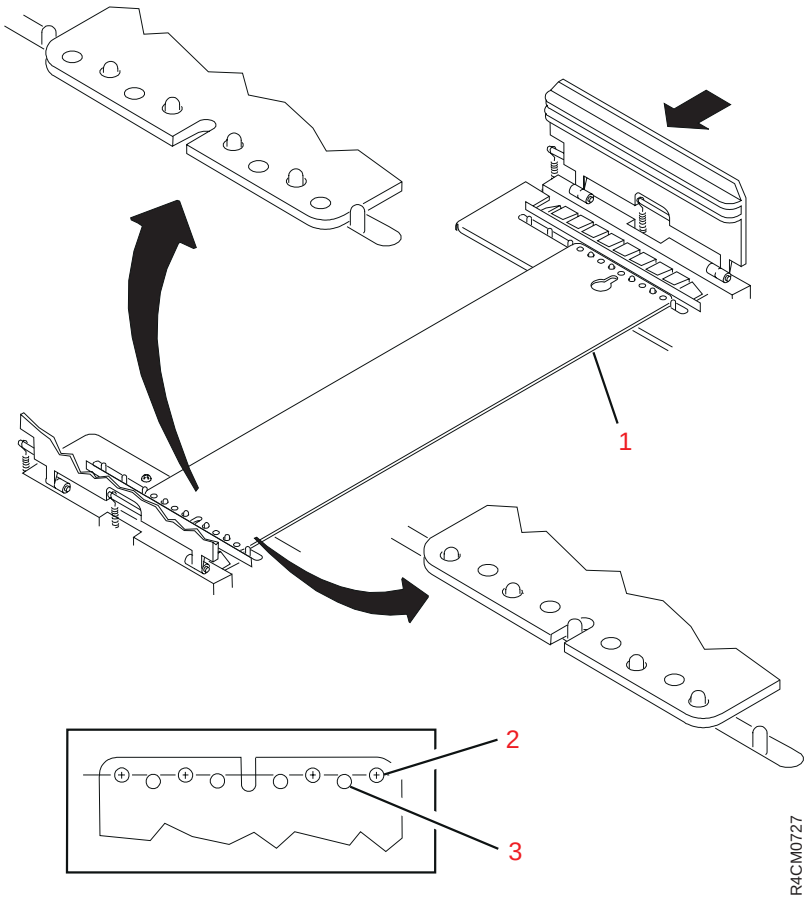
Table 920. Tractor Alignment (continued)



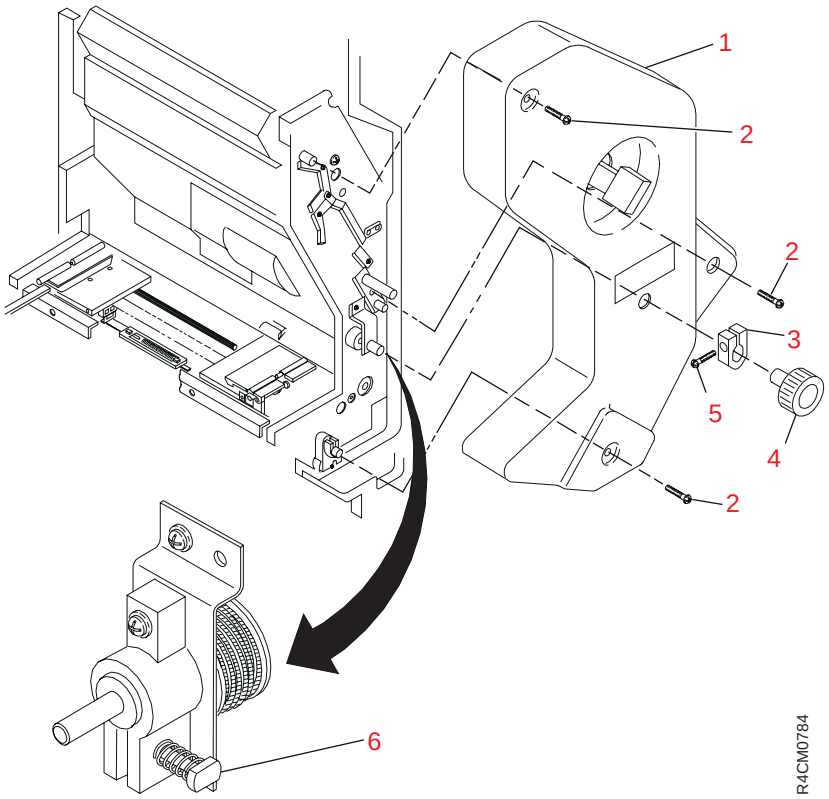
2. Install the tractor alignment gauge on the upper tractors using the innermost holes **(3)**.
3. Use the tractor control knob to ensure that the gauge is not binding on the tractor belt pins.
4. Without using the tractor control knob, place the gauge on the lower tractors.
5. Gently move or tap the lower rear tractor as necessary until the pins fit into the outermost holes **(2)**.
6. Tighten the screw **(4)** that was loosened in step 1.
7. Repeat the **Check** procedure.

Verify

1. Run the auto load procedure to ensure that the forms are loading correctly. See the Operator's Guide.
2. Run Print Pack to verify print quality.

Tractor Control Knob Resistance

Table 921. Tractor Control Knob Resistance



Removal

1. Open the transfer station.
2. Loosen the screw **(5)**. Remove the tractor control knob **(4)** and clamping ring **(3)**.
3. Remove the three screws **(2)**. Remove the transfer station front cover **(1)**.

Adjustment

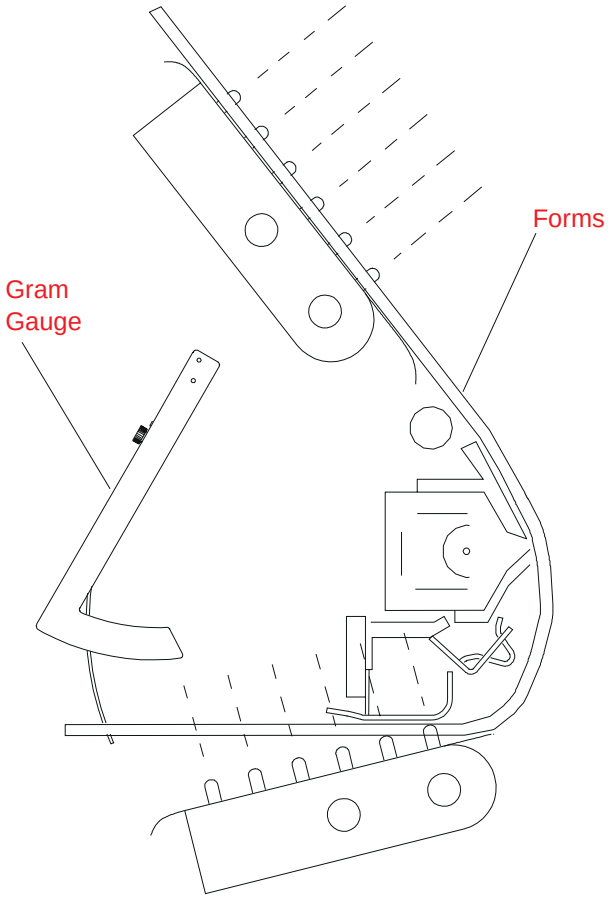
1. Locate the knob **(6)** below and to the right of the tractor control knob shaft.
2. Turn the knob clockwise to increase the resistance, or counterclockwise to decrease the resistance.

Installation

Reverse the removal procedure.

Lower Tractor Timing

Table 922. Lower Tractor Timing



Special Tool

- Gram gauge with 10X blade (PN 450459).
- Forms tension gauge (PN 88F1613)

Tractor Timing Relationship: Whenever the **upper** tractor timing is changed, the lower tractor timing **must** be adjusted.

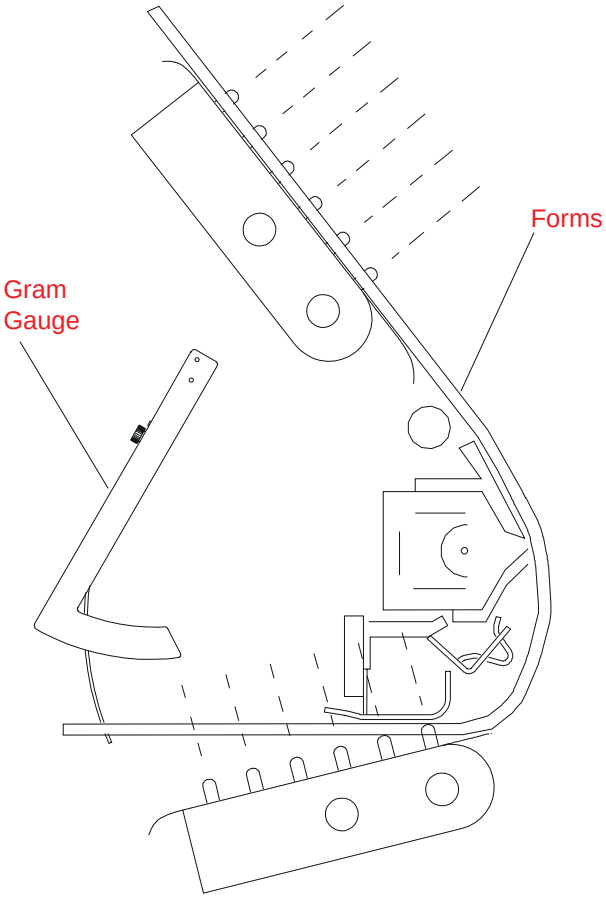
Check

1. Ensure that the following adjustments are correct:
   - Retractor Detent Position adjustment.
   - Retractor to PC Drum Gap.
   - Path Modifier adjustment.
   - Upper Tractor Timing adjustment.
2. Open the printer left front and the center front covers.
3. Remove the forms.

Attention: Keep the transfer station open to avoid scratching the PC drum.

(continued on next page)

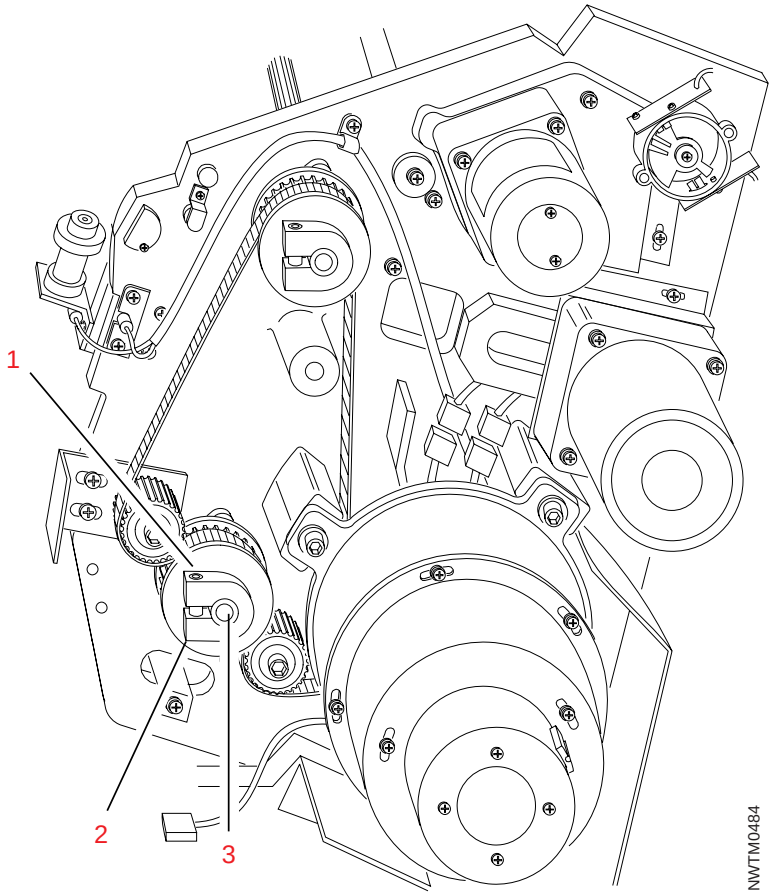
Table 922. Lower Tractor Timing (continued)



4. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
5. Thread the forms tension gauge on the front tractors as shown in the following figure.
6. Close the upper front tractor cover.
7. Lift the forms tension gauge off the lower tractor pins.
8. Insert the gram gauge into the last hole in the forms tension gauge.
9. Ensure that the tension is 350 ±100 g when the holes in the forms tension gauge are centered over the tractor pins.
10. Repeat the Check with the rear tractors.

(continued on next page)

Table 922. Lower Tractor Timing (continued)

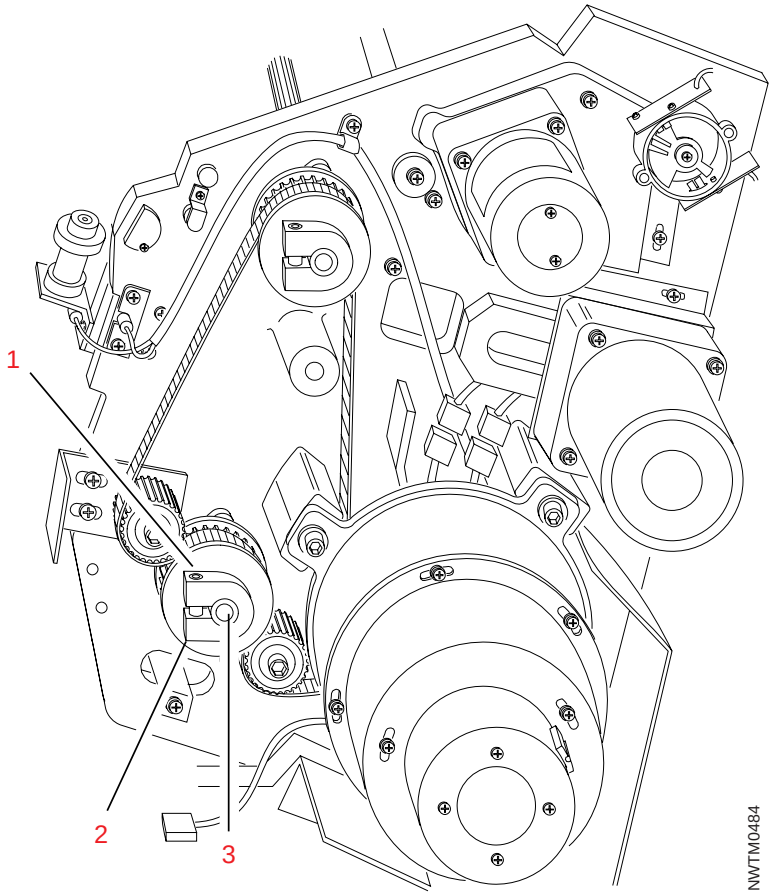


Adjustment

1. Remove the transfer station center rear cover.
2. Remove the tension arm encoder cover carefully to avoid damaging the encoder board cables. See step 8 inTension Arm Encoders.
3. Remove the tractor motor drive belt cover. See step 8 in Lower Front Tractor.
4. Run Driver Routine 11. Press **Enter** on the maintenance panel when the tractors are fully extended.
5. Loosen the screw **(1)** on the clamping ring **(2)**.
6. Thread the forms tension gauge on the front tractors as shown in the figure on page3146.
7. Close the upper front tractor cover.
8. Lift the forms tension gauge off the lower tractor pins.
9. Insert the gram gauge into the last hole in the forms tension gauge.

(continued on next page)

Table 922. Lower Tractor Timing (continued)



10. Turn the lower drive shaft **(3)** by hand until the lower tractor pins are centered in the holes of the forms tension gauge when a force of 500 ±50 g is applied.

Note: Tension will decrease when the clamping ring **(2)** is tightened, if it is installed as shown. Therefore, initially apply a tension of 500 g so that the final tension will be 350 g.

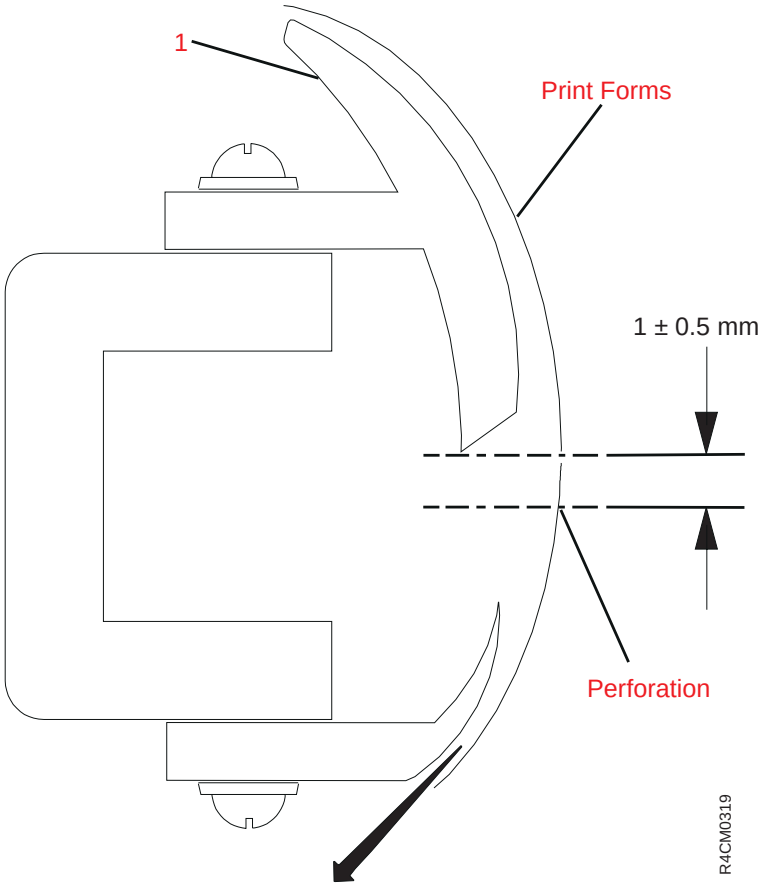
11. Carefully lift the forms tension gauge off the lower tractor pins.
12. Position the clamping ring **(2)** as shown.
13. Tighten the screw **(1)** on the clamping ring **(2)**.
14. Recheck the tension to ensure that the final tension is 350 ±100 g.
15. Check the tension at the rear tractors. If it is not 350 ±100 g, it will be necessary to move the path modifier slightly.
    a. First ensure that the Path Modifier Position is correct, with the path modifier gauge.
    b. When the tension between the front tractors is 350 ±100 g, move the path modifier slightly to set the tension between the rear tractors to 350 ±100 g.
    c. Run the auto load procedure to ensure that the forms are loading correctly. See the Operator's Guide.

Verify

Run Print Pack to verify print quality.

Upper Tractor Timing

Table 923. Upper Tractor Timing



Tractor Timing Relationship: Whenever the **upper** tractor timing is changed, the lower tractor timing **must** be adjusted.

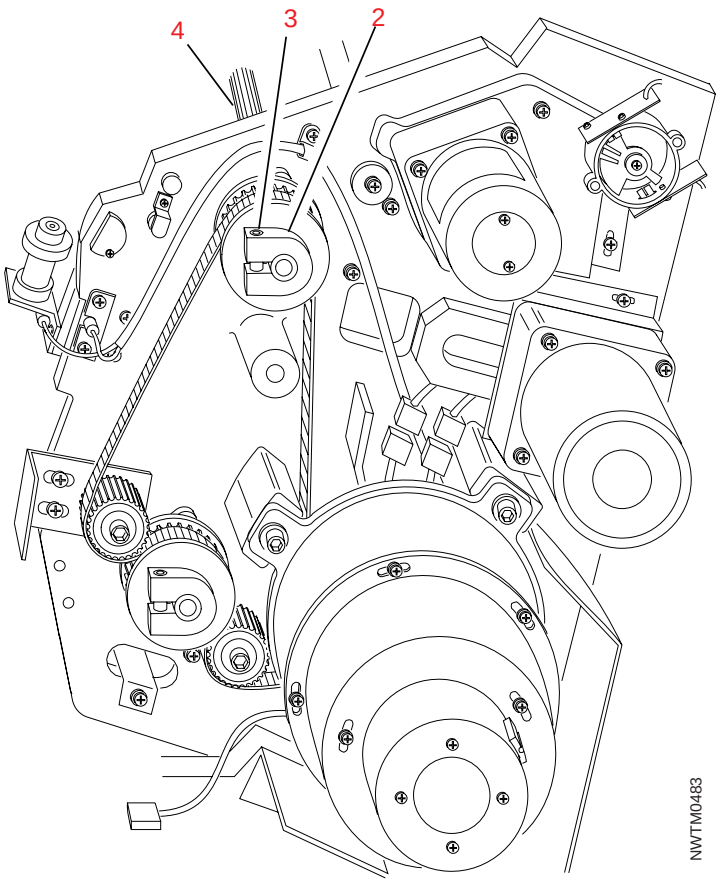
Check

1. Ensure that the forms are installed in the upper tractors.
2. Press the **Forms Feed** keys on the printer control panel to position the perforation as close as possible to the lower edge of the upper retractor.
3. Ensure that the forms perforation can be made to stop 1 ±0.5 mm below the metal edge of the upper retractor **(1)**.

Note: The tractor motor always stops at a detent position. This is easier to see when the reverse Forms Feed key is pressed. Each detent moves the form 4 mm ($^{1}/_{6}$ in.).

(continued on next page)

Table 923. Upper Tractor Timing (continued)

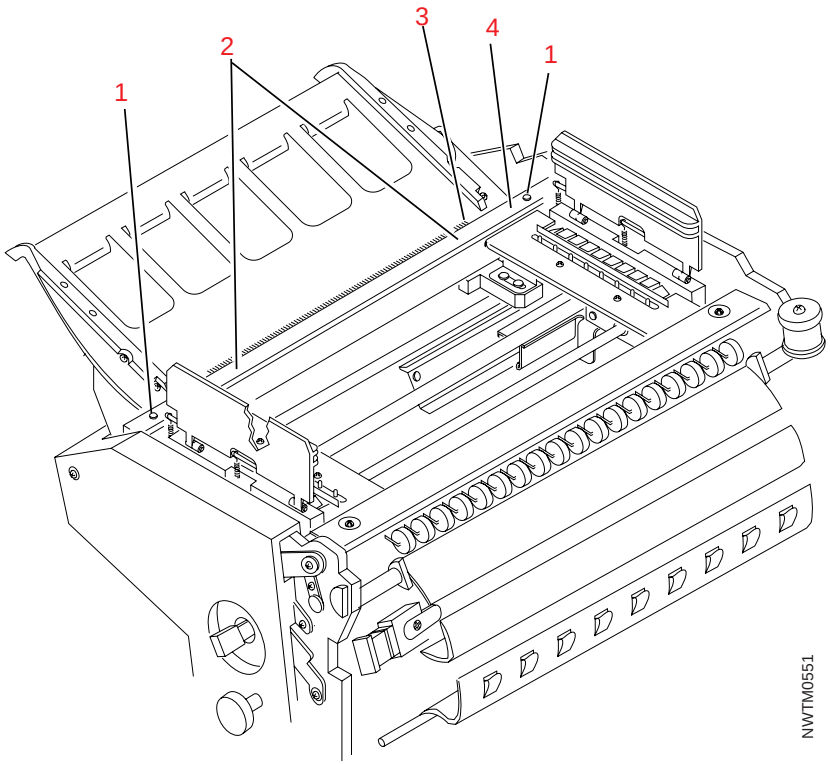


Adjustment

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Open the printer left front and center front covers.
3. Remove the transfer station center rear cover.
4. Remove the tension arm encoder cover. See step 8 in Tension Arm Encoders.
5. Remove the tractor motor drive belt cover. See steps 8 and 9 in Lower Front Tractor.
6. Loosen the screw **(3)** on the clamping ring **(2)**.
7. Remove the forms from the lower tractors.
8. While pulling down on the forms to take out any slack, turn the upper drive shaft **(4)** by hand to position the forms perforation.
9. Tighten the screw **(3)** on the clamping ring **(2)**.
10. Perform the Lower Tractor Timing check and adjust if necessary:
11. Perform the Registration Check and adjust if necessary.
    - For single beam printheads, see “Registration” on page 2721.
    - For two beam 240 printheads, see “Registration” on page 2821.
    - For two beam 240/300 printheads, see “Registration” on page 2932.

Upper Tractor Jam Sensor (Q301)

Table 924. Upper Tractor Jam Sensor (Q301)

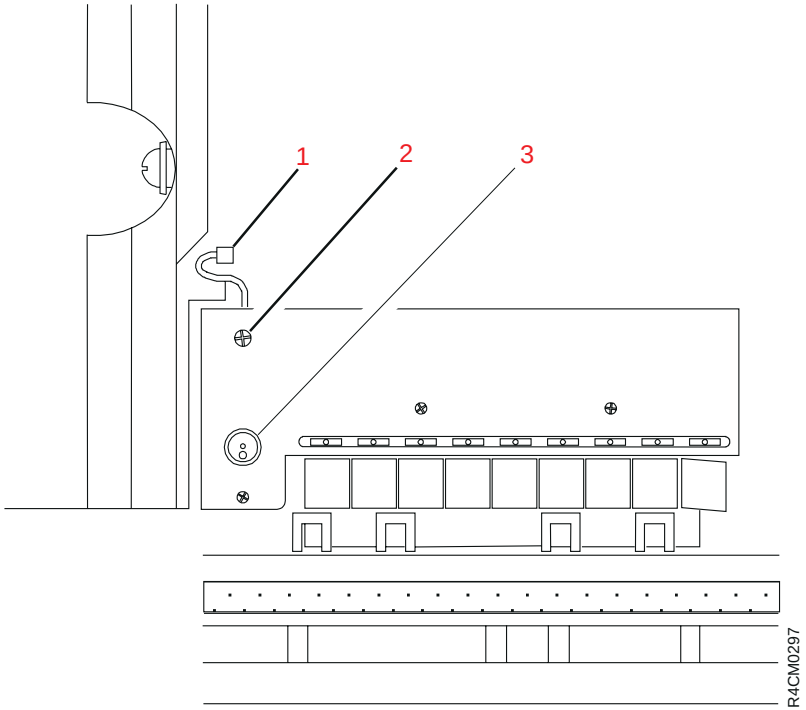


Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the forms from the transfer station.
3. Press down on the tension arm to gain access to and loosen the two screws **(2)**. Lift up and remove the transfer station discharge brush plate **(4)**.
4. Open the transfer station.

(continued on next page)

Table 924. Upper Tractor Jam Sensor (Q301) (continued)



5. Disconnect connector PJ301 **(1)** from the forms width sensor board.
6. Open the upper front tractor cover.

Note: Put a piece of tape on the end of the sensor with the largest screw to prevent losing the nut mounted on the bottom of the sensor.

7. Remove the two screws **(2)** remove the jam sensor **(3)**.

Installation

Reverse the removal procedure.

Adjustment

1. Adjust the Transfer Station Discharge Brush so that it is level with the tractor guide plates.
2. Check and adjust the Q301 voltage as follows:
   a. Cover the jam sensor with white paper.
   b. Measure the voltage at PJ301–4.
   c. Adjust the voltage at PJ301–4 to 1.7 to 2.2 V dc using the potentiometer on the PW091 card.

Check

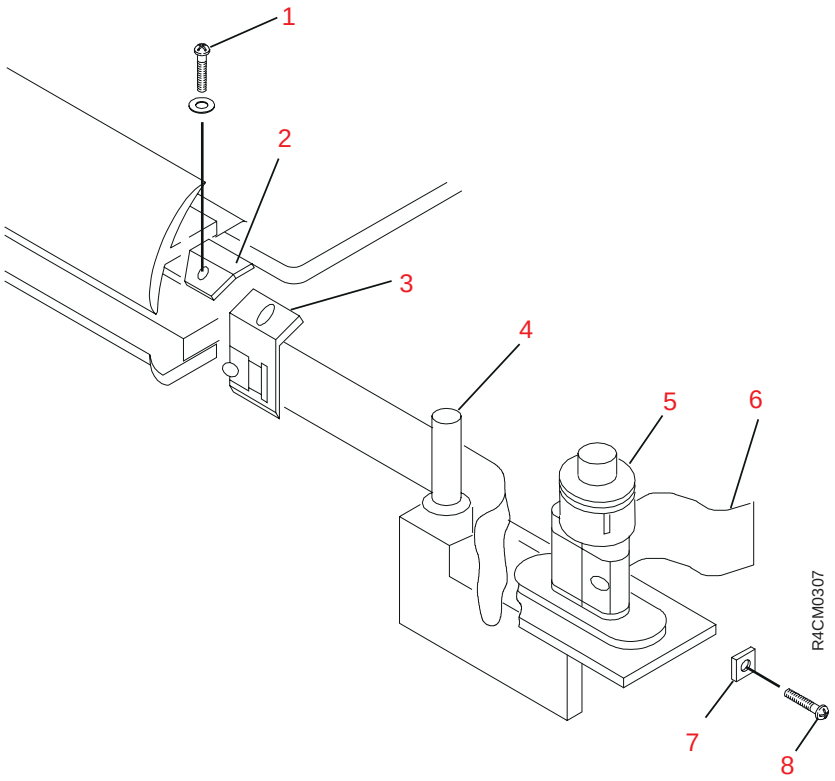
Run Sensor Routine 62 to ensure that the upper tractor jam sensor (Q301) works correctly.

Verify

Run Print Pack to verify print quality.

Transfer Corona Shield

Table 925. Transfer Corona Shield



Removal

1. Request the system operator to stop activity on the printer. Disable all host attachments.
2. Remove the forms.
3. Shutdown and power off the printer.
4. Open the transfer station.
5. Move the upper rear tractor as far as possible to the rear of the printer.
6. Remove the transfer corona.
7. Remove the screw **(1)**, flat washer, and the tape holder **(3)** from the bracket **(2)**.
8. Slide the tape holder **(3)** out from under the tape guide post **(4)**.
9. Unwind the tape **(6)** from the reel **(5)**.
10. Remove the screw **(8)** and the plate **(7)** to free the end of the tape **(6)** from the reel **(5)**.

Installation

1. Wind the reel **(5)** 8 revolutions in a clockwise direction. While holding the reel, fasten the tape **(6)** to the reel.
2. Reverse the removal procedure to install the transfer corona shield tape.

(continued on next page)

Table 925. Transfer Corona Shield (continued)

Adjustment

1. Remove the capstan pinch roll cover. See step 3 under Capstan Pinch Roll.
2. Remove the upper rear tractor guide plate. See Upper Tractor Guide Plates.
3. **Power-on the printer.**
4. With the retractors detented in the retracted position, loosen the two screws on the rear tractor bracket and adjust the tape bracket so that the conditions in steps 1 and 2 under **Check** are met.

Check

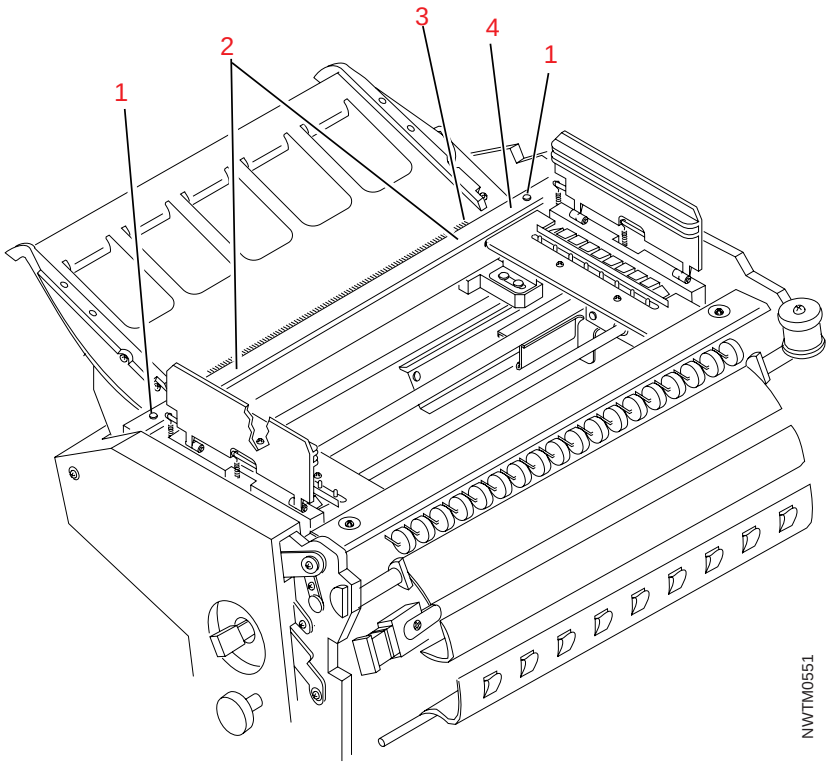
1. Ensure that the tape holder does not touch the inside of the retractor.
2. Ensure that the shield tape does not touch the transfer corona when the tractor is moved, while adjusting for the forms width.
3. Ensure that the transfer corona shield tape does not sag when the rear tractor is adjusted for the forms width.

Verify

Run Print Pack to verify print quality.

Transfer Station Discharge Brush

Table 926. Transfer Station Discharge Brush



Special Tool

IBM vacuum cleaner (PN 9900735)

Removal

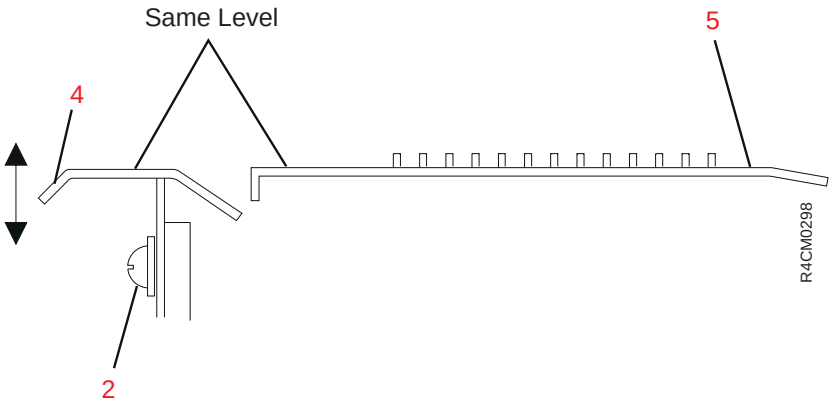
1. Request the system operator to stop activity on the printer. Disable all host attachments. Shutdown and power off the printer.
2. Remove the forms from the transfer station.
3. Press down on the tension arm to gain access to and loosen the two screws **(2)**. Lift up and remove the transfer station discharge brush plate **(4)**.
4. Remove the two screws **(1)**, lock washers, and nuts from the transfer station discharge brush plate, remove the discharge brush **(3)**.
5. Vacuum any paper dust from the area.

Installation

1. In the following procedure, ensure that the discharge brush is installed with the countersunk holes facing upward and that any bend in the brush is straightened before installation.
2. Reverse the removal procedure.

(continued on next page)

Table 926. Transfer Station Discharge Brush (continued)



Adjustment

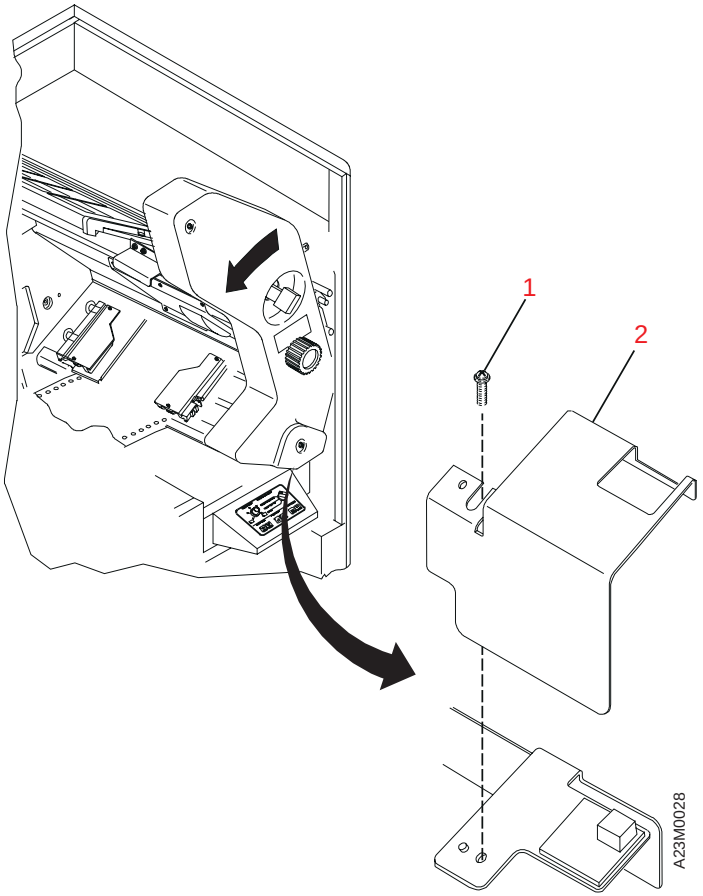
1. Loosen the two screws **(2)**.
2. Adjust the transfer station discharge brush plate **(4)** so it is level with the upper front and upper rear tractor forms guide plates **(5)**.
3. Tighten the two screws **(2)**.

Verify

Run Print Pack to verify print quality.

Transfer Station Open Sensor (S302)

Table 927. Transfer Station Open Sensor (S302)



Special Tools

Drum shaft extension (PN 06F1025)
Drum bag or empty box
Drum clearance gauge (PN 06F1029).
Lint free cloth (PN 2108930)
Molycoat G (PN 0357830)
Gloves, plastic (PN 2200041)

Removal

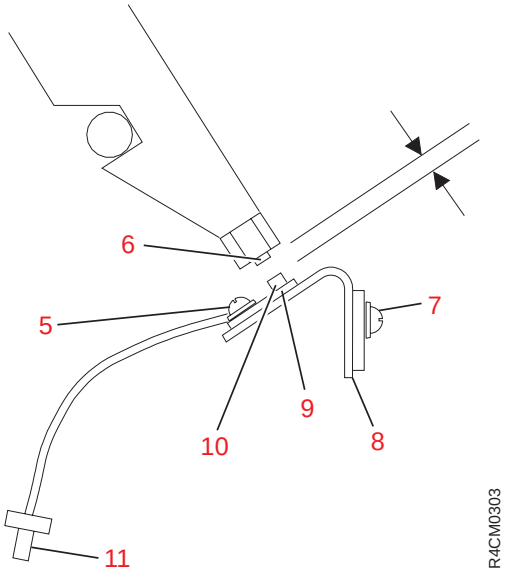
1. Remove the PC drum and store it in a drum bag or in a box.

Attention: Cover the developer to prevent contamination by foreign material. Use care to prevent screws and other small parts from falling into the developer.

2. Loosen the screw **(1)** to remove the sensor shield **(2)**.

(continued on next page)

Table 927. Transfer Station Open Sensor (S302) (continued)



3. Remove the cable from the clamp beneath the sensor.
4. Remove the screw **(5)**. Remove the sensor board **(9)**.
5. Slide the developer out of the printer. Do not remove the developer from the printer.
6. Disconnect connector PJ149 **(11)**. Remove the sensor assembly.

Installation

Reverse the removal procedure; **do not** replace the drum until after performing the sensor adjustment.

Adjustment

1. Loosen the two screws **(7)** to adjust the transfer station open sensor holder **(8)** so that the gap between the sensor **(10)** and the magnet **(6)** is 1.0 ±0.5 mm (0.04 ±0.02 in.).
2. Perform the Developer to PC Drum Gap.
3. Replace the PC drum.

Check

Run Sensor Routine 60 to ensure that the sensor works correctly.

Verify

Run Print Pack to verify print quality.

Transfer Station Adjustment Sequence

The following table lists the recommended sequence for inspecting the transfer station.

Table 928. Transfer Station Adjustment Sequence

Sequence	Adjustment	Reference
1	Retractor detent position	3063
2	Retractor to PC drum gap	3066
3	Transfer corona shield	3154
4	Path modifier position	3052
5	Lower forms guide	3042
6	Tractor guide plates	3132 or 3134
7	Deflector plate to PC drum gap	3040
8	Pre-measure unit	3055
9	Forms width sensor board (PW091) cover to upper rear tractor magnet assembly	3046
10	Tractor alignment	Tractor Alignment
11	Tractor drive belt tension	3111
12	Upper tractor timing	3150
13	Lower tractor timing	3146
14	Transfer station discharge brush	3156
15	Tension arm position	3106
16	Tension arm parallelism	3105
17	Tension arm encoder position	3093
18	Upper forms guide to PC drum gap	3044
19	Capatan roll drive delt tension	3033

Table 928. Transfer Station Adjustment Sequence (continued)

Sequence	Adjustment	Reference
20	Capstan pinch roll	3024

Chapter 6. Parts Catalog

How to Use this Parts Catalog 3165
Mechanism Locators 3166
  Mechanism Locator 1 3167
  Mechanism Locator 2 3169
  Mechanism Locator 3 3171
  Mechanism Locator 4 3173
  Mechanism Locator 5 3175
  Mechanism Locator 6 3177
Assembly 1: Printer Covers 3179
Assembly 2: Service Access Covers 3189
Assembly 3: No Assembly 03 for this Printer 3195
Assembly 4: Process Hardware 3197
Assembly 5: Corona and Erase Lamp Hardware 3207
Assembly 6: Cleaner Hardware 3219
Assembly 7: Developer Hardware 3227
Assembly 8: Developer Hardware 3237
Assembly 9: Developer Hardware 3243
Assembly 10: Developer Hardware 3253
Assembly 11: Photoconductor Drum Hardware 3259
Assembly 12: Printhead 3263
Assembly 13: Air System 3305
Assembly 14: Transfer Station 3315
Assembly 15: Transfer Station 3349
Assembly 16: Input Hardware, Splicing Table 3355
Assembly 17: Urge Unit - Black, Fixed Top 3371
Assembly 18: No Assembly 18 for this Printer 3375
Assembly 19: No Assembly 19 for this Printer 3377
Assembly 20: Fuser Hardware 3379

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Assembly 21: Autoload/Bridge Hardware 3419
Assembly 22: Preheat Platen, Back-up Roll Hardware 3427
Assembly 23: Oiler Hardware 3443
Assembly 24: No Assembly 24 for this Printer 3451
Assembly 25: Stacker 3453
Assembly 26: Pendulum 3461
Assembly 27: Stacker 3465
Assembly 28: Stacker 3475
Assembly 29: Stacker 3481
Assembly 30: Stacker Table 3485
Assembly 31: B1 Boards 3493
Assembly 32: Fuser Control Box 3499
Assembly 33: No Assembly 33 for this Printer 3503
Assembly 34: No Assembly 34 for this Printer 3505
Assembly 35: AC Power Supply 200V 3507
Assembly 36: AC Power Supply 400V 3509
Assembly 37: No Assembly 37 for this Printer 3511
Assembly 38: Preheat Platen Control 3513
Assembly 39: No Assembly 39 for this Printer 3515
Assembly 40: Control Unit Covers 3517
Assembly 41: Control Unit Covers and CRT 3519
Assembly 42: Control Unit Service Access Covers 3523
Assembly 43: Control Unit AC, DC Power Supply Fans 3535
Assembly 44: Control Unit Power Control Asm, Attention Lamp 3537
Assembly 45: No Assembly 45 for this Printer 3541
Assembly 46: No Assembly 46 for this Printer 3543
Assembly 47: No Assembly 47 for this Printer 3545
Assembly 48: No Assembly 48 for this Printer 3547
Assembly 49: Controller 7013 Model 595 3549
Assembly 50: Controller 7025 Model F50 3559
Assembly 51: No Assembly 51 for this Printer 3565

Assembly 52: Control Unit Cables 3567
Assembly 53: Buffer/Flipper 3593
Assembly 54: Kits and Their Quantities 3597
Assembly 55: No Assembly 55 for this Printer 3613
Assembly 56: Installation Kit 3615

How to Use this Parts Catalog

REF This entry in the Units column may or may not denote an assembly that is completely assembled on a preceding page. If the assembly does not appear on the preceding page, then you must order all parts listed under that assembly listing to make up that assembly. Quantities for such items are found in its next higher assembly.

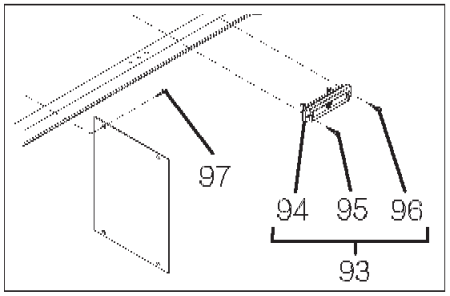
NP Non-Procurable in the Units column indicates that you cannot order this part and that the individual parts or the next higher assembly should be ordered.

NR Not Recommended in the Units column indicates that the part is procurable but not recommended for field replacement, and that you should order the next higher assembly.

AR As Required in the Units column indicates that the units per assembly are not the same for all machines.

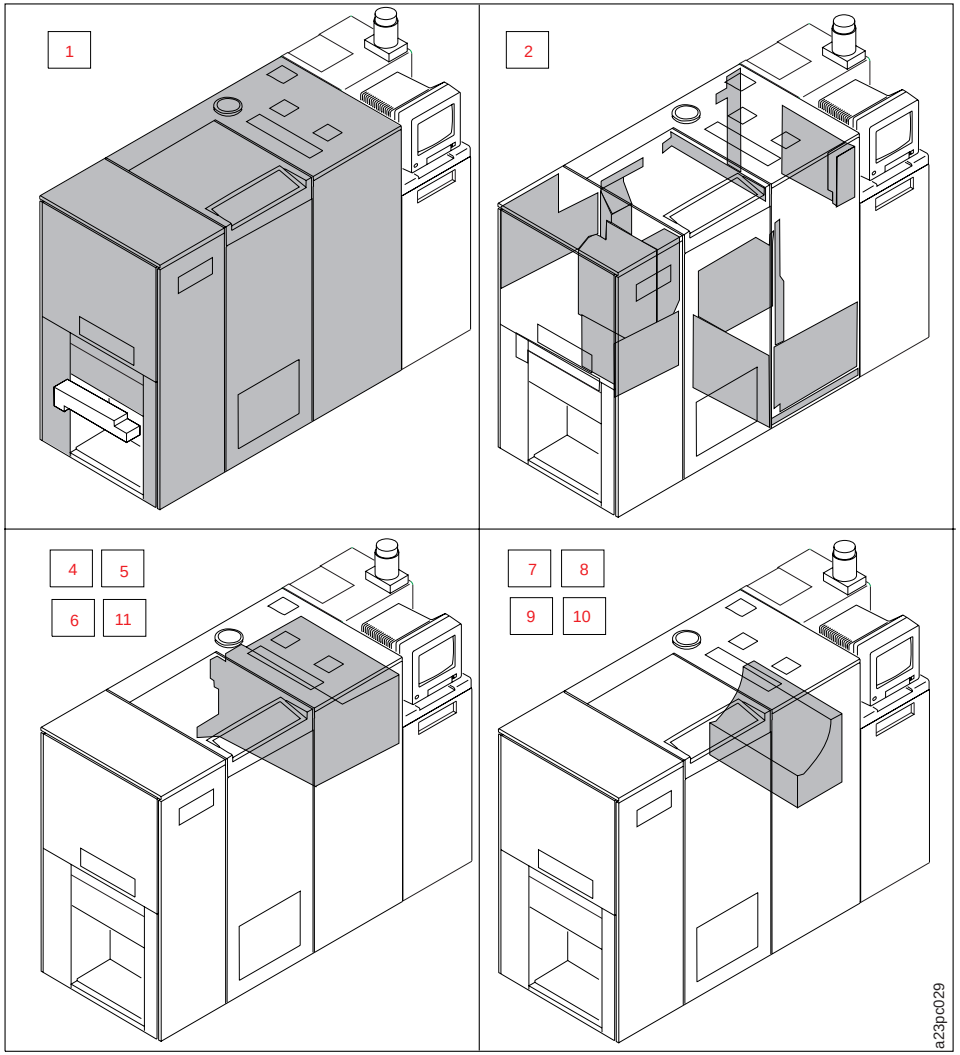
PP This entry in the description column indicates that the parts packet contains one or more of these parts.

Number (93) with bracket indicates assembly number.



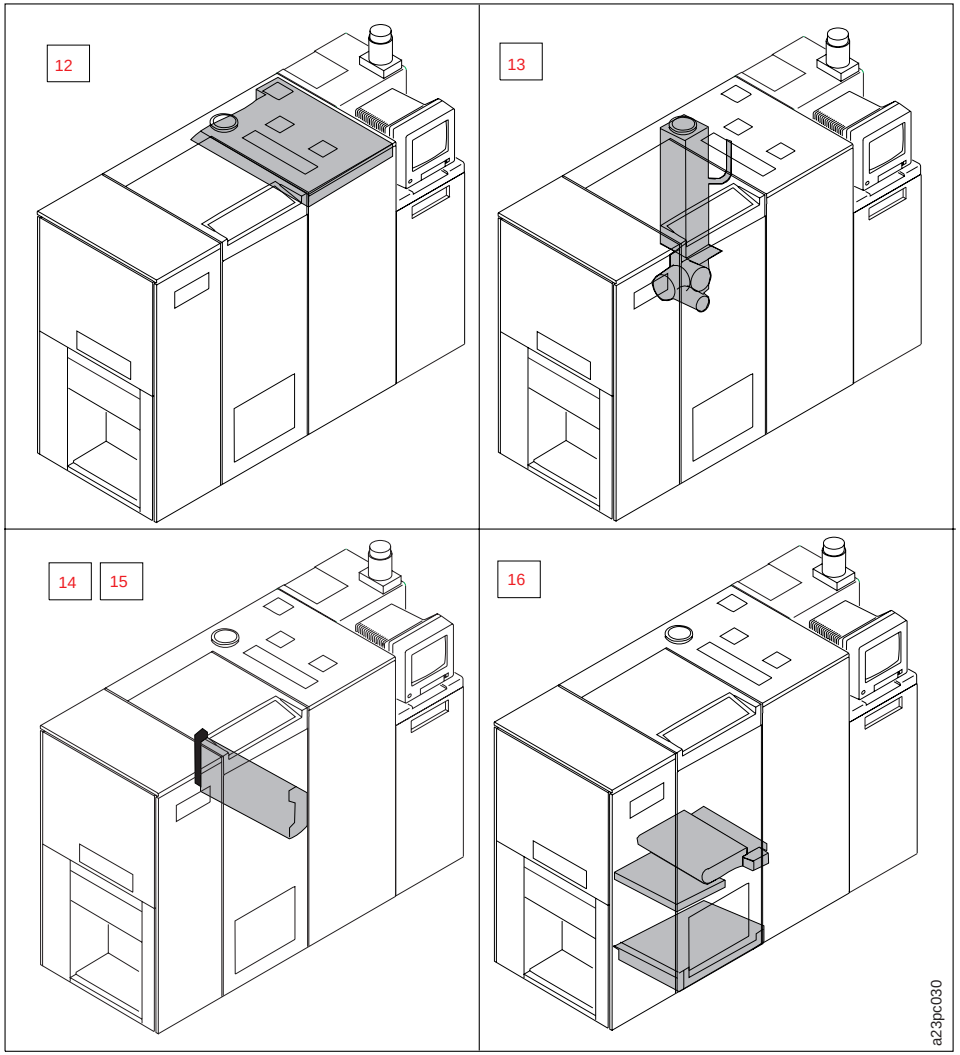
Mechanism Locators

Mechanism Locator 1



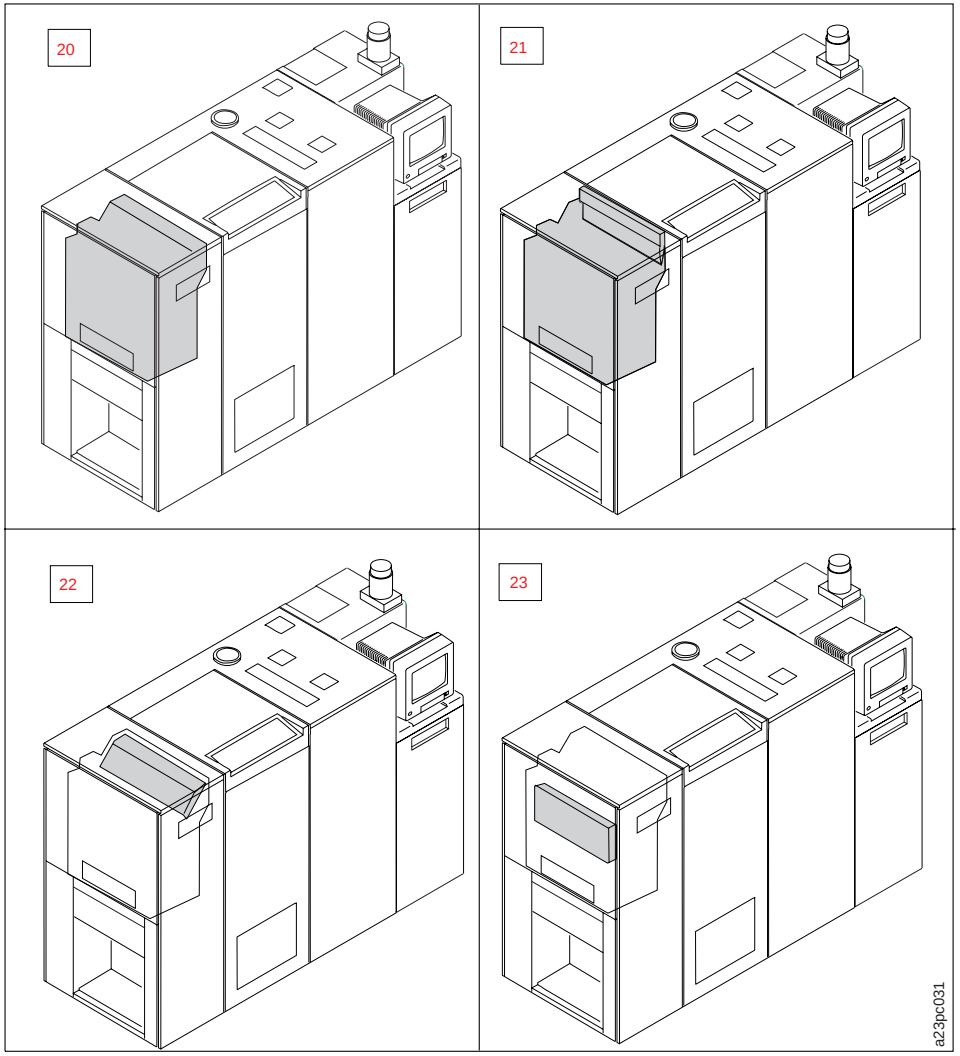
Locator Number	Assembly Name	See Page...
1	Printer Covers	3179
2	Service Access Covers	3189
4	Process Hardware	3197
5	Corona And Erase Lamp Hardware	3207
6	Cleaner Hardware	3219
7	Developer Hardware	3227
8	Developer Hardware	3237
9	Developer Hardware	3243
10	Developer Hardware	3253
11	Photoconductor Drum Hardware	3259

Mechanism Locator 2



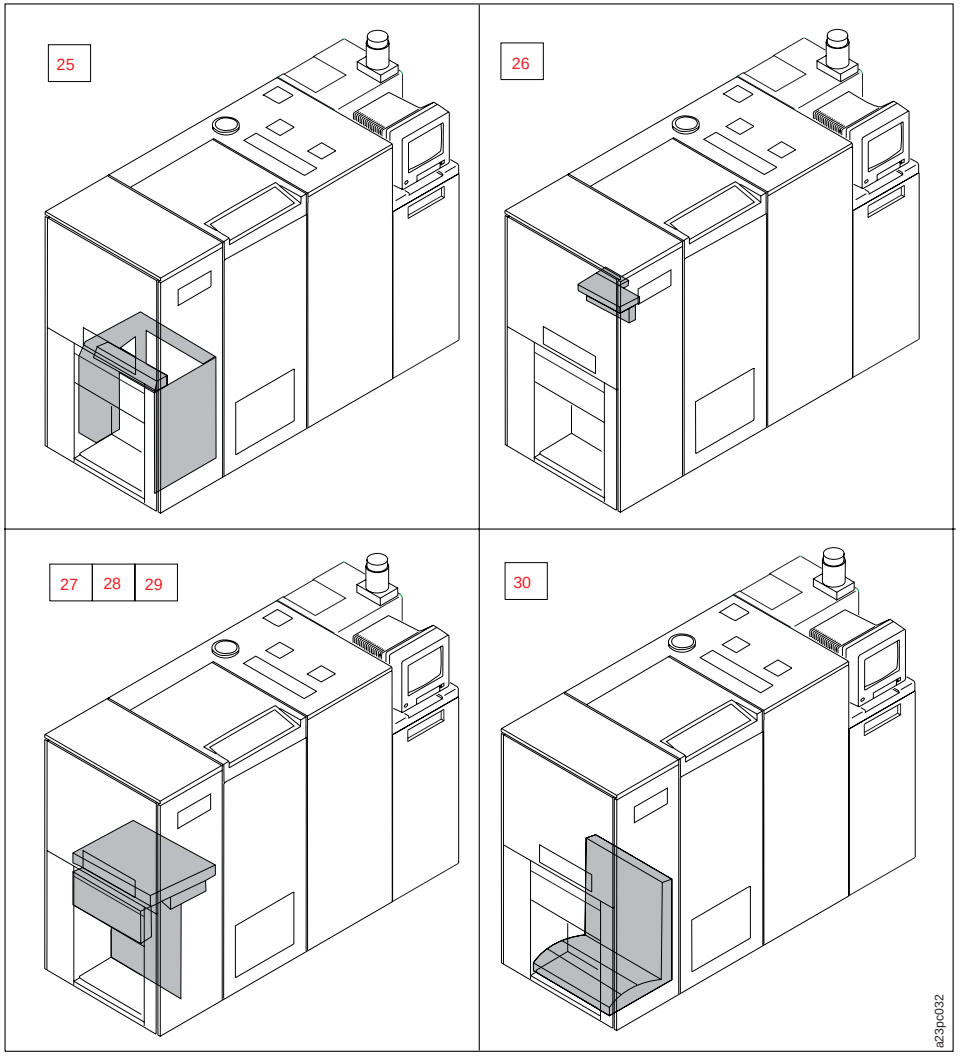
Locator Number	Assembly Name	See Page...
12	Printhead	3263
13	Air System	3305
14	Transfer Station	3315
15	Transfer Station	3349
16	Input Hardware, Splicing Table, Urge Unit	3355
17	Urge Unit, Black - Fixed Top	3371

Mechanism Locator 3



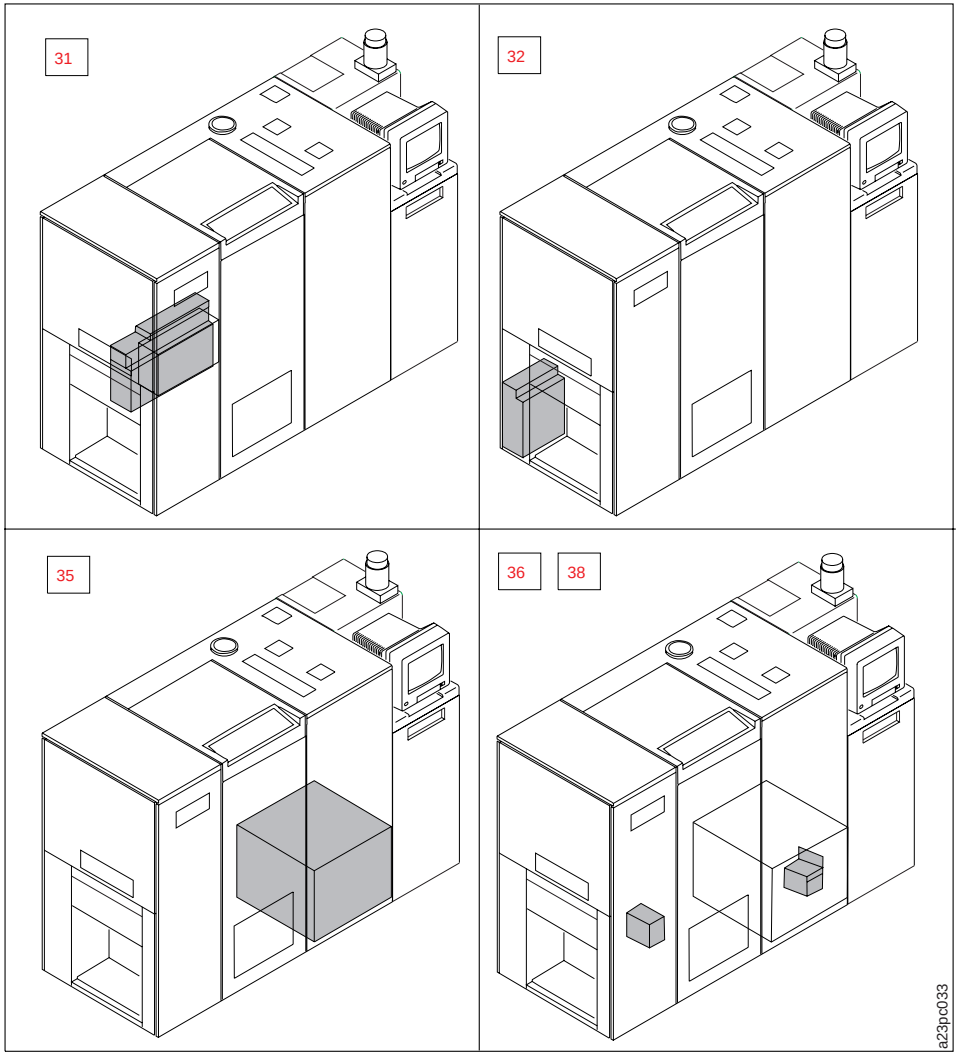
Locator Number	Assembly Name	See Page...
20	Fuser Hardware	3379
21	Autoload/Bridge Hardware	3419
22	Preheat Platen, Back-Up Roll Hardware	3427
23	Oiler Hardware	3443

Mechanism Locator 4



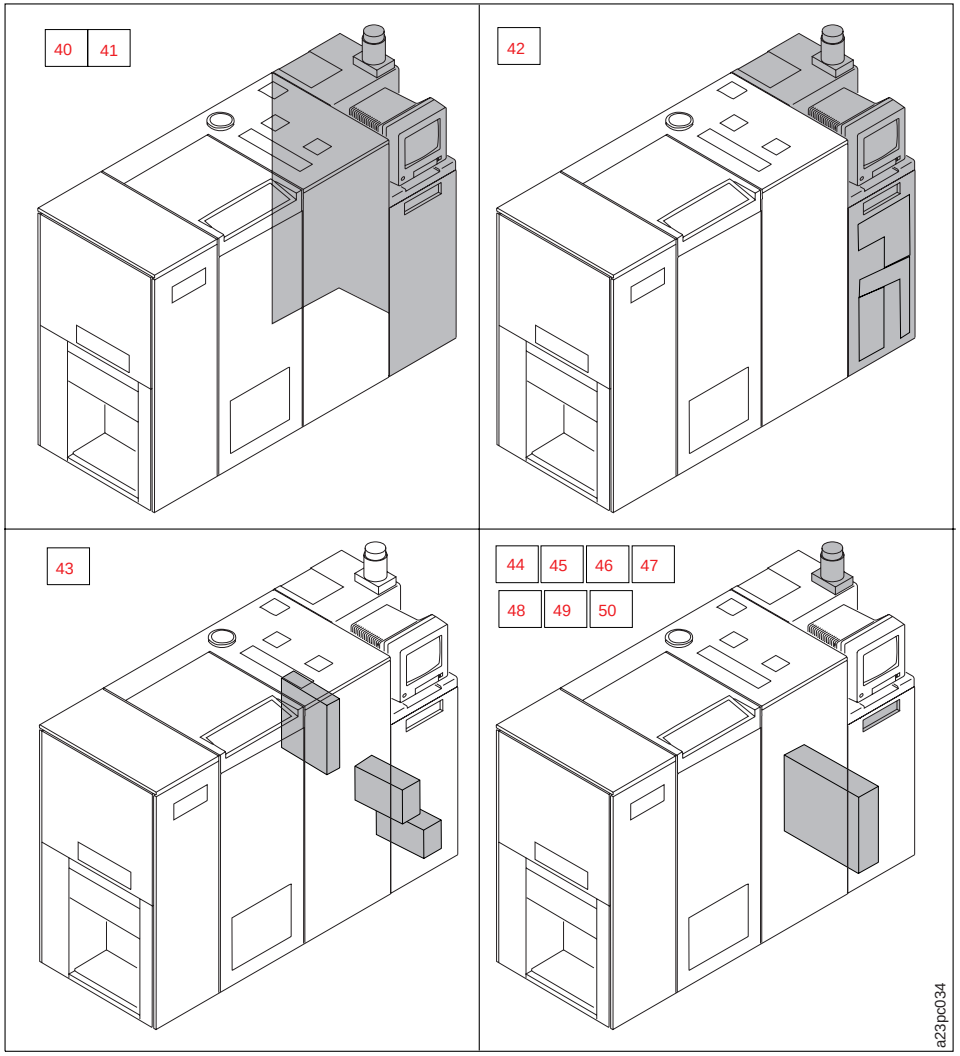
Locator Number	Assembly Name	See Page...
25	Stacker	3453
26	Pendulum	3461
27	Stacker	3465
28	Stacker	3475
29	Stacker	3481
30	Stacker Table	3485

Mechanism Locator 5



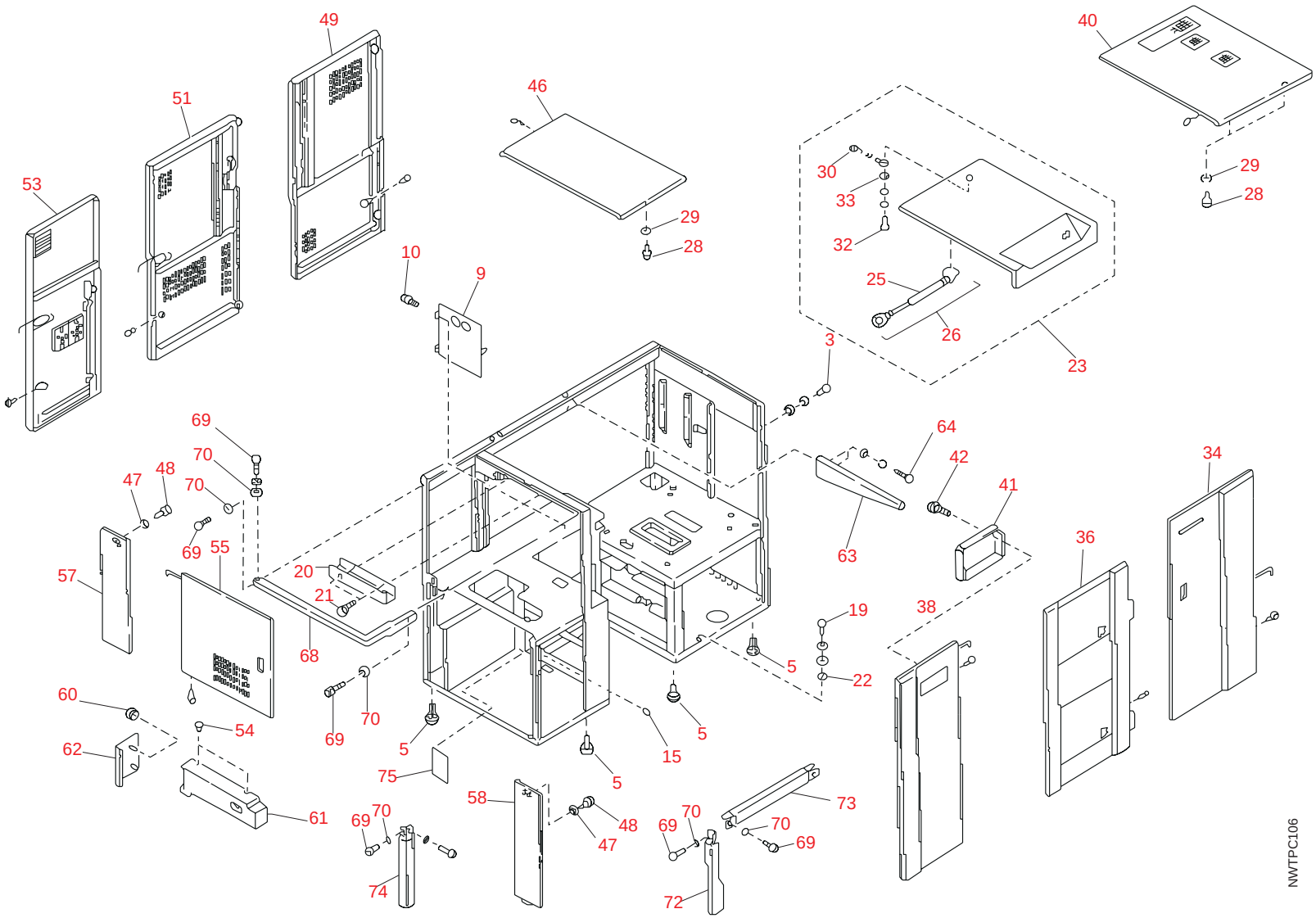
Locator Number	Assembly Name	See Page...
31	B1 Boards	3493
32	Fuser Control Box	3499
35	AC Power Supply 200V	3507
36	AC Power Supply 400V	3509
38	Preheat Platen Control	3513

Mechanism Locator 6

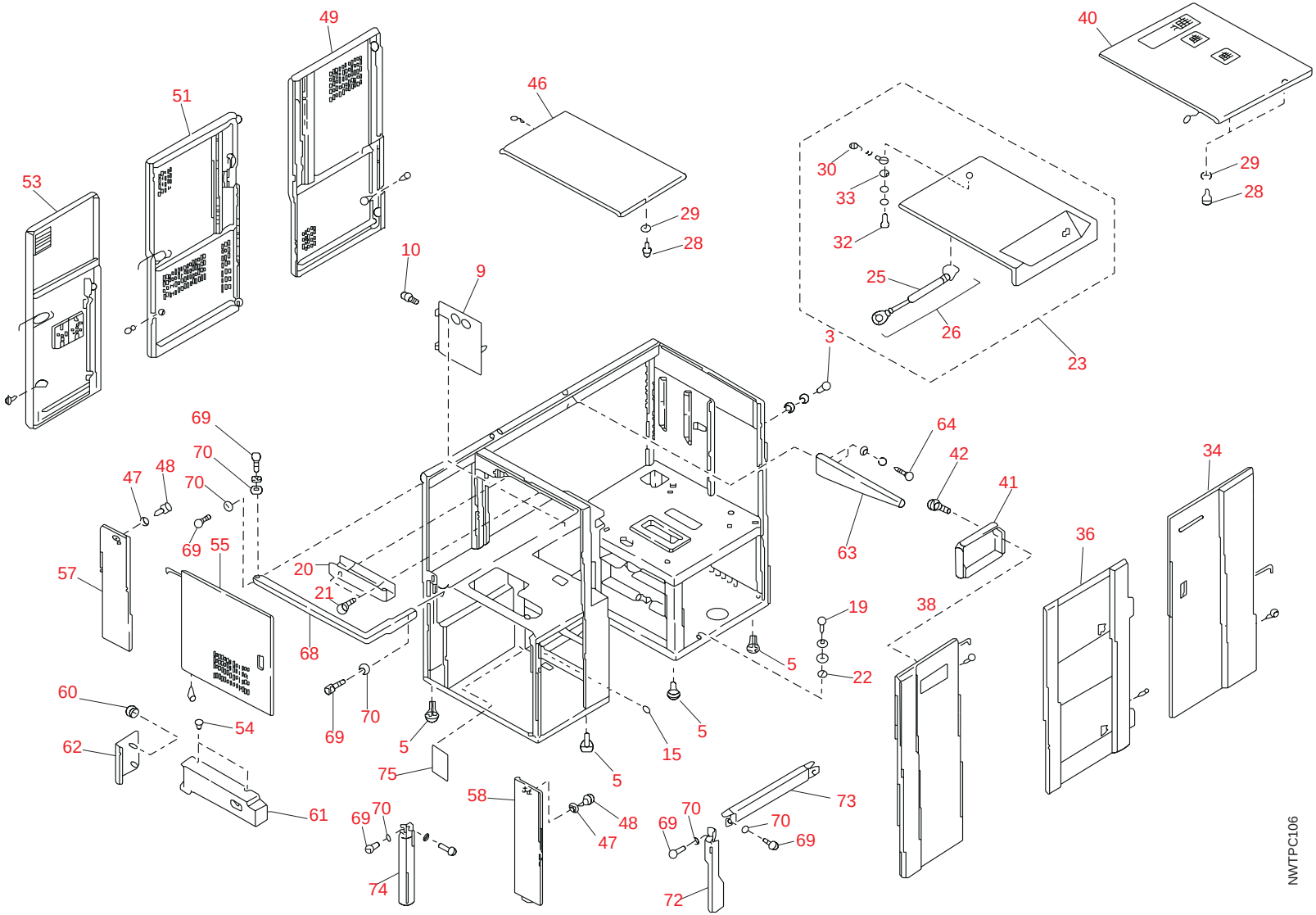


Locator Number	Assembly Name	See Page...
40	Control Unit Covers	3517
41	Control Unit Covers And CRT	3519
42	Control Unit Service Access Covers	3523
43	Control Unit AC, DC Power Supply And MIC Card	3535
44	Control Unit Power Control Asm, Attention Lamp	3537
49	Controller 7013 Model 595	3549
50	Controller 7025 Model F50	3559
52	Control Unit Cables	3567
53	Buffer Flipper (Duplex Printer)	3593
54	Kits And Their Quantities	3597
56	Installation Kit	3615

Assembly 1: Printer Covers



Asm–Index	Part Number	Units	Description
1–		NP	Printer Covers (Sheet 1 of 5)
–3	06F0414	4	Bolt,Hexagon Socket Hd M8 X 24 PP
–5	06F1162	7	Screw, Jack
–9	88F1655	1	Plate, Exhaust
–10	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–15	88F1656	2	Cushion, Rubber
–19	88F1626	1	Screw, Phillips Pan Hd M6 X 16 PP
–20		NP	
–21	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–22	06F0406	1	Washer, Toothed D6 PP
–23	90H2346	1	Cover, Printer Center Top
–25	53F1788	2	Spring, Gas
–26	88F1658	2	Balancer, Upper Cover Asm
–28	06F0420	5	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–29	06F0420	5	Washer, Press PP
–30	88F1629	1	Cable, Ground Asm
–32	88F1626	1	Screw, Phillips Pan Hd M5 X 8 PP
–33	06F0406	1	Washer, Toothed D5 PP
–34	90H2347	1	Cover, Printer Right Front Asm
–36	90H2348	1	Cover, Printer Center Front Asm
–38	90H2349	1	Cover, Printer Left Front Asm
–40	90H2350	1	Cover, Printer Right Top Asm
–41		NP	
–42	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–46	90H2351	1	Cover, Printer Left Top Asm
–47	06F0420	2	Washer, Press PP
–48	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–49	90H2352	1	Cover, Printer Left Rear Asm
–51	90H2353	1	Cover, Printer Center Rear Asm
–53	90H2354	1	Cover, Printer Right Rear Asm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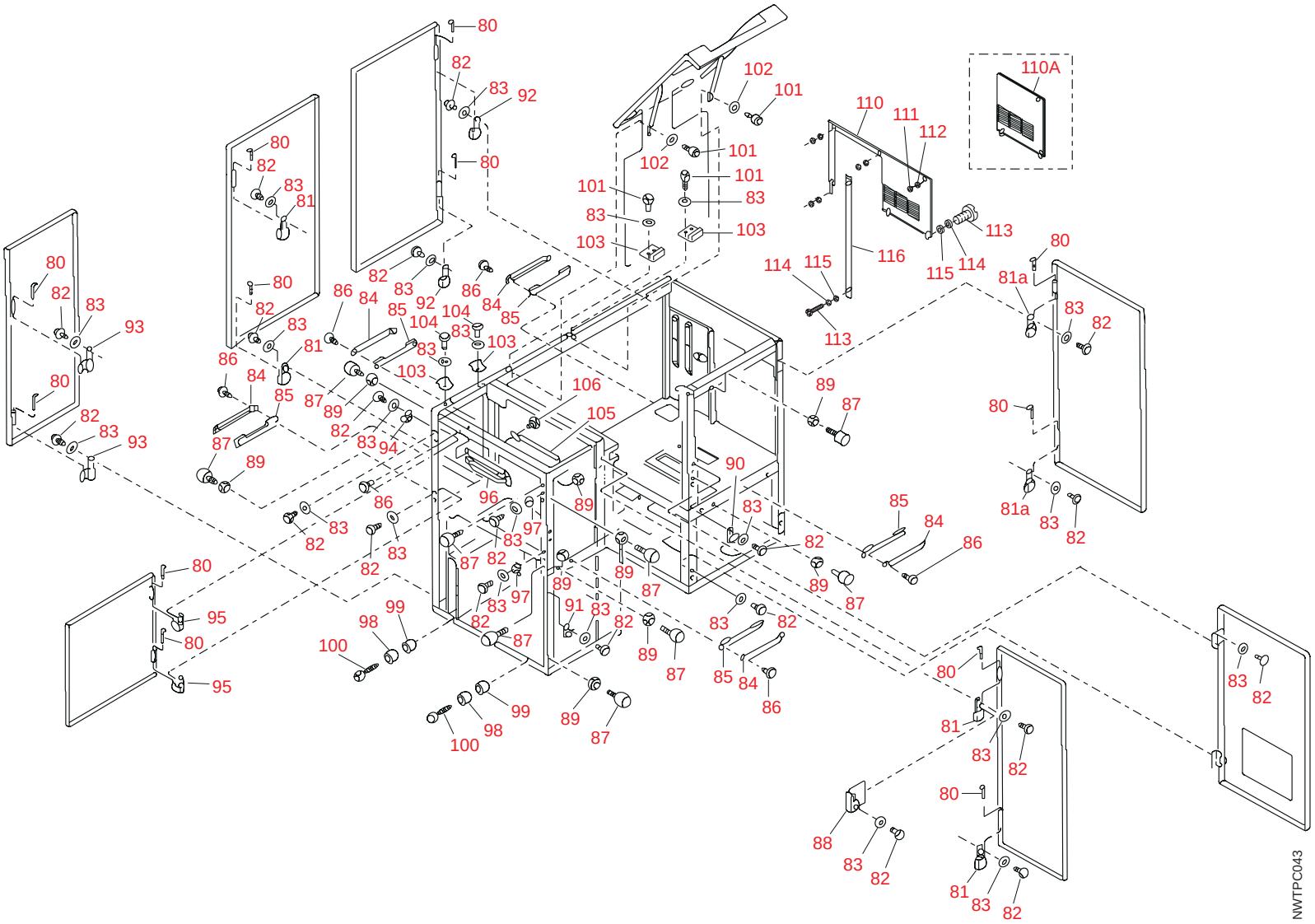
Asm–Index	Part Number	Units	Description
1–		NP	Printer Covers (Sheet 2 of 5)
–54	06F0413	2	Screw, Phillips Bind Hd M4 X 10 PP
–55	90H2355	1	Cover, Stacker End Asm
–57	90H2356	1	Cover, Stacker Left Side Lock Asm
–58	90H2357	1	Cover, Stacker Right Side Lock Asm
–60	06F0407	2	Nut, Flange PP
–61	90H2358	1	Cover, Stacker Gate
–62	90H2359	1	Cover, Stacker Gate Side Asm
–63		NP	
–64	88F1626	2	Bolt, Hexagon Socket Hd M10 X 16 PP
–68		NP	
–69	06F0415	10	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–70	06F0420	10	Washer, Press PP
–72		NP	
–73		NP	
–74		NP	
–75	08H7722	1	Cover, Stacker Switch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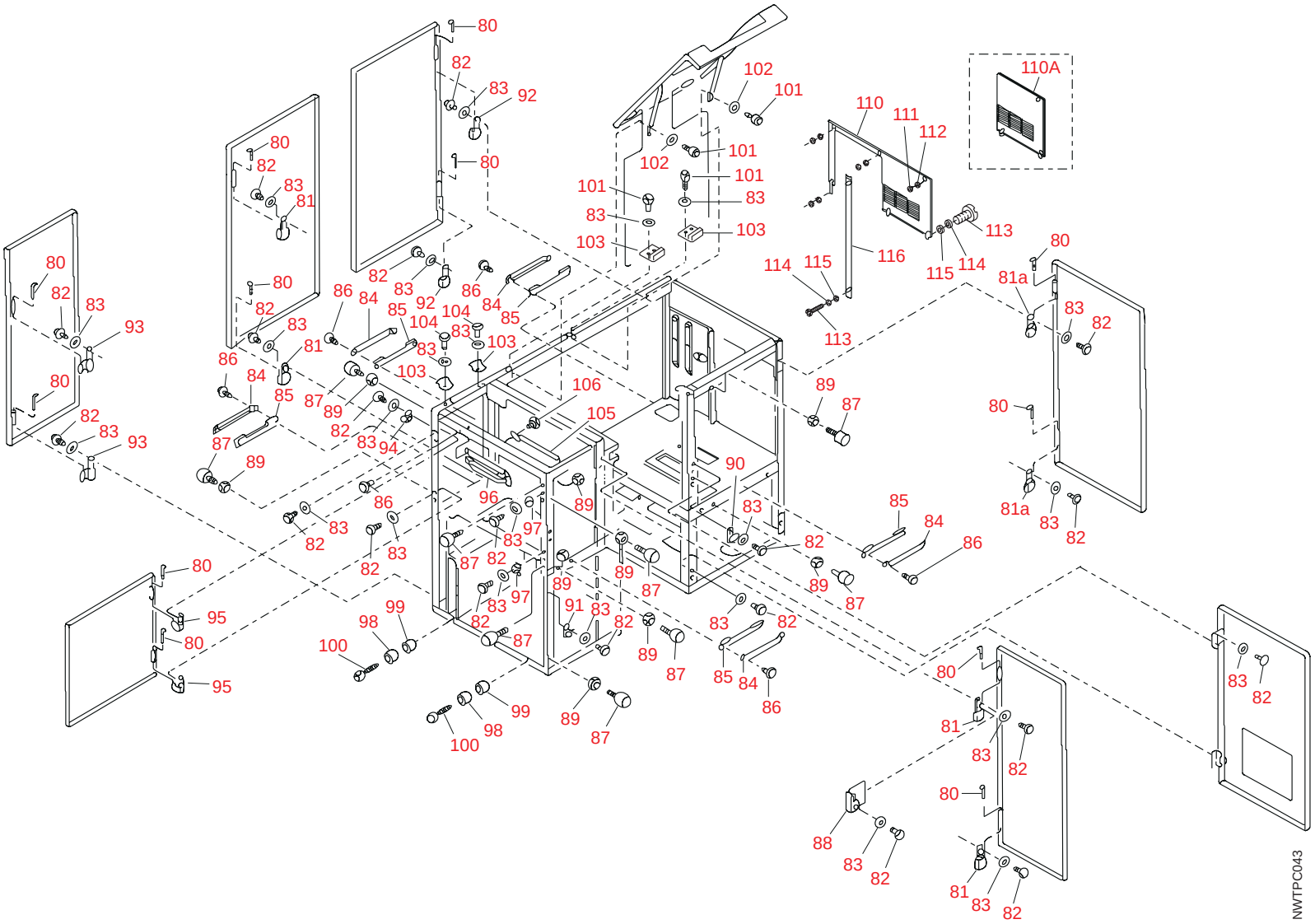
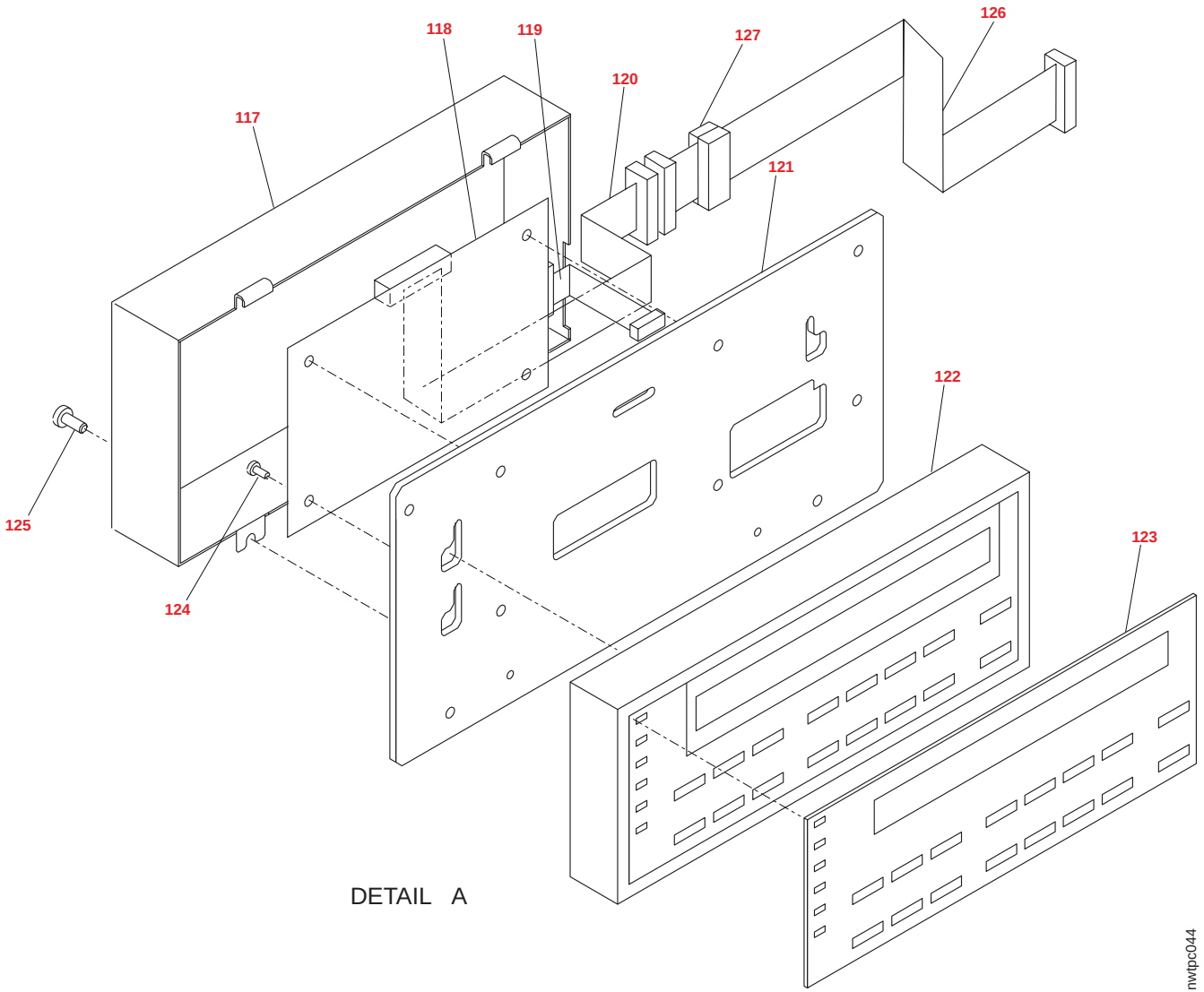
Asm–Index	Part Number	Units	Description
1–		NP	Printer Covers (Sheet 3 of 5)
–80	88F3397	12	Pin, Cover Hinge
–81	88F3398	4	Hinge, Cover Asm
–81A	90H2360	2	Hinge, Cover Asm
–82	06F0401	38	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–83	06F0420	44	Washer
–84	88F3399	5	Guide, Line
–85	88F3401	5	Guide, Line
–86	06F0411	10	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–87		NP	
–88	45G2031	1	Clamp, Front
–89	06F0407	8	Nut M5
–90		NP	
–91	90H2361	1	Latch, Cover
–92	88F3405	2	Hinge, Cover Asm
–93	88F3406	2	Hinge, Cover Asm
–94	88F3407	1	Latch, Cover
–95	88F3408	2	Hinge, Cover Asm
–96	88F3409	1	Base, Link Guide Asm
–97	88F3410	1	Latch, Cover
–98	88F3411	2	Foot, Rubber
–99	88F3412	2	Spacer
–100	88F1626	2	Bolt, Hexagon Socket Hd M4 X 38 PP
–101	06F0415	8	Bolt, Hexagon Socket Hd with Star Wshr M4 X 38 PP
–102	06F0405	4	Washer, D5 PP
–103	88F3416	4	Hinge, Cover Asm
–104	06F0401	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–105	88F3417	1	Stopper, Cover
–106	88F3418	1	Pin, Stand


NWTPC043

Asm–Index	Part Number	Units	Description
1–		NP	Printer Covers (Sheet 4 of 5)
–110A	30H6662	1	Cover, Right End
–	30H6667	1	Bracket, Right End Cover (Not Shown) See the Installation Procedures in the MI
–	45G2064	2	Screw, (Not Shown) See the Installation Procedures in the MI
–115	23141	1	Washer, Flat
–	89H9677	1	Logo, IBM cover (Not shown)
–	89H9768	4	Ring, push-on (For IBM logo) (Not shown)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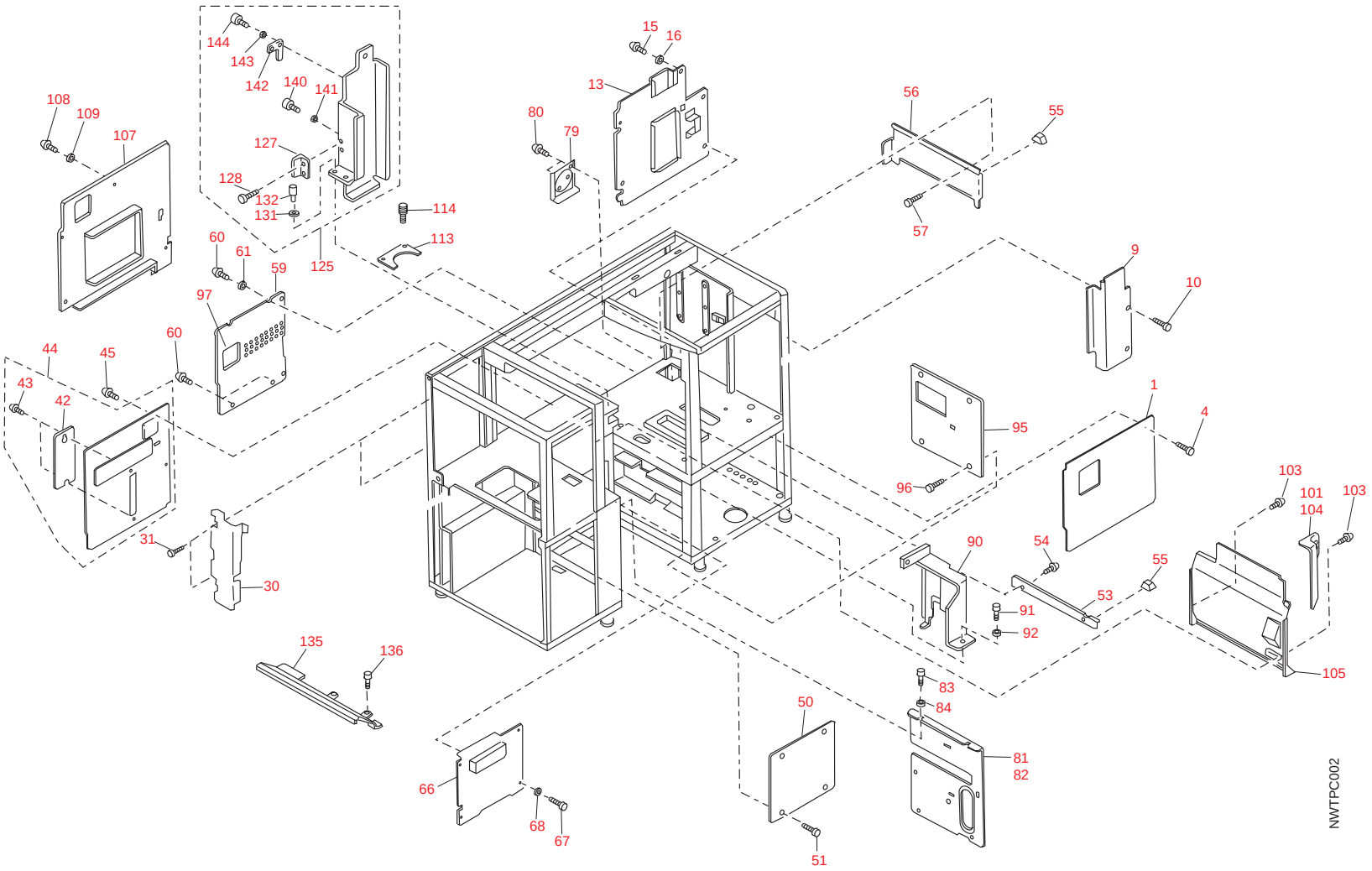
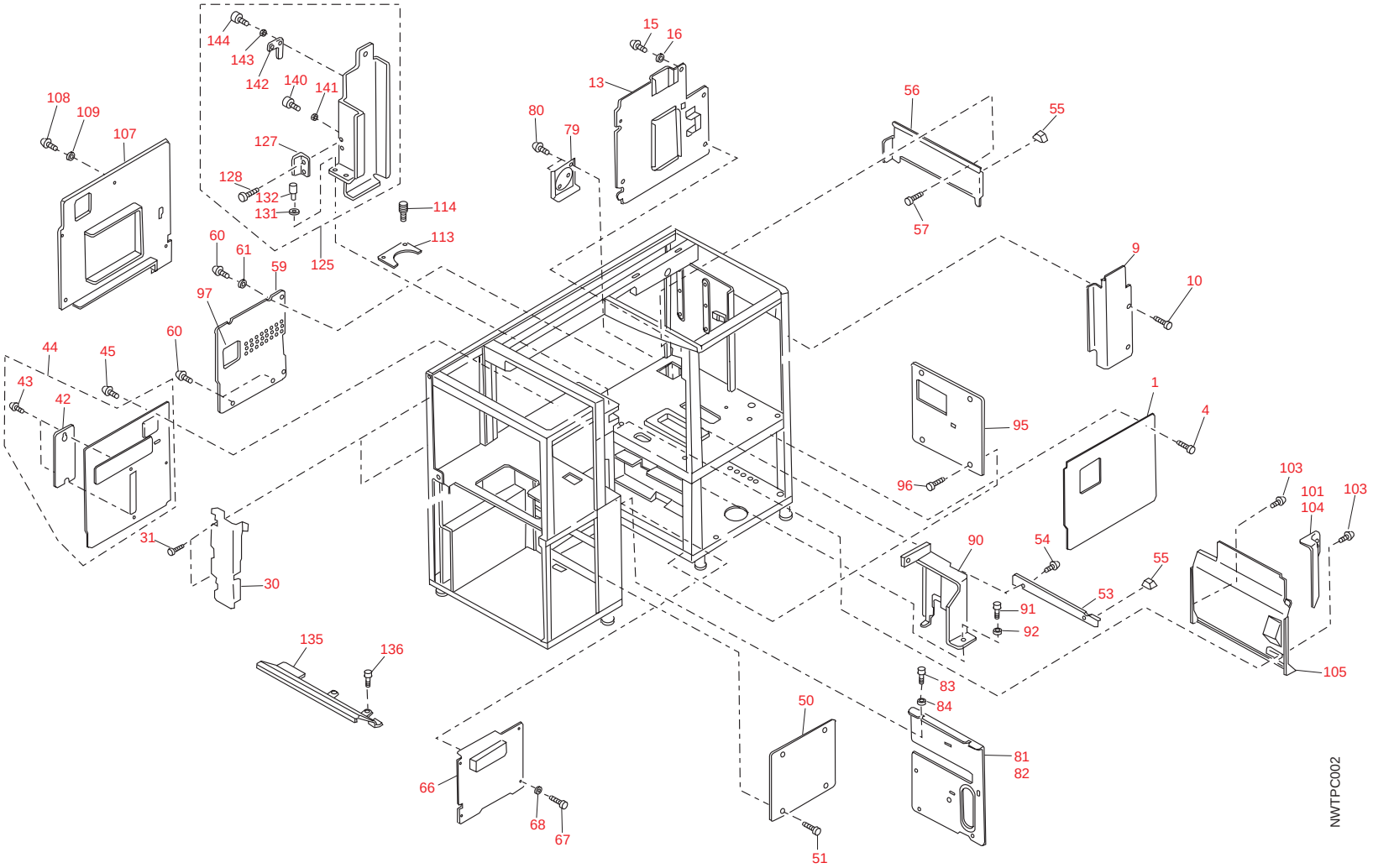
Asm–Index	Part Number	Units	Description
1–		NP	Operator Panel (Sheet 5 of 5)
–	45G1906	1	Panel, Operator Asm
–117	45G1965	1	Enclosure
–118	45G1999	1	Card, Buffer
–119	45G1736	1	Cable
–120	45G1722	1	Cable (10 inch) *
–121	45G1750	1	Plate
–122	57G1218	1	Panel, Operator
–123	57G6440	1	Overlay, English (Simplex)
–123	57G6441	1	Overlay, French (Simplex)
–123	57G6442	1	Overlay, German (Simplex)
–123	57G6443	1	Overlay, Italian (Simplex)
–123	57G6444	1	Overlay, Spanish (Simplex)
–123	30H2976	1	Overlay, Portuguese Brazil (Simplex)
–123	30H6658	1	Overlay, Chinese Traditional (Simplex)
–123	30H6660	1	Overlay, Chinese Simplified (Simplex)
–123	45G1975	1	Overlay, English (Duplex)
–123	45G1976	1	Overlay, French (Duplex)
–123	45G1977	1	Overlay, German (Duplex)
–123	45G1978	1	Overlay, Italian (Duplex)
–123	45G1979	1	Overlay, Spanish (Duplex)
–123	30H6652	1	Overlay, Portuguese Brazil (Duplex)
–123	30H6648	1	Overlay, Chinese Traditional (Duplex)
–123	30H6650	1	Overlay, Chinese Simplified (Duplex)
–124	53F1672	4	Screw
–125	53F1664	2	Screw
–126	45G2035	1	Cable, Operator Panel P6004 to J232
–127	30H2784	1	Toroid, Filter
			* **Note:** Some versions of the printer may not have the 10 inch cable. Instead, the cable (PN 45G2035) plugs directly into the buffer card.

Assembly 2: Service Access Covers



Asm–Index	Part Number	Units	Description
2–		NP	Service Access Covers (Sheet 1 of 3)
–1	88F1675	1	Cover, AC Power Supply
–4	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–9		NP	
–10	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–13		NP	
–15	06F0420	5	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–16	06F0420	5	Washer, Press PP
–30		NP	
–31	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–42	88F3336	1	Cover, Inner Window (Tractor Gauge)
–43	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–44	88F1681	1	Cover, B1 Board Asm
–45	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–50	88F1683	1	Cover, Hopper
–51	06F0413	4	Screw, Phillips Bind Hd M5 X 10 PP
–53		NP	
–54	06F0413	2	Screw, Phillips Bind Hd M5 X 8 PP
–55	57G6676	2	Stopper, Rubber
–56	30H2804	1	Cover, OP Side
–57	06F0413	2	Screw, Phillips Bind Hd M5 X 8 PP
–59	88F1686	1	Cover, Blower
–60	06F0420	7	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–61	06F0420	5	Washer, Press PP
–66	88F1687	1	Cover, Fuser Front
–67	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–68	06F0420	4	Washer, Press PP
–79	88F2378	1	Cover, Fan
–80	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP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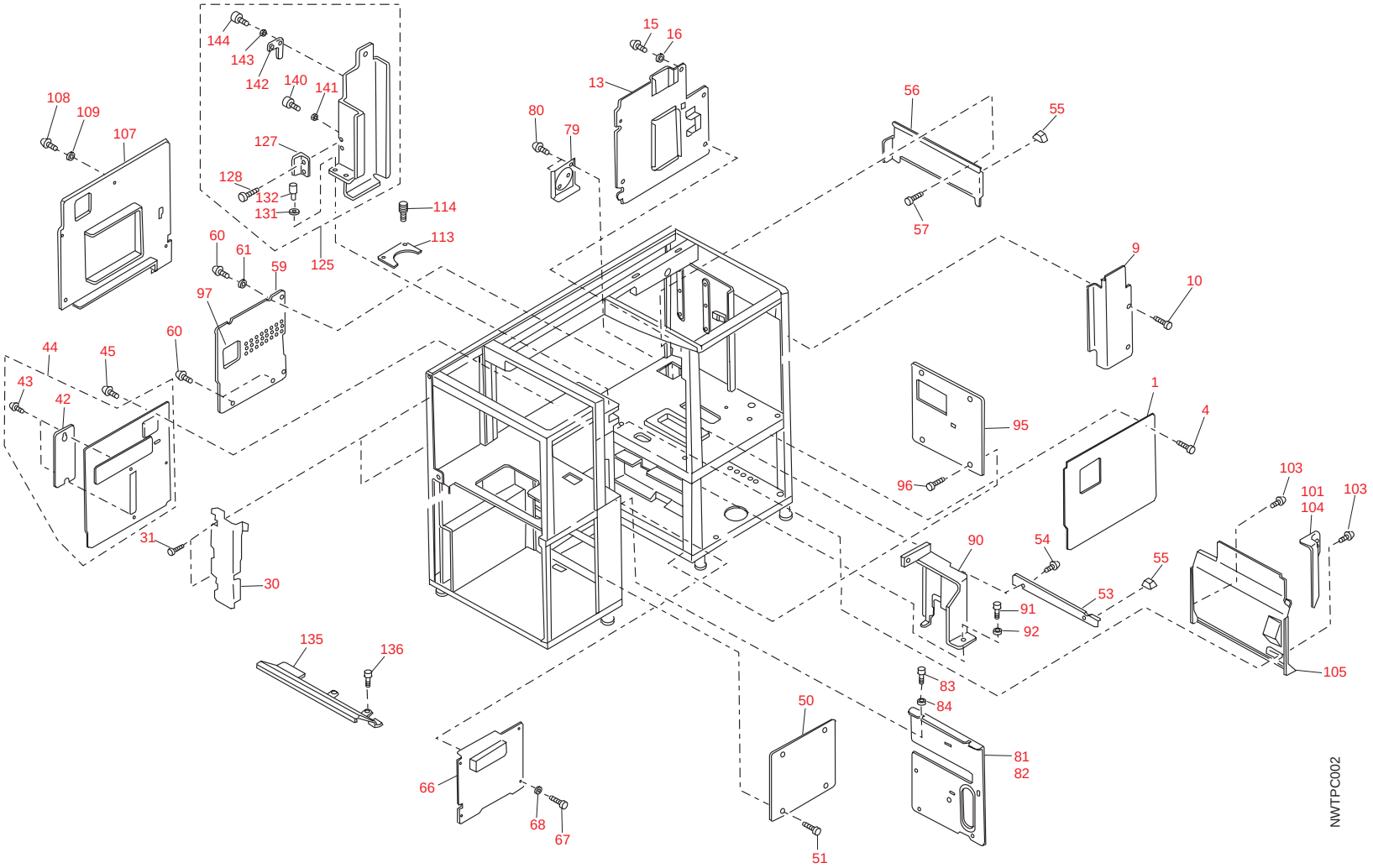
Asm–Index	Part Number	Units	Description
2–		NP	Service Access Covers (Sheet 2 of 3)
–81	88F2379	1	Cover, Input Bin Left Side
–82		NP	
–83	06F0413	5	Screw, Phillips Bind Hd M5 X 12 PP
–84	06F0420	2	Washer, Press PP
–90	88F2380	1	Cover, Fuser Oil Filter
–91	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–92		NP	
–95		NP	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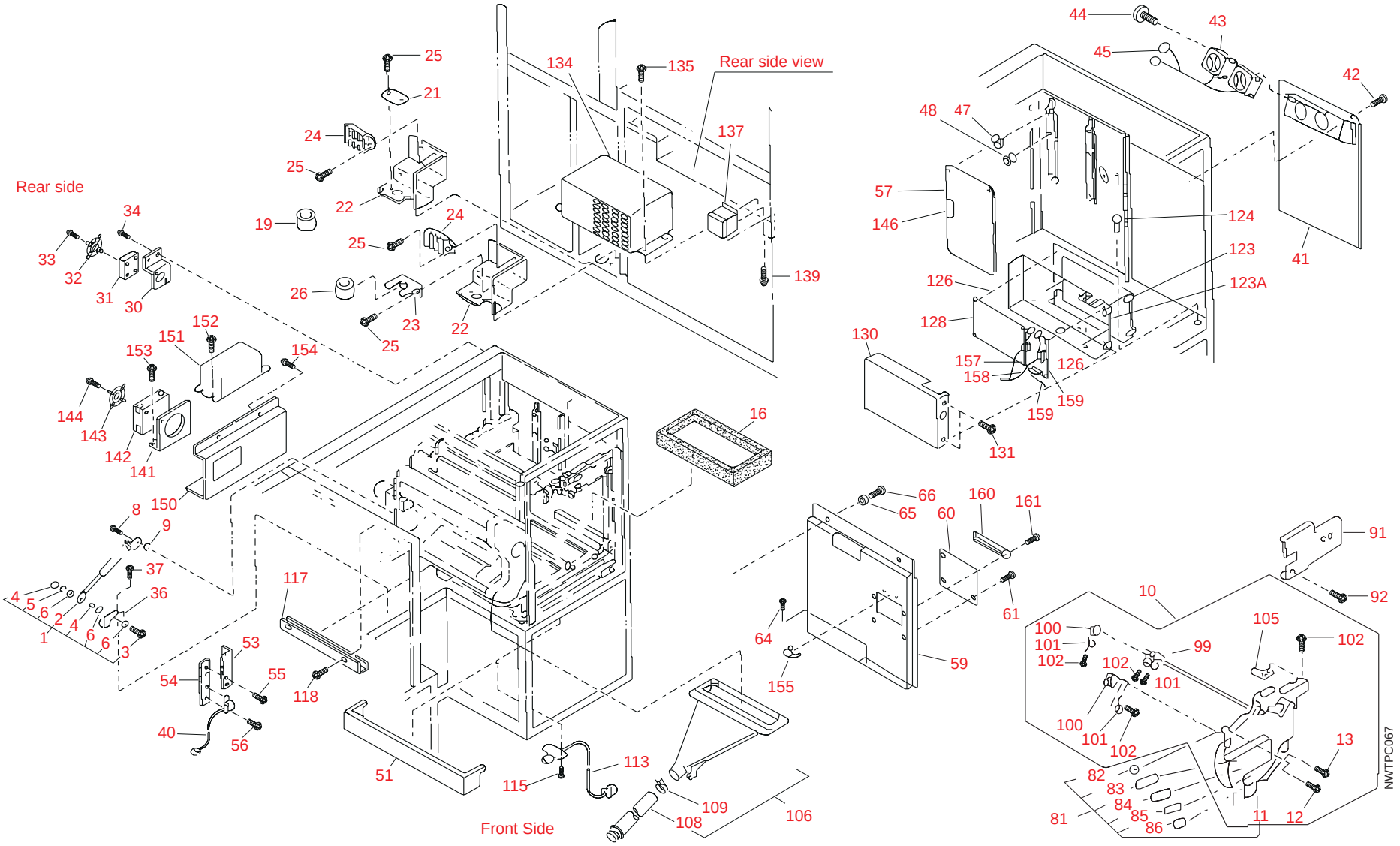
Asm–Index	Part Number	Units	Description
2–		NP	Service Access Covers (Sheet 3 of 3)
–96	06F0413	4	Screw, Phillips Bind Hd M5 X 8 PP
–97	88F0930	1	Filter, Ozone
–101		NP	
–103	06F0413	5	Screw, Phillips Bind Hd M5 X 10 PP
–104		NP	
–105	57G6634	1	Cover, Fuser Right Side
–107		NP	
–108	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–109	06F0420	4	Washer, Press PP
–113	88F2387	1	Mask, Duct Asm
–114	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–118	06F0420	2	Washer, Press PP
–125	88F2389	1	Stay, Connecting Asm
–126	88F2390	1	Stay, Connecting
–127	88F2391	1	Stopper, Magnet
–128	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–131	06F0420	4	Washer, Press PP
–132	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–135		NP	
–136	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–140		NP	
–141	06F0407	2	Nut, M5
–142		NP	
–143		NP	
–144	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP

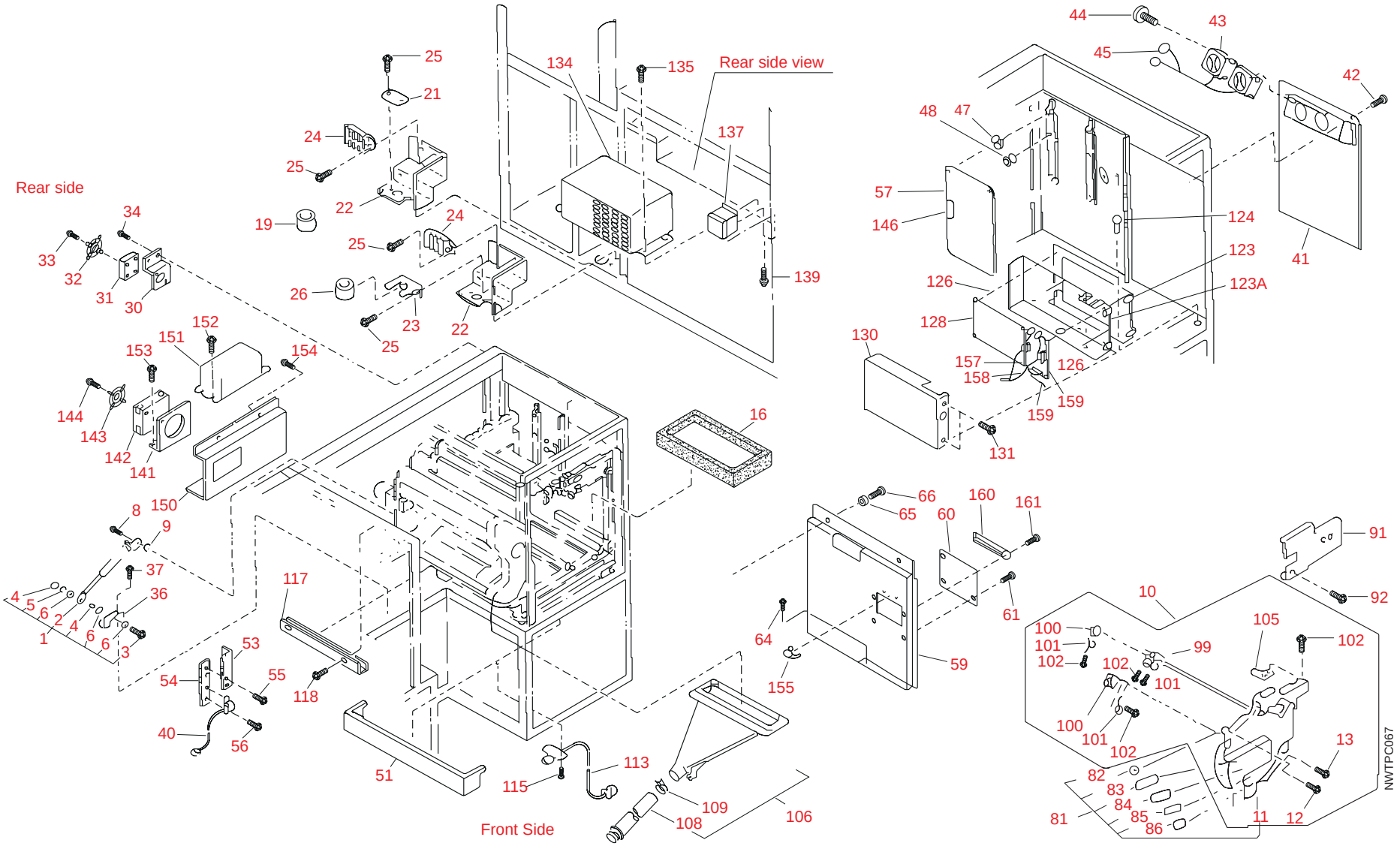
Assembly 3: No Assembly 03 for this Printer

Asm–Index	Part Number	Units	Description
3–			Not Used

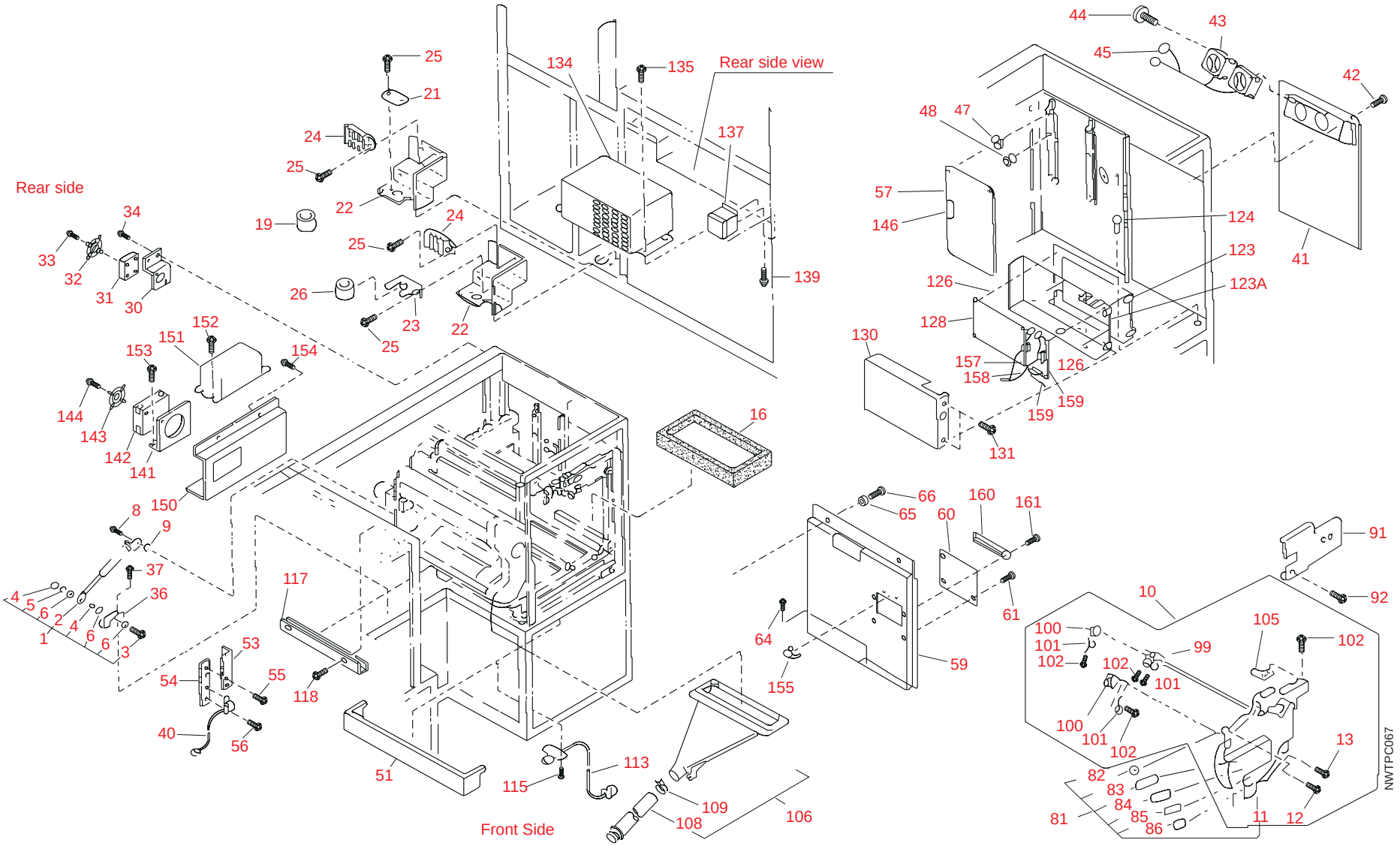
Assembly 4: Process Hardware



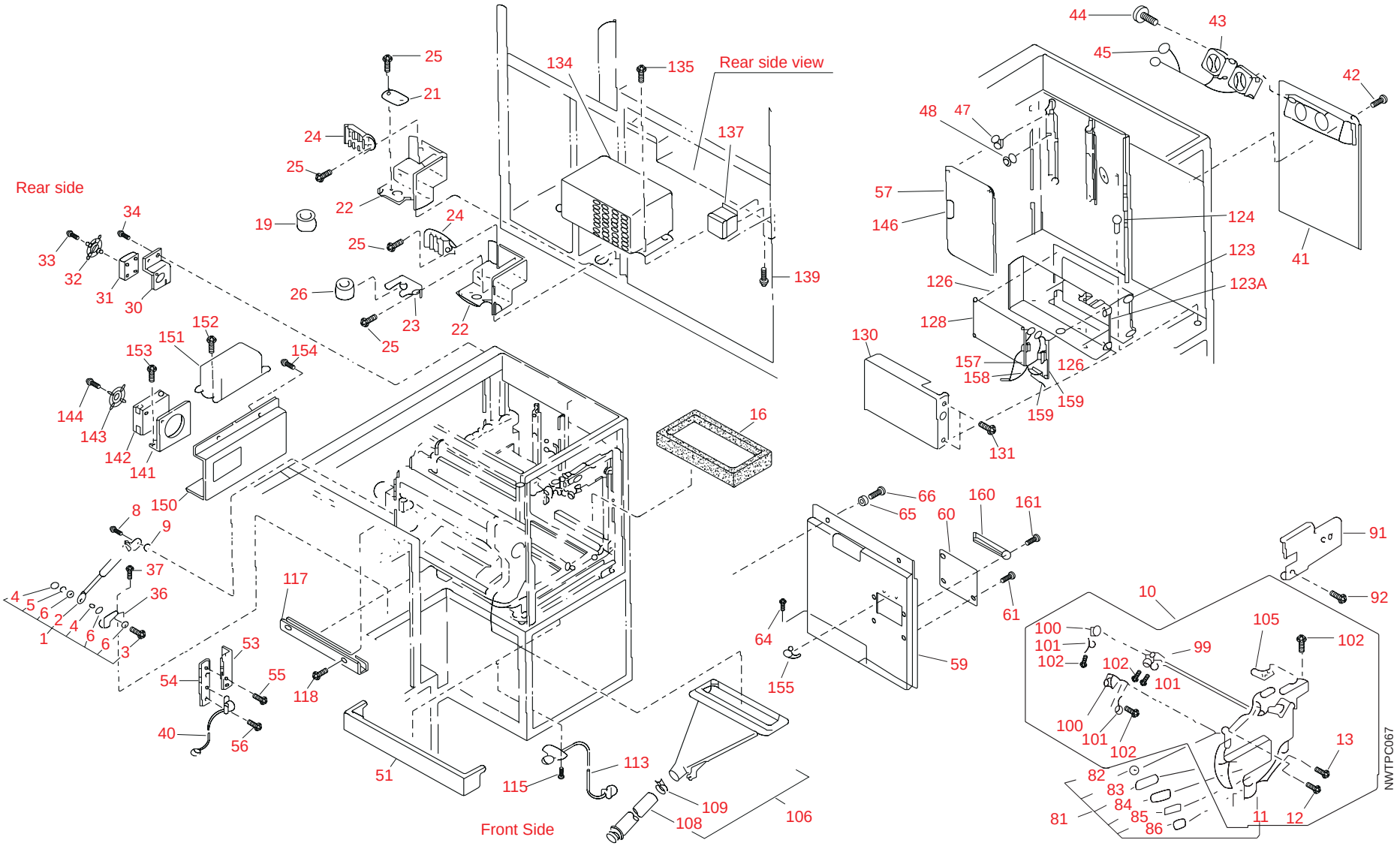
Asm–Index	Part Number	Units	Description
4–		NP	Process Hardware (Sheet 1 of 5)
–1	88F2392	1	Spring Asm, Gas
–2	53F1824	1	Spring, Gas
–3	88F1626	1	Bolt, Hexagon Socket Hd M8 X 32 PP
–4	88F1627	2	Nut, M8 PP
–5	06F0405	1	Washer, D8 Spring PP
–6	06F0405	3	Washer, D8 Bolt PP
–8	06F0414	1	Bolt, Hexagon Socket Hd M8 X 20 PP
–9	88F1627	1	Nut, M8 PP
–10	45G1893	1	Cover, Drum Asm
–11	88F2393	1	Cover, Photoconductor (PC) Drum
–12	06F0411	1	Screw, Phillips Bind Hd M5 X 16 PP
–13	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–16	88F3338	1	Seal, Air Duct
–19	88F3371	1	Lock, Cord (US 60 Hz)
–21	88F2395	1	Cover, Power Cord Access Hole
–22	88F2396	1	Holder, TB (US 60 Hz)
–23	88F2397	1	Holder, TB (Europe 50 Hz)
–24	88F2398	1	TB, 101
–25	06F0420	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–26	88F2399	1	Lock, Cord (Europe 50 Hz)
–30		NP	
–31	06F0194	1	Fan
–32	06F0569	1	Guard, Finger
–33	06F0413	2	Screw, Phillips Bind Hd M4 X 50 PP
–34	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–36	88F2401	1	Guide, Spring
–37	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–40	53F1784	1	LED, Upper & Lower EOF (PL103)


Rear side
Rear side view
Front Side
NWTPC067

Asm–Index	Part Number	Units	Description
4–		NP	Process Hardware (Sheet 2 of 5)
–41	57G6586	1	Cover, Inner Asm
–42	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–43	06F0194	2	Fan
–44	06F0413	4	Screw, Phillips Bind Hd M4 X 50 PP
–45	57G6587	1	Cable, Developer Fan Asm
–47	88F1630	4	Holder
–48	88F1631	2	Board, Spacer
–51		NP	
–53		NP	
–54		NP	
–55	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–56	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–57	04H0978	1	Card, PC211 Asm (Fixed Resolution Printheads)
–57	04H0842	1	Card, PC531 Asm (Model IS2 - 310 PPM)
–57	24H8024	1	Card, PC551 (Switchable Resolution Printheads)
–59	57G6686	1	Plate, Hold IF


Rear side
Rear side view
Front Side
NWTPC067

Asm–Index	Part Number	Units	Description
4–		NP	Process Hardware (Sheet 3 of 5)
–60	06F0389	1	Card, IF041 Asm (Single-beam printhead)
–60	24H8325	1	Card, IF411 Asm (Switchable two-beam printhead)
–60	04H0834	1	Card, IF421 Asm (Two- and four-beam printheads)
–60	90H1363	1	Card, IF461 Asm (Five-beam printhead)
–61	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–64	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–65	06F0420	2	Washer, Press PP
–66	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–	53F1722	1	Line Cord, US 4 Wire (Not Shown)
–	53F1723	1	Line Cord, Chicago (Not Shown)
–	53F1724	1	Line Cord, WTC 4 Wire (Not Shown)
–	53F1725	1	Line Cord, WTC 5 Wire (Not Shown)
–81	57G6687	1	Cover, Drum Asm
–82	57G6688	1	Spacer, Drum Cover
–83		NP	
–84		NP	
–85		NP	
–86		NP	
–91	88F2862	1	Cover, Toner Inlet
–92	06F0413	2	Screw, Phillips Bind Hd M5 X 10 PP
–99	88F2413	1	Holder, Brush
–100	88F2414	2	Holder, Brush
–101	06F1056	4	Brush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Rear side view
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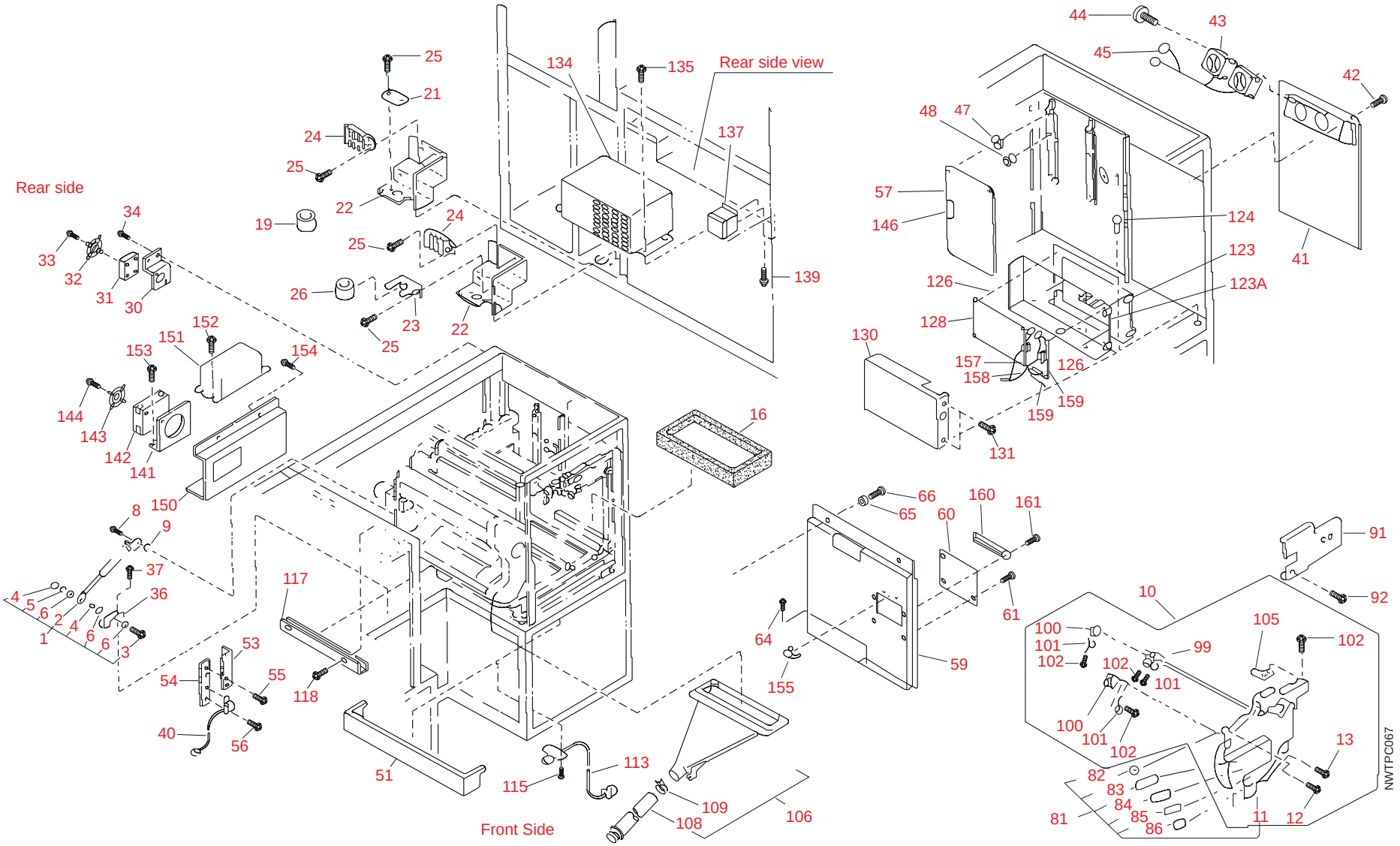
Asm–Index	Part Number	Units	Description
4–		NP	Process Hardware (Sheet 4 of 5)
–102	06F0413	9	Screw, Phillips Bind Hd M4 X 6 PP
–105	88F2889	1	Switch, PC Drum Cover Interlock (S122)
–106	88F2416	1	Duct, Developer Asm
–107	49G9570	1	Seal, Duct
–108	88F2417	1	Hose, Developer Asm
–109	06F0463	1	Band, Wire
–113	53F1783	1	Sensor, Lower EOF (Q103)
–115	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–117		NP	
–118	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–123	88F2418	1	Base, MD141
–123	24H8026	1	Base, MD192 and RB241
–123A	04H0894	1	Base, MD141 and RB241 (With Enhanced Toner Loading System)
–124	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–126	88F1630	8	Holder
–128	45G1860	1	Board, Mirror Motor Driver MD141 (Fixed resolution printheads)
–128	24H8025	1	Board, Mirror Motor Driver MD192 (Switchable resolution printheads)
–130		NP	
–131	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–134	53F1865	1	Power Supply, Laser (All except 324 PPM and IR3/IR4)
–134	90H1277	1	Power Supply, Laser (324 PPM and IR3/IR4 only)
–135	06F0420	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–137	88F2420	1	Meter, Laser Current (L102)
–139	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–141		NP	
–142	06F0194	1	Fan
–143		NP	
–144	06F0413	2	Screw, Phillips Bind Hd M4 X 50 PP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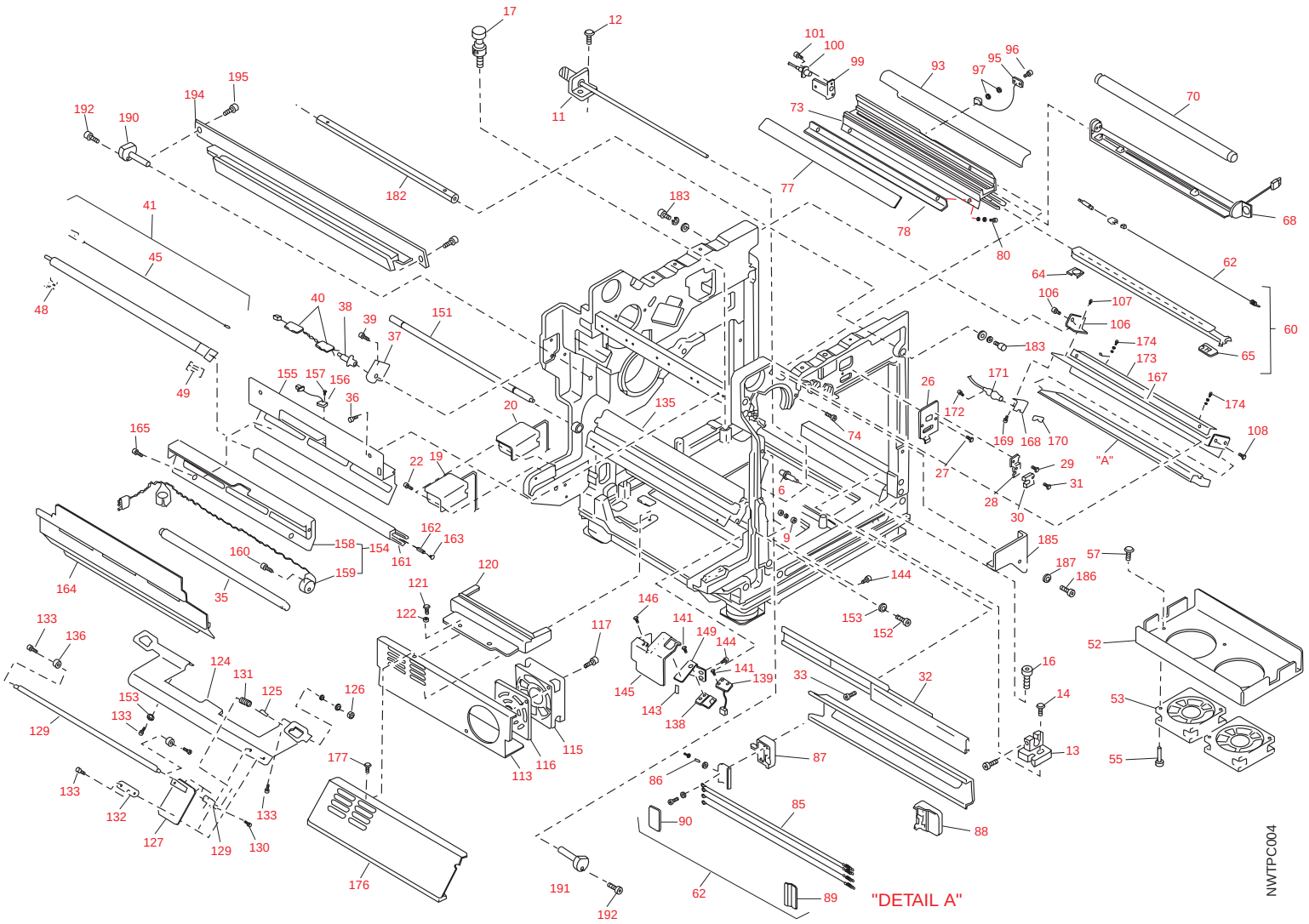
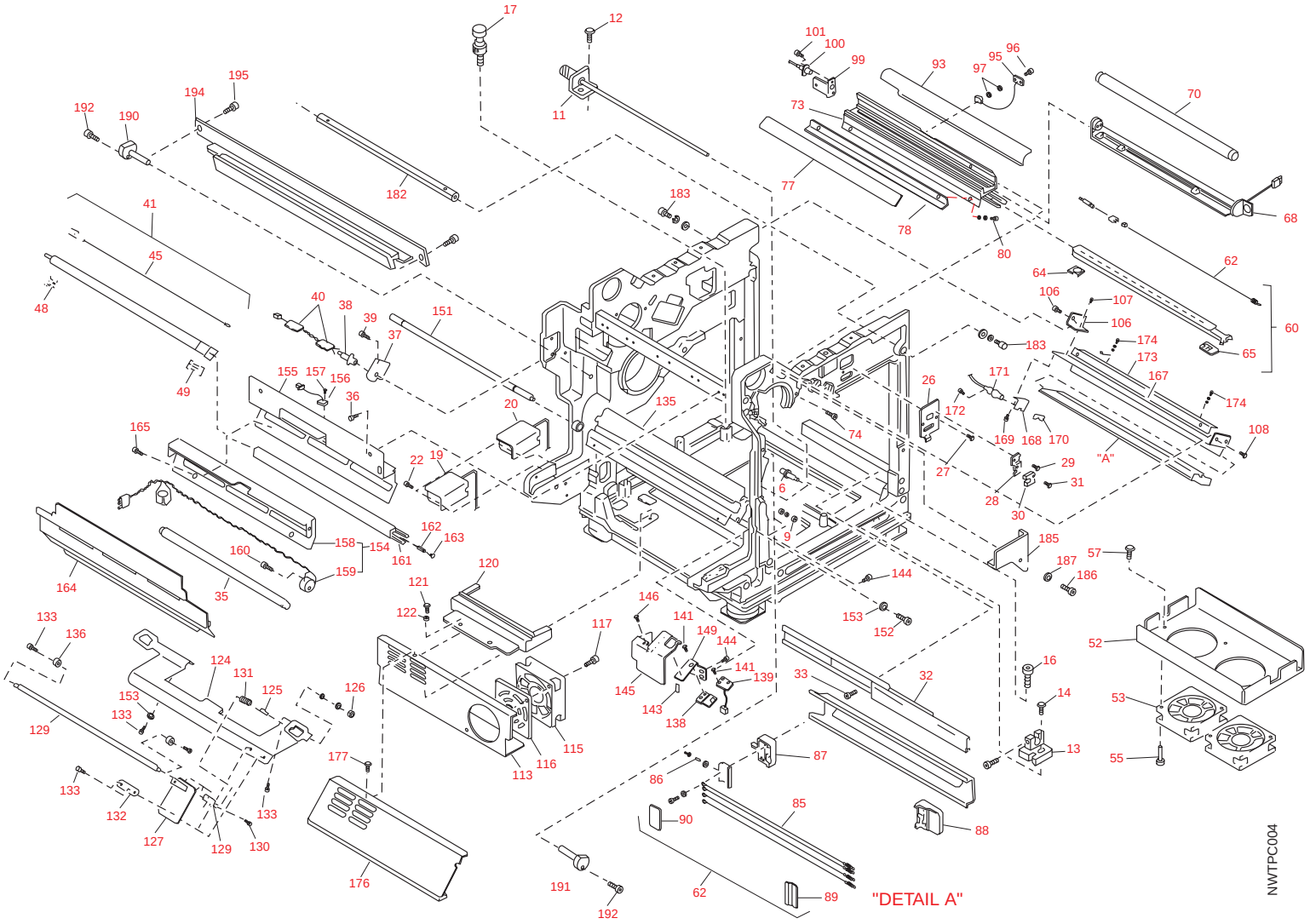
Asm–Index	Part Number	Units	Description
4–		NP	Process Hardware (Sheet 5 of 5)
–146	53F1777	1	Fuse, 3A 250V
–150		NP	
–151	45G1856	1	Power Supply, High Voltage
–152	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–153	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–154	06F0415	2	Bolt, Hexagon
–155	88F2996	1	Ferrite Core
–156	04H0901	1	Board, Relay (RB241) (With Enhanced Toner Loading)
–157		NP	
–158		NP	
–159		NP	
–160	04H0896	1	Holder, Connector on IF041 Card (With Enhanced Toner Loading)
–160	90H1029	1	Holder, Connector on IF411 Card (With Enhanced Toner Loading and Side 2 Verfication)
–161	30H2748	2	Screw, Phillips Pan Head M4 X 16 PP (With Enhanced Toner Loading)
–161	45G2064	2	Screw, Phillips Pan Head M4 X 16 PP (With Enhanced Toner Loading and Side 2 Verfication)

Assembly 5: Corona and Erase Lamp Hardware



Asm–Index	Part Number	Units	Description
5–		NP	Corona and Erase Lamp Hardware (Sheet 1 of 6)
–6	88F2421	1	Stopper, Transfer Station
–9	88F1627	1	Nut, M8 PP
–11		NP	
–12	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–13		NP	
–14	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–16	57G6696	2	Screw, Developer Adjust
–17	57G6697	2	Screw, Adjust 2U Asm
–19	06F0091	1	Starter, Erase Lamp (ST101)
–20	57G6698	1	Starter, Erase Lamp (ST102)
–22	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–26	88F2426	1	Holder, Connector
–27	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–28	88F3092	1	Holder, Sensor
–29	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–30	88F3335	1	Cover, SW Drum Asm
–31	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–32	88F2427	2	Rail, Slide
–33	06F0413	8	Screw, Phillips Bind Hd M4 X 10 PP
–35	06F0089	1	Lamp, Erase (PL102)
–36	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–37	88F2428	1	Holder, Connector
–38	53F1866	1	Cable, High Voltage (Preclean Corona)
–39	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–40	88F3391	2	Ferrite Bead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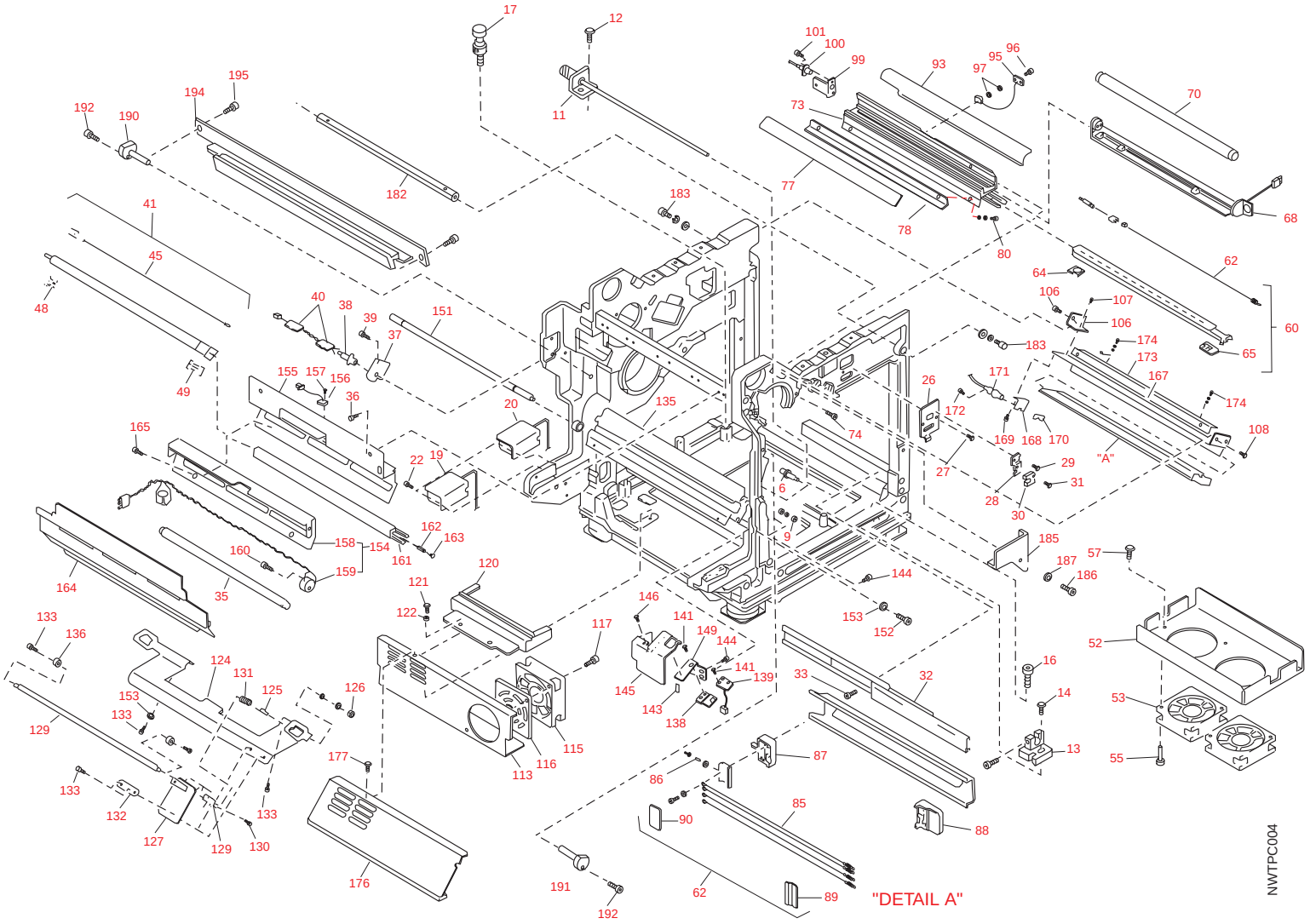
Asm–Index	Part Number	Units	Description
5–		NP	Corona and Erase Lamp Hardware (Sheet 2 of 6)
–41	57G6505	1	Corona, Preclean Asm (All printers except 310 and 324 PPM)
–41	30H6934	1	Corona, Preclean Asm (310 and 324 PPM only)
–45	57G6503	1	Wire, Corona
–45	30H6586	1	Wires (8), Corona
–48	88F1632	1	Cover, Terminal
–49	88F1633	1	Cover, Terminal Wire
–52		NP	
–53	06F0194	2	Fan, B108 & B109
–55	06F0413	4	Screw, Bind Hd with Star Wshr & Wshr M4 X 50 PP
–57	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–60	57G6505	1	Corona, Precharge Asm
–62	57G6503	1	Wire, Corona
–62	30H6586	1	Wires (8), Corona
–64	88F1632	1	Cover, Terminal
–65	88F1633	1	Cover, Terminal Wire
–68	57G6700	1	Erase, Secondary Asm


"DETAIL A"
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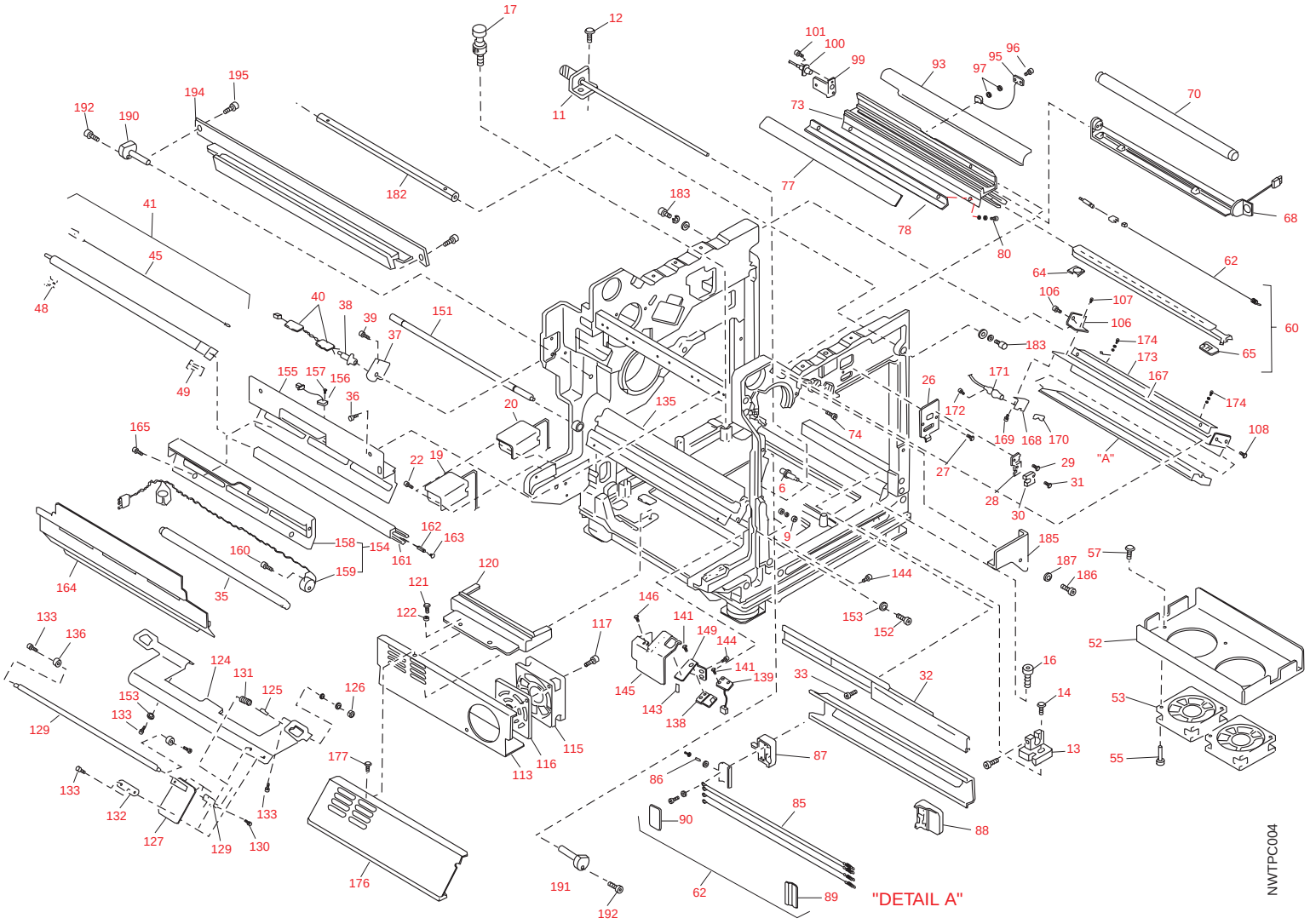
NWTPC004

Asm–Index	Part Number	Units	Description
5–		NP	Corona and Erase Lamp Hardware (Sheet 3 of 6)
–70	57G6508	1	Lamp, Erase (PL101)
–73		NP	
–74	88F3349	4	Screw, Tapping Tight
–77		NP	
–78		NP	
–80	06F0413	2	Screw, Bind Hd with Star Wshr & Wshr M3 X 8 PP
–82	57G6504	1	Corona, Charge Asm (With toner PN 70X7425 - Except IS1, ID1/ID2)
–82	90H1155	1	Corona, Charge Asm (IS1, ID1/ID2 with toner PN 70X7425)
–82	90H1155	1	Corona, Charge Asm (With toner PN 1402822)
–85	57G6503	4	Wire, Corona
–85	30H6586	1	Wires (8), Corona
–86	90H1038	1	Terminal, Charge Corona, (IS1, ID1/ID2, and 324 PPM)
–87	90H1037	1	Holder, Corona Wire (rear) (IS1, ID1/ID2, and 324 PPM)
–88	90H1036	1	Holder, Corona Wire (front) (IS1, ID1/ID2, and 324 PPM)
–89	88F2434	1	Cover, Wire Holder


"DETAIL A"
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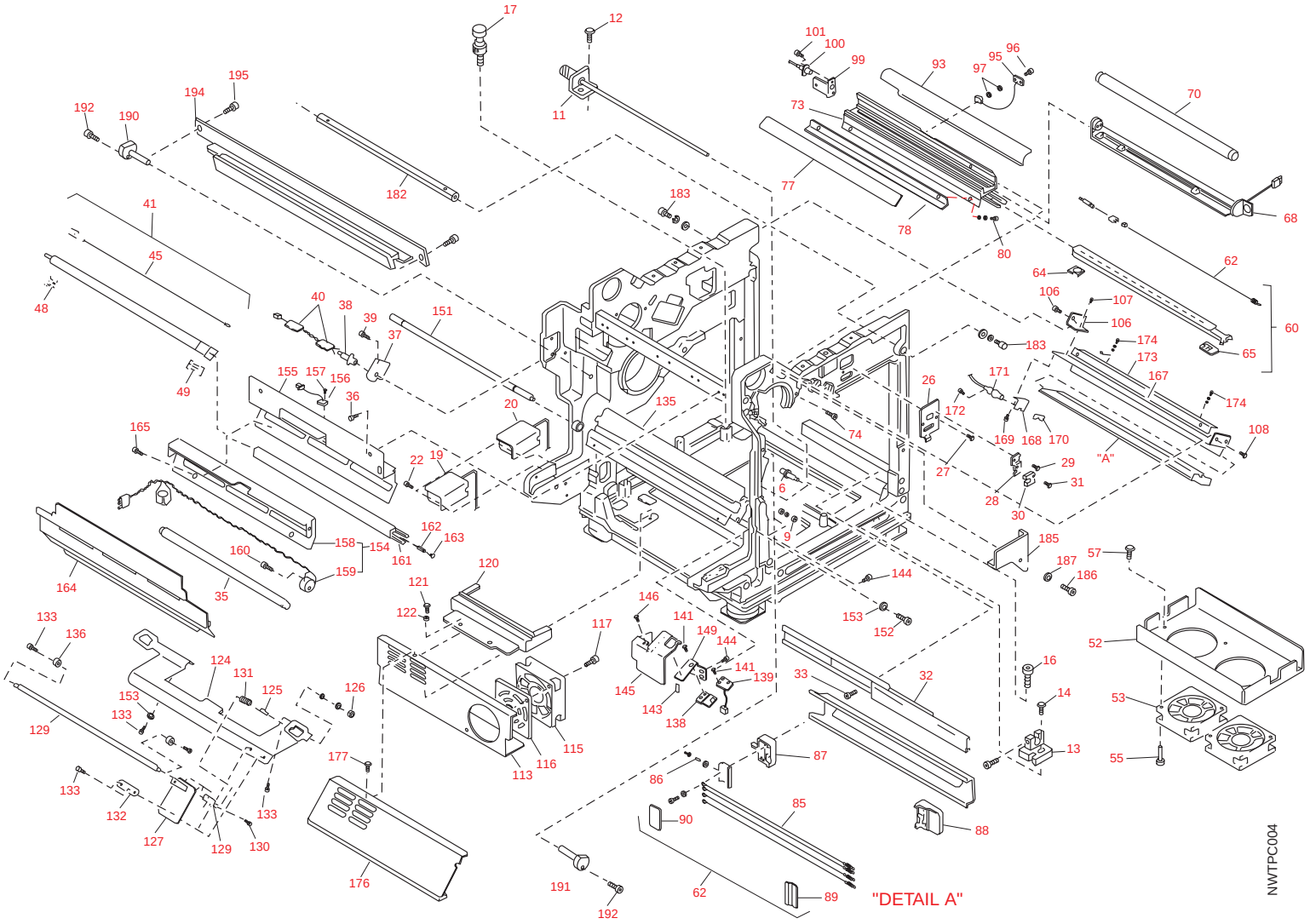
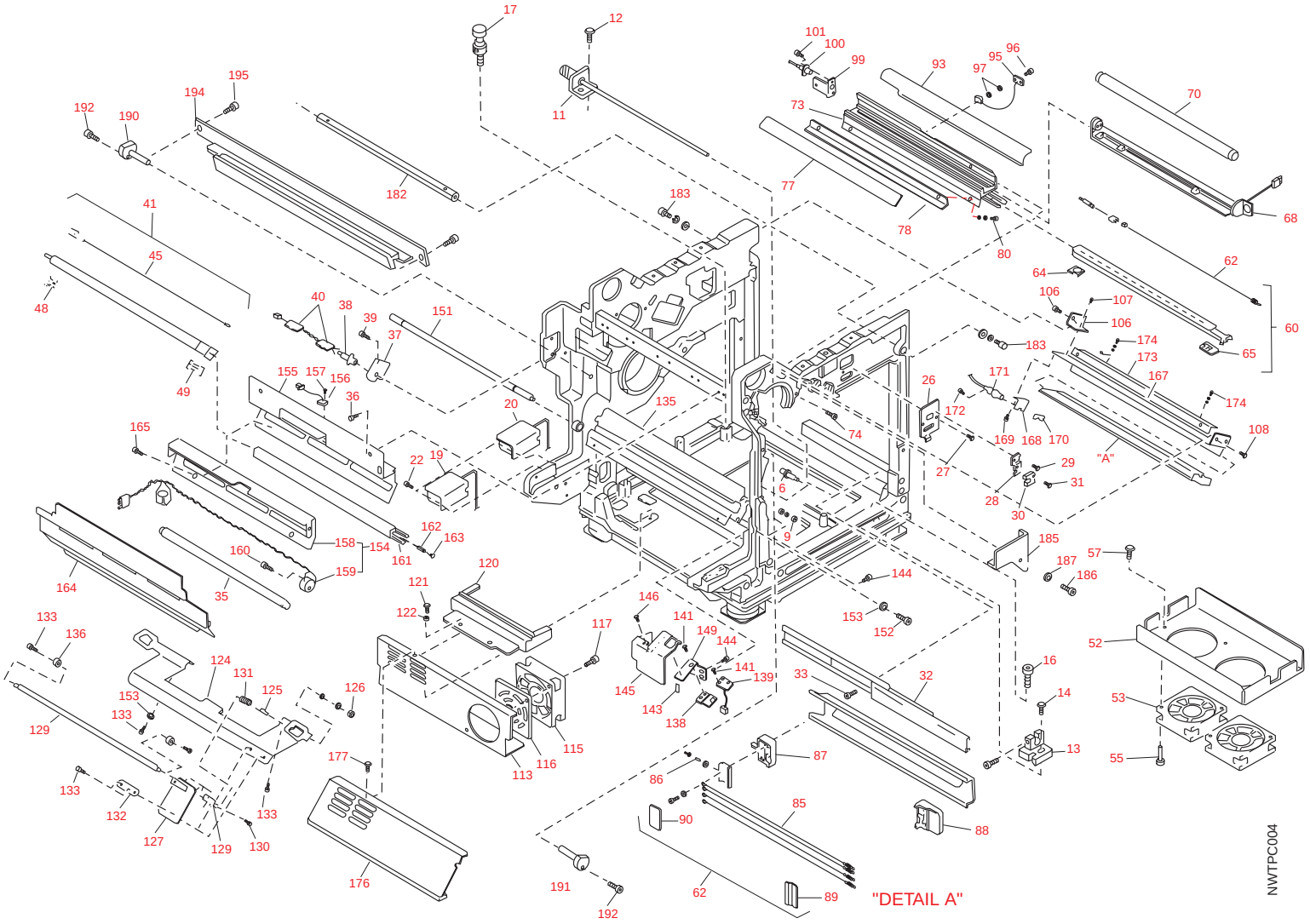
NWTPC004

Asm–Index	Part Number	Units	Description
5–		NP	Corona and Erase Lamp Hardware (Sheet 4 of 6)
–90	88F2435	1	Cover, Wire Holder
–93		NP	
–95	53F1869	1	Sensor, Secondary Erase Asm (Q102)
–96	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 10 PP
–97	06F0406	4	Washer, FP PP
–99		NP	
–100	53F1868	1	Cable, High Voltage (Precharge Corona)
–101	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 10 PP
–106	88F2438	1	Holder
–107	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–108	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–113		NP	
–115	06F0194	1	Fan, Left Front Developer (B104)
–116		NP	
–117	06F0413	2	Screw, Bind Hd M4 X 50 PP
–120		NP	
–121	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10 PP
–122	06F0406	1	Washer, Special PP
–124		NP	
–125	88F2443	2	Guide, C Spring
–126	06F0407	2	Nut, M4 PP
–127	88F2444	2	Spring, Pre-measure
–128		NP	
–129	88F2446	2	Holder, Spring
–130	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–131	88F2447	2	Spring, Compression Coil
–132	88F2448	2	Holder, Spring
–133	06F0420	11	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP


"DETAIL A"
"A"
NWTPC004

Asm–Index	Part Number	Units	Description
5–		NP	Corona and Erase Lamp Hardware (Sheet 5 of 6)
–135	30H6930	1	Guide, Lower Paper
–136	88F2450	2	Bearing, Ball
–138	88F2451	1	Holder, Transfer Sensor
–139	53F1829	1	Sensor, Transfer Station Open Asm (S302)
–141	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–143	88F2452	1	Plate, Y.S Nut
–144	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 10 PP
–145	88F2453	1	Cover, Transfer Station Sensor
–146	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–149	88F2454	1	Holder, Transfer Station Sensor
–151	88F2455	1	Stay, Transfer Station Stopper
–152	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M5 X 16 PP
–153	06F0420	3	Washer, Press PP
–154	57G6711	1	Lamp, Erase Asm
–155	90H2710	1	Holder, Preclean and Erase
–156	53F1869	1	Sensor, Primary Erase Asm (Q101)


"DETAIL A"
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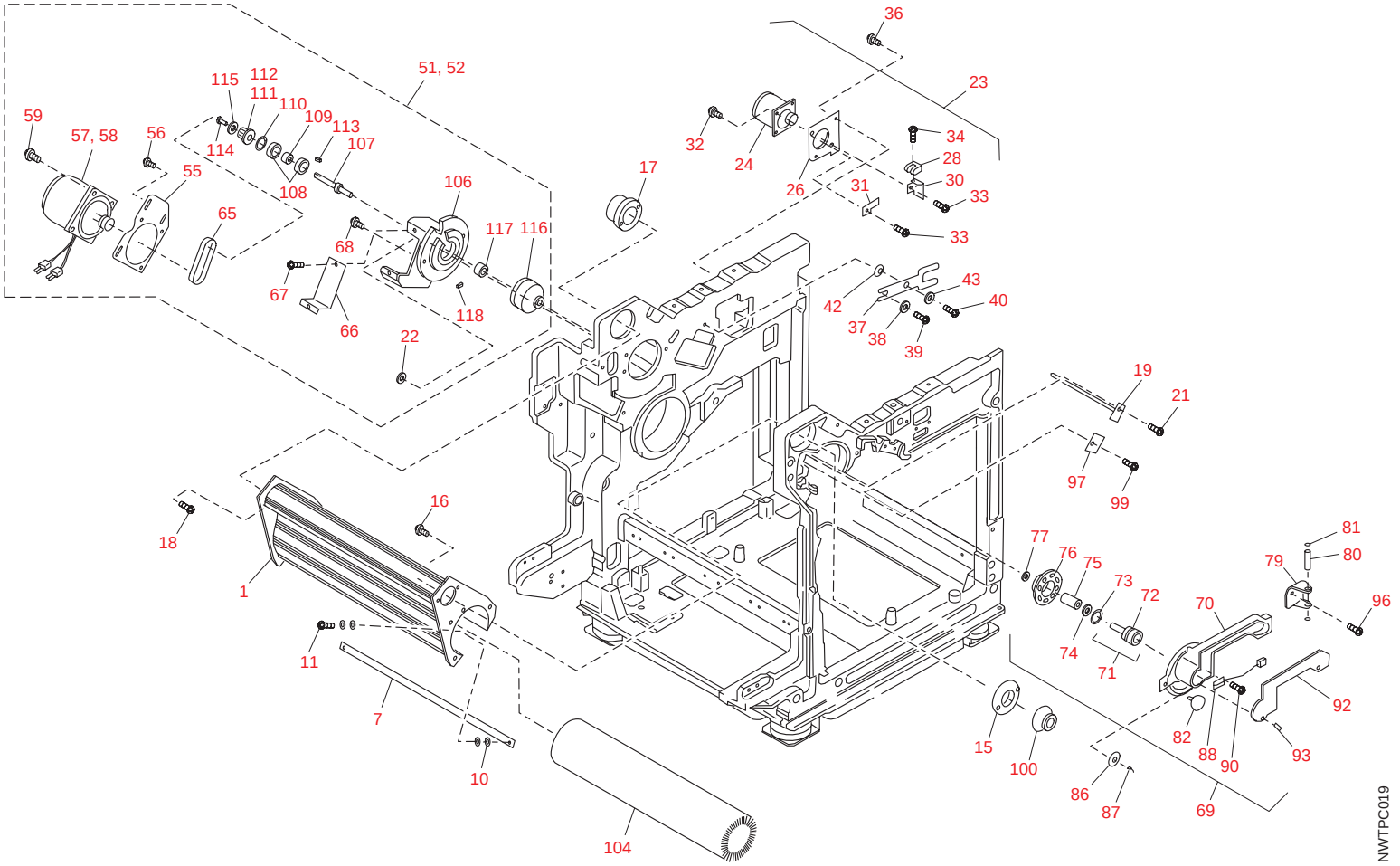
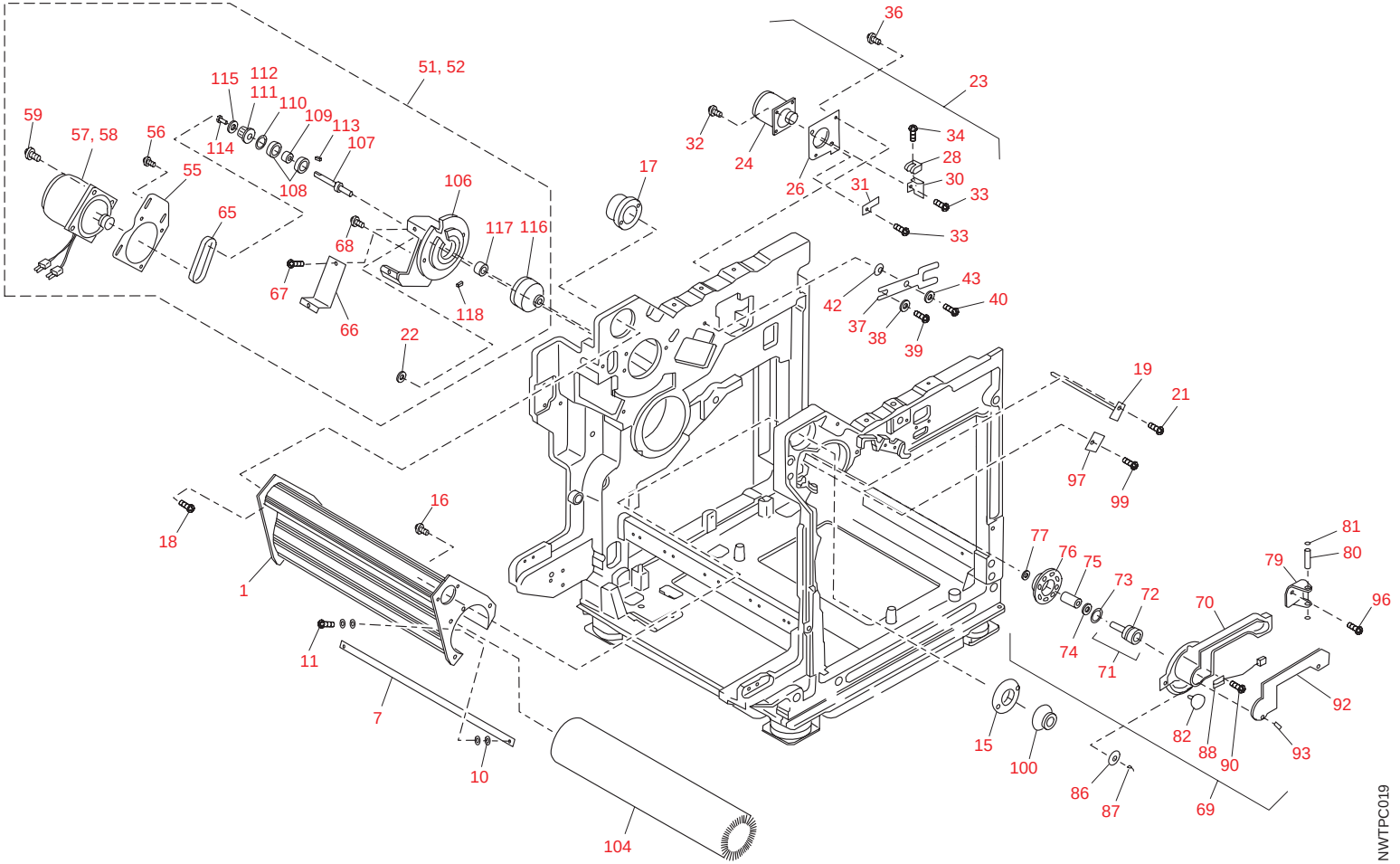
NWTPC004

Asm–Index	Part Number	Units	Description
5–		NP	Corona and Erase Lamp Hardware (Sheet 6 of 6)
–157	06F0413	2	Screw, Phillips Bind Hd M3 X 6 PP
–158		NP	
–159	57G6713	1	Cable, Secondary Erase Asm
–160	88F1626	2	Screw, Phillips Pan Hd M3 X 10 PP
–161	57G6714	1	Rail, Preclean Guide
–162	88F1634	1	Spring, Reflector
–163	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–164		NP	
–165	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–167	57G6715	1	Guide, Charge Corona
–168	06F0510	1	Holder, Charge Corona Connector
–169	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–170	06F0509	1	Plate, Connector Hold
–171	53F1867	1	Cable, High Voltage (Charge Corona)
–172	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 10 PP
–173	57G6716	1	Spring, Reflector
–174	06F0413	2	Screw, Phillips Bind Hd M4 X 6 PP
–176		NP	
–177	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–182		NP	
–183	06F0414	2	Bolt, Hexagon Socket Hd M8 X 30 PP
–185		NP	
–186	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–187	06F0420	1	Washer, Press PP
–190		NP	
–191		NP	
–192	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–194		NP	
–195	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP

Assembly 6: Cleaner Hardware



Asm–Index	Part Number	Units	Description
6–		NP	Cleaner Hardware (Sheet 1 of 4)
–1		NP	
–7		NP	Shaft, Cleaner brush knock off
–10	06F0407	2	Nut, M4 PP
–11	06F0404	2	Bolt, Hexagon Socket Hd M4 X 12 (stainless) PP
–15	06F0483	1	Duct, Front Flange
–16	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–17	06F0482	1	Duct, Rear Flange
–18	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–19	30H6921	1	Knockoff Sub-Asm
–21	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–22	88F1627	1	Nut, Flange PP
–23	88F2470	1	Motor, Cleaner Housing (M106) Asm
–24	53F1872	1	Motor, Cleaner Housing (M106)
–26	88F2471	1	Plate, Cleaner Housing Motor Asm
–28	53F1793	1	Switch, Cleaner Housing Position Asm (S103)
–30	06F0495	1	Holder, (S103)
–31	88F2472	1	Plate, Sensor (S103)
–32	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–33	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–34	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–36	88F1626	2	Bolt, Hexagon Socket with Star Wshr & Wshr M5 X 10 PP
–37	88F2473	1	Arm, Cleaner Housing
–38	88F2474	1	Spacer
–39	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–40	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 25 PP
–42	06F0417	1	Washer, Shaft Clamp PP
–43	88F2475	1	Spacer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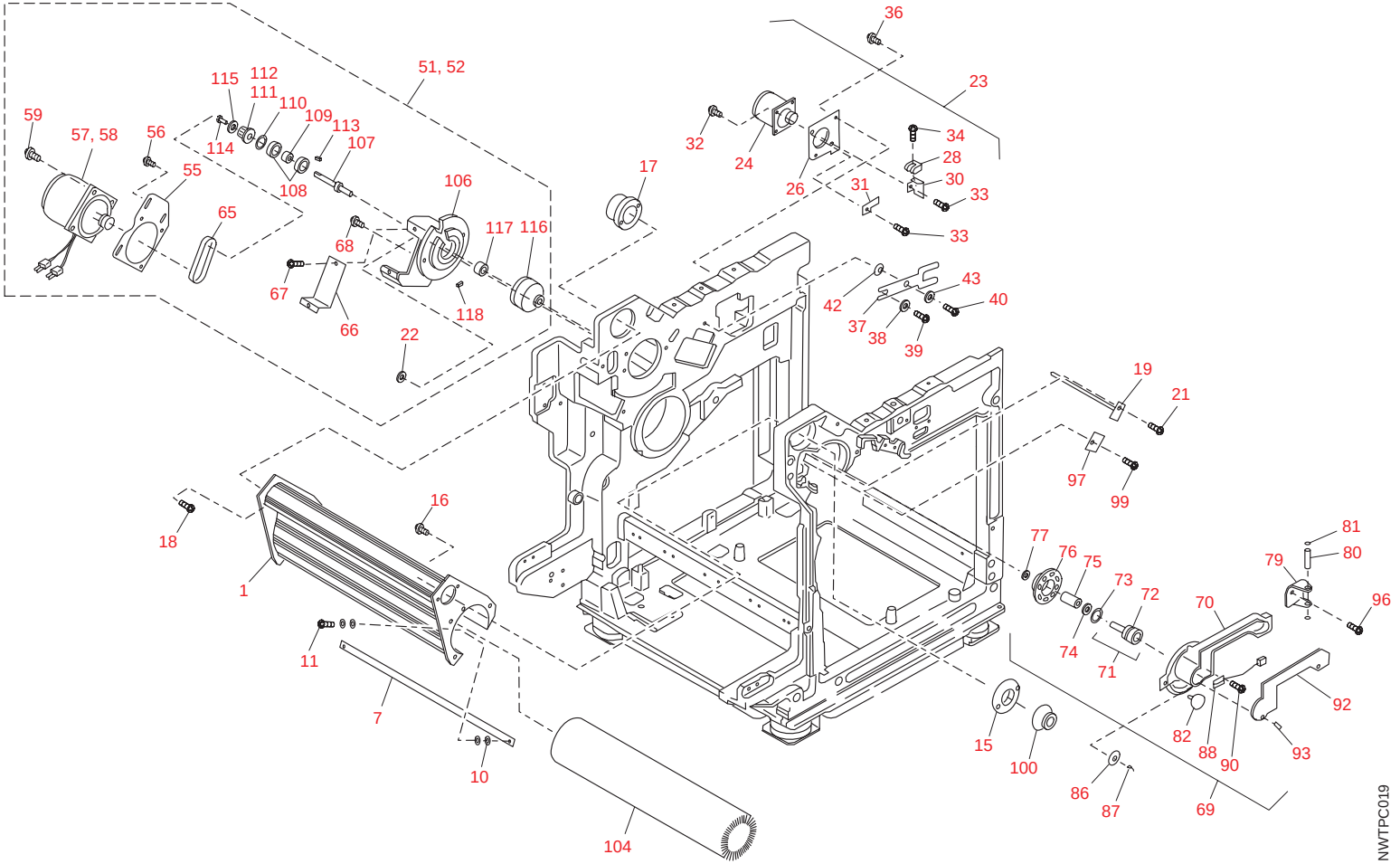
NWTPC019

Asm–Index	Part Number	Units	Description
6–		NP	Cleaner Hardware (Sheet 2 of 4)
–51	57G4380	1	Motor, Cleaner Brush (M108) Asm 50 Hz (All except 310and 324 PPM)
–51	63H7537	1	Motor, Cleaner Brush (M108) Asm 50 Hz (310 and 324 PPM only)
–52	57G4381	1	Motor, Cleaner Brush (M108) Asm 60 Hz (All except 310 and 324 PPM)
–52	63H7538	1	Motor, Cleaner Brush (M108) Asm 60 Hz (310 and 324 PPM only)
–55	88F2478	1	Plate, Cleaner Brush Motor
–56	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–57	06F0051	1	Motor, Cleaner Brush (M108) 50 Hz (All except 310 and 324 PPM)
–57	30H6915	1	Motor, Cleaner Brush (M108) 50 Hz (310 and 324 PPM only)
–58	06F0052	1	Motor, Cleaner Brush (M108) 60 Hz (All except 310 and 324 PPM)
–58	30H6916	1	Motor, Cleaner Brush (M108) 60 Hz (310 and 324 PPM only)
–59	06F0411	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M6 X 16 PP
–65	57G4382	1	Belt, Cleaner Brush Motor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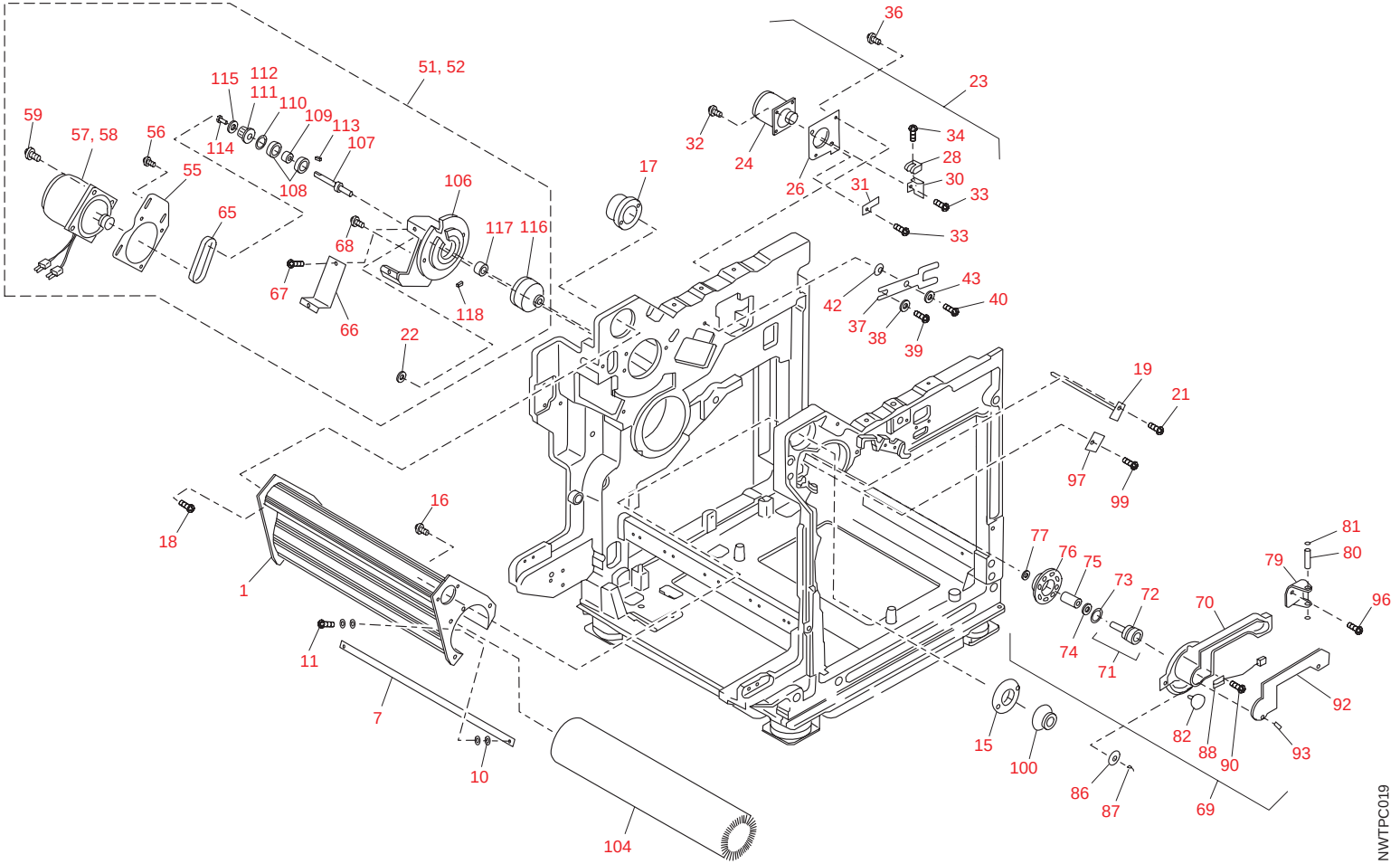
NWTPC019

Asm–Index	Part Number	Units	Description
6–		NP	Cleaner Hardware (Sheet 3 of 4)
–66	88F2479	1	Cover, Cleaner Brush
–67	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–68	88F1626	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M6 X 12 PP
–69	88F2480	1	Front, Cleaner Brush Hub
–70	88F2481	1	Cap, Front
–71	53F1873	1	Shaft, Driven Cone Asm
–72	06F0054	2	Bearing, Ball
–73	06F0409	1	Ring, Retaining PP
–74	88F2482	1	Retainer, Spring
–75	88F2483	1	Spring, Front Hub
–76	88F2484	1	Cone, Cleaner Brush Driven
–77	06F0409	1	Ring, Retaining PP
–79	88F2485	1	Hinge, Cleaner Brush Front Cap
–80	88F2486	1	Shaft, Cleaner Brush Hinge
–81	88F1627	2	Ring-E PP
–82	06F1015	1	Bolt, Clamper Asm
–86	88F2487	1	Plate, Magnet Cleaner Brush
–87	06F0418	1	Ring, Grip PP
–88	53F1829	1	Sensor, Cleaner Brush Rotation Asm (S114)
–90	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–92	88F2488	1	Cover, Front Cap
–93	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–96	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–97	88F2489	1	Cover, Flicker
–99	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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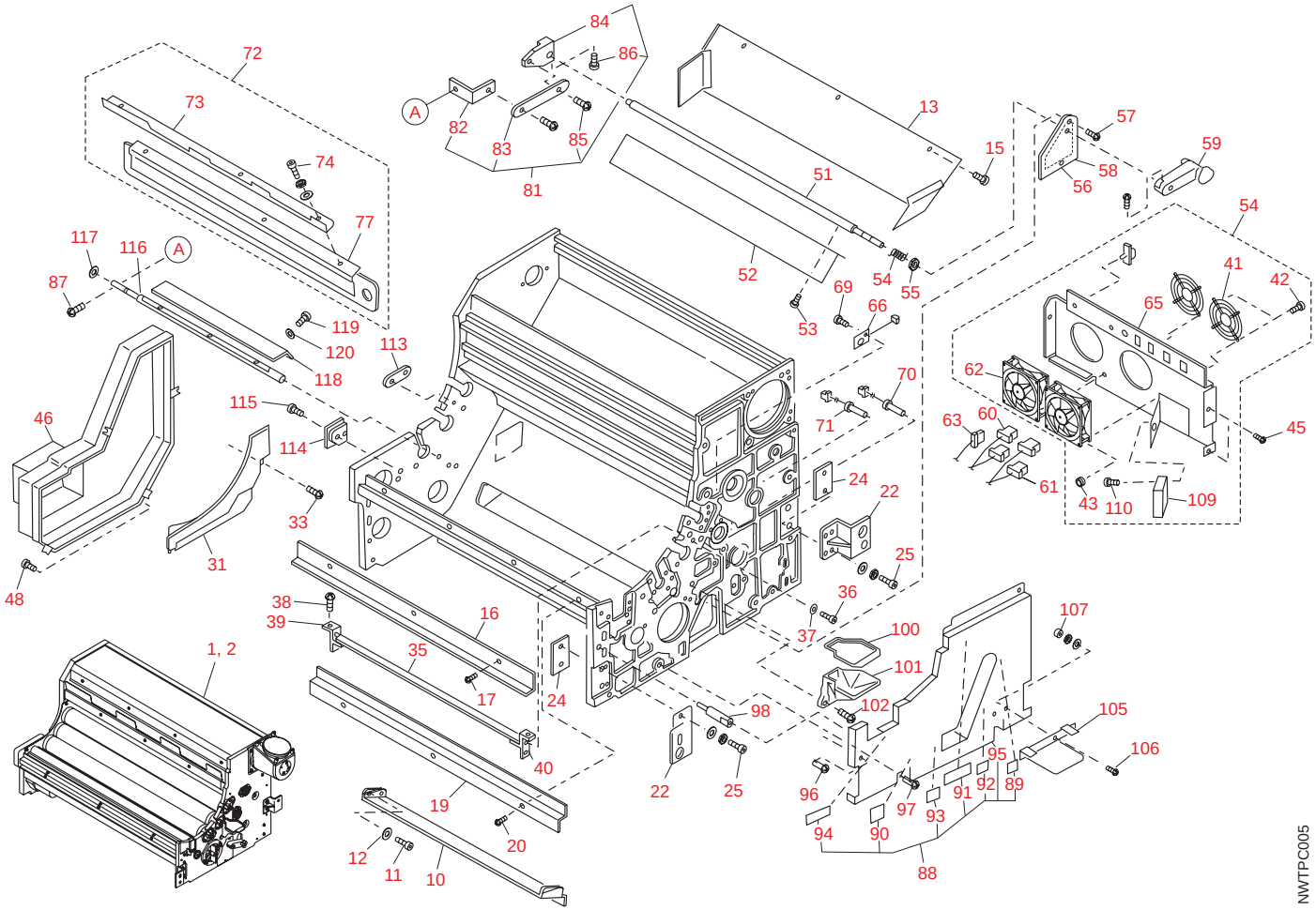
Asm–Index	Part Number	Units	Description
6–		NP	Cleaner Hardware (Sheet 4 of 4)
–100	06F0291	1	Cap, Air Duct
–104	57G6462	1	Brush, Cleaner
–106	88F2490	1	Base, Cleaner Brush Motor Asm
–107	88F2491	1	Shaft, Cleaner Brush Drive
–108	06F0054	2	Bearing, Ball
–109	88F2492	1	Spacer, Cleaner Brush
–110	06F0409	1	Ring, Retaining PP
–111	57G4383	1	Pulley, Cleaner Brush Driven 50Hz (All except 310 and 324 PPM)
–111	04H0780	1	Pulley, Cleaner Brush Driven 50/60 Hz (310 and 324 PPM only)
–112	57G4384	1	Pulley, Cleaner Brush Driven 60 Hz (All except 310 and 324 PPM)
–113	06F0408	1	Key, 3 X 3 X 12 PP
–114	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–115	06F0420	1	Washer, Press PP
–116	57G6726	1	Cone, Drive Asm
–117	06F0292	1	Ring, Tight
–118	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 16 PP

Assembly 7: Developer Hardware



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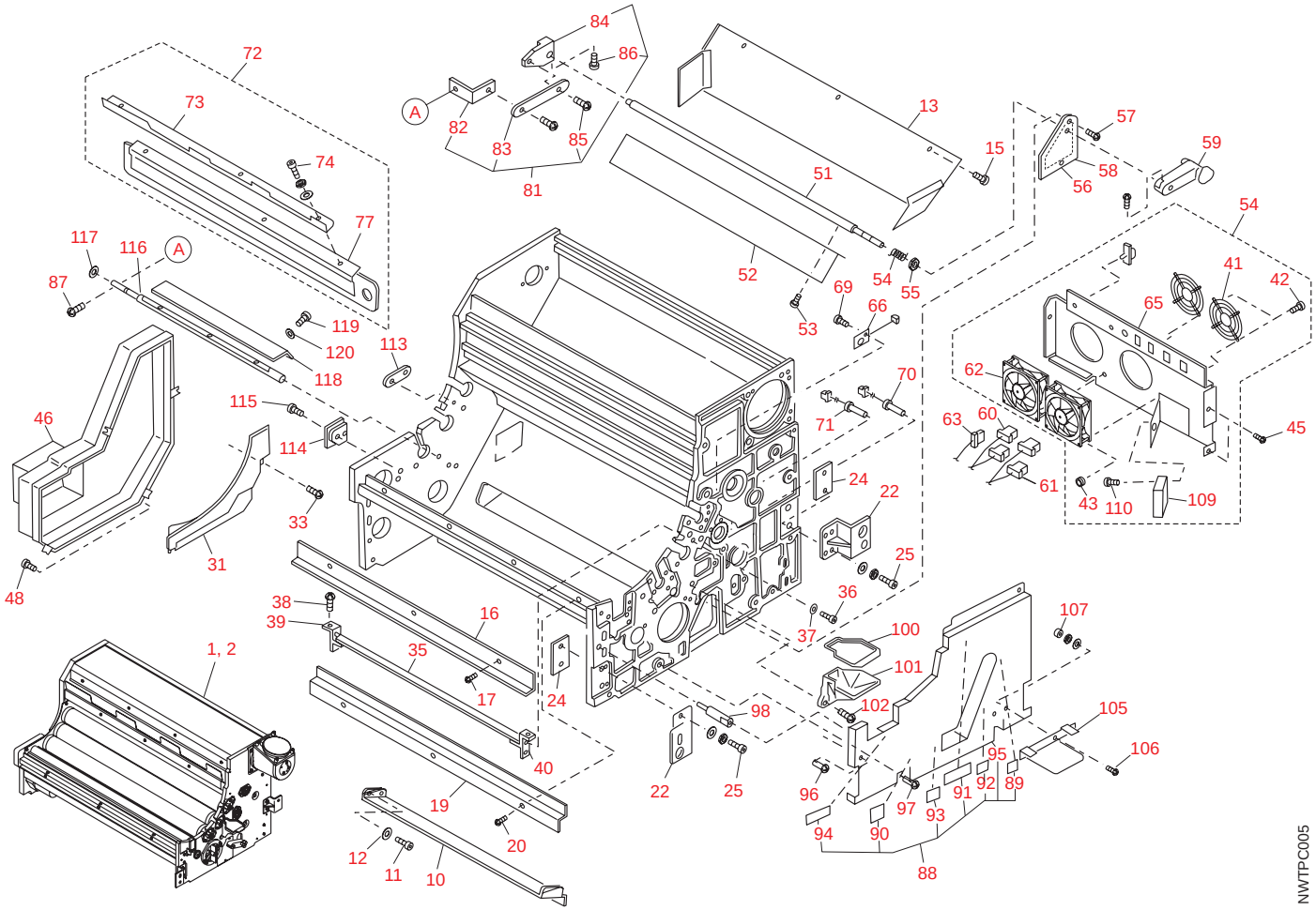
Asm–Index	Part Number	Units	Description
7–		NP	Developer Hardware (Sheet 1 of 5)
–1	24H8184	1	Developer Unit, 50 Hz (150 PPM, 480/600 DPI with ETL)
–1	30H6777	1	Developer Unit, 50 Hz (229 PPM, 240 DPI with Enhanced Toner Loading (ETL)
–1	30H6779	1	Developer Unit, 50 Hz (310 PPM, 240 DPI with ETL)
–1	90H1766	1	Developer Unit, 50 Hz (324 PPM, 240 DPI with ETL)
–1	90H1764	1	Developer Unit, 50 Hz (IS1, ID1/ID2 printers only)
–2	24H8185	1	Developer Unit, 60 Hz (150 PPM, 480/600 DPI with ETL)
–2	30H6778	1	Developer Unit, 60 Hz (229 PPM, 240 DPI with Enhanced Toner Loading (ETL)
–2	30H6780	1	Developer Unit, 60 Hz (310 PPM, 240 DPI with ETL)
–2	90H1765	1	Developer Unit, 60 Hz (324 PPM, 240 DPI with ETL)
–2	90H1763	1	Developer Unit, 60 Hz (IS1, ID1/ID2 printers only)
–10		NP	
–11	06F0404	4	Bolt, Hexagon Socket Hd M4 X 8 (stainless) PP
–12	06F0406	4	Washer, Bolt D4 (brass) PP
–13		NP	
–15	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–16	88F2494	1	Vacuum, Developer
–17	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–19	88F3388	1	Vacuum, Developer
–20	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–22	57G5971	2	Plate, Mounting
–24	88F2499	2	Plate, Clamper
–25	06F0403	4	Bolt, Hexagon Socket Hd M5 X 25 PP
–31	45G1882	1	Seal, Rear Asm
–33	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP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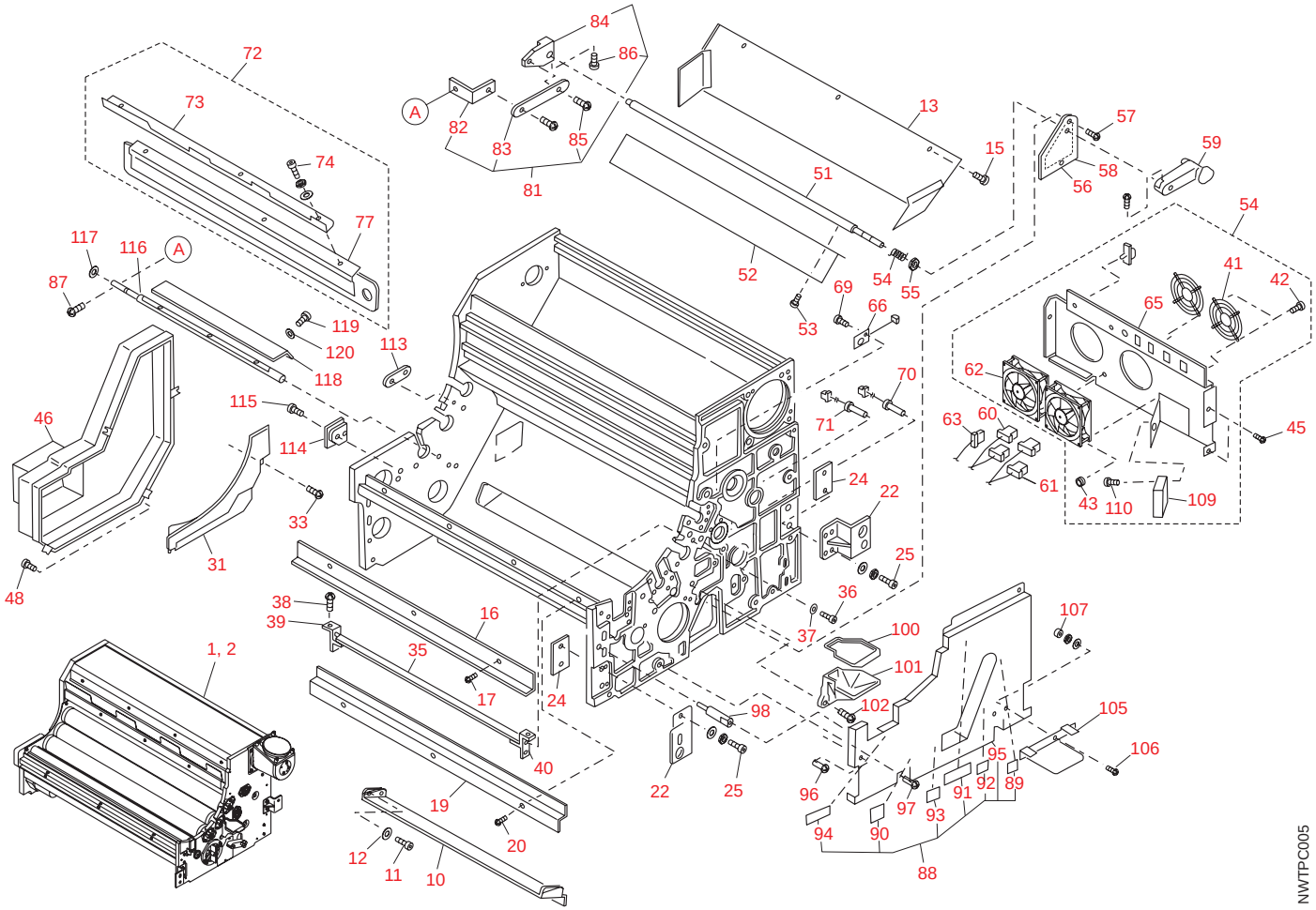
Asm–Index	Part Number	Units	Description
7–		NP	Developer Hardware (Sheet 2 of 5)
–35		NP	
–36	06F0404	4	Bolt, Hexagon Socket Hd M4 X 12 (stainless) PP
–37	06F0406	4	Washer, Bolt D4 (brass) PP
–38	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–39	02N7865	1	Holder, Rear Doctor
–40	02N7864	1	Holder, Front Doctor
–41	06F0569	2	Guard, Fan
–42	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–43	06F0407	4	Nut, Flange M4 PP
–45	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 25 PP
–46	57G5984	1	Cover, Belt Asm
–48	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–51		NP	
–52		NP	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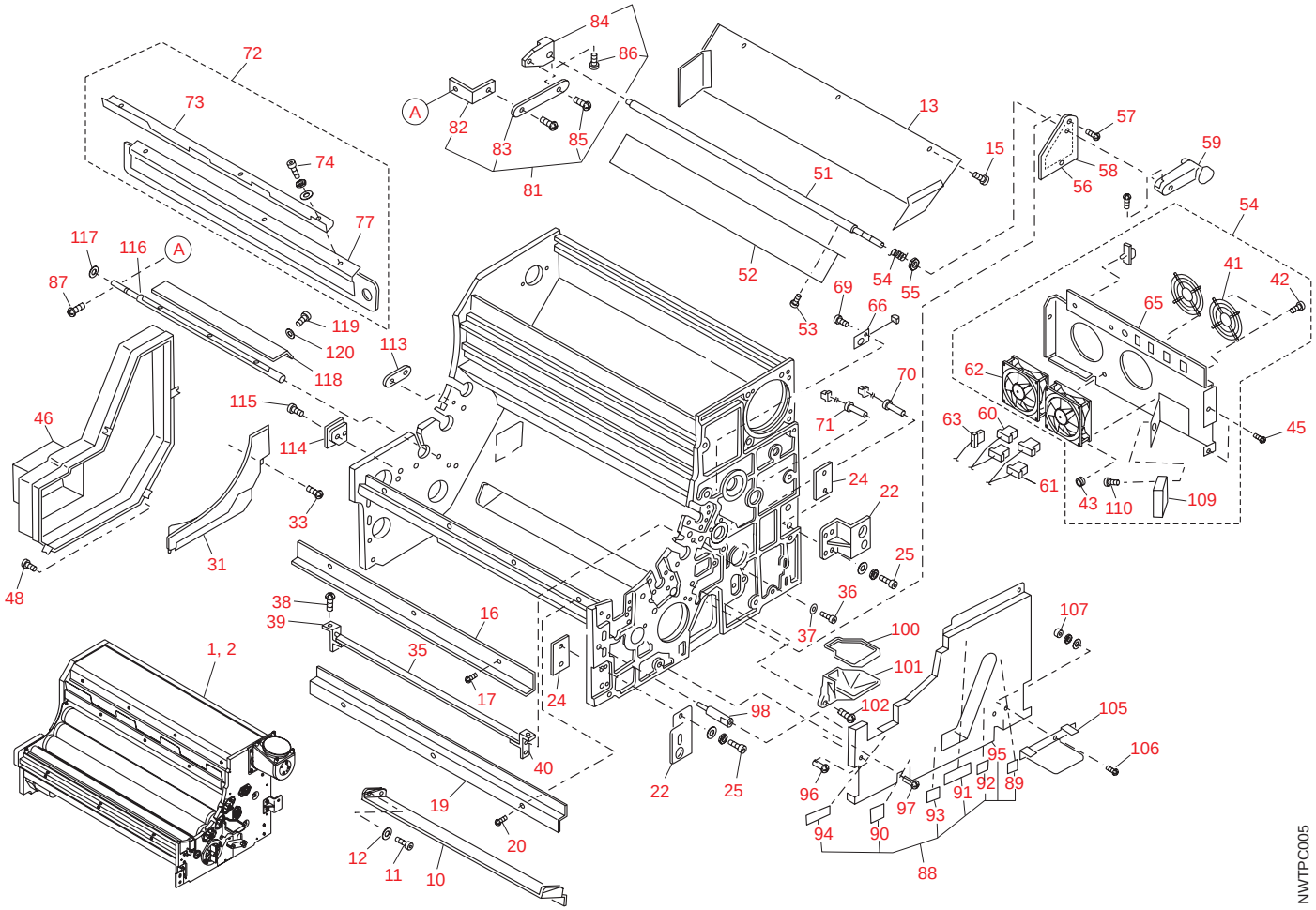
Asm–Index	Part Number	Units	Description
7–		NP	Developer Hardware (Sheet 3 of 5)
–53	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–54	88F2504	1	Cover, Latch Spring
–55	06F0418	1	E-Clip PP
–56	57G5982	1	Holder, Exhaust
–57	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–58	57G5981	1	Seal, Exhaust Guide
–59	88F2507	1	Lever, Exhaust Asm
–60	57G5980	1	Cable, DEV AC Asm
–61	57G5979	1	Cable, DEV DC Asm
–62	06F0194	2	Fan, (B110, B111)
–63	57G5978	1	Cable, Bias Asm
–64		NP	
–65		NP	
–66	53F1829	1	Sensor, Drain Lever Switch (S112)
–68	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–70	06F0059	1	Switch, Developer Run (S107)
–71	57G5974	1	Switch, Developer Toner Supply (S121)
–72	04H0559	1	Guide, Holder Asm
–73	04H0560	1	Guide, Holder
–74	88F1626	3	Bolt, Hexagon Socket Hd M3 x 6 PP
–77	04H0561	1	Holder, Rail Asm
–81	57G5994	1	Exhaust Link Asm
–82	57G5993	1	Arm, Link
–83	57G5992	1	Plate, Link
–84	57G5991	1	Arm, Link
–85	06F0404	2	Screw, Phillips Bind Hd M3 X 4 (stainless) PP
–86	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 12 PP
–87	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP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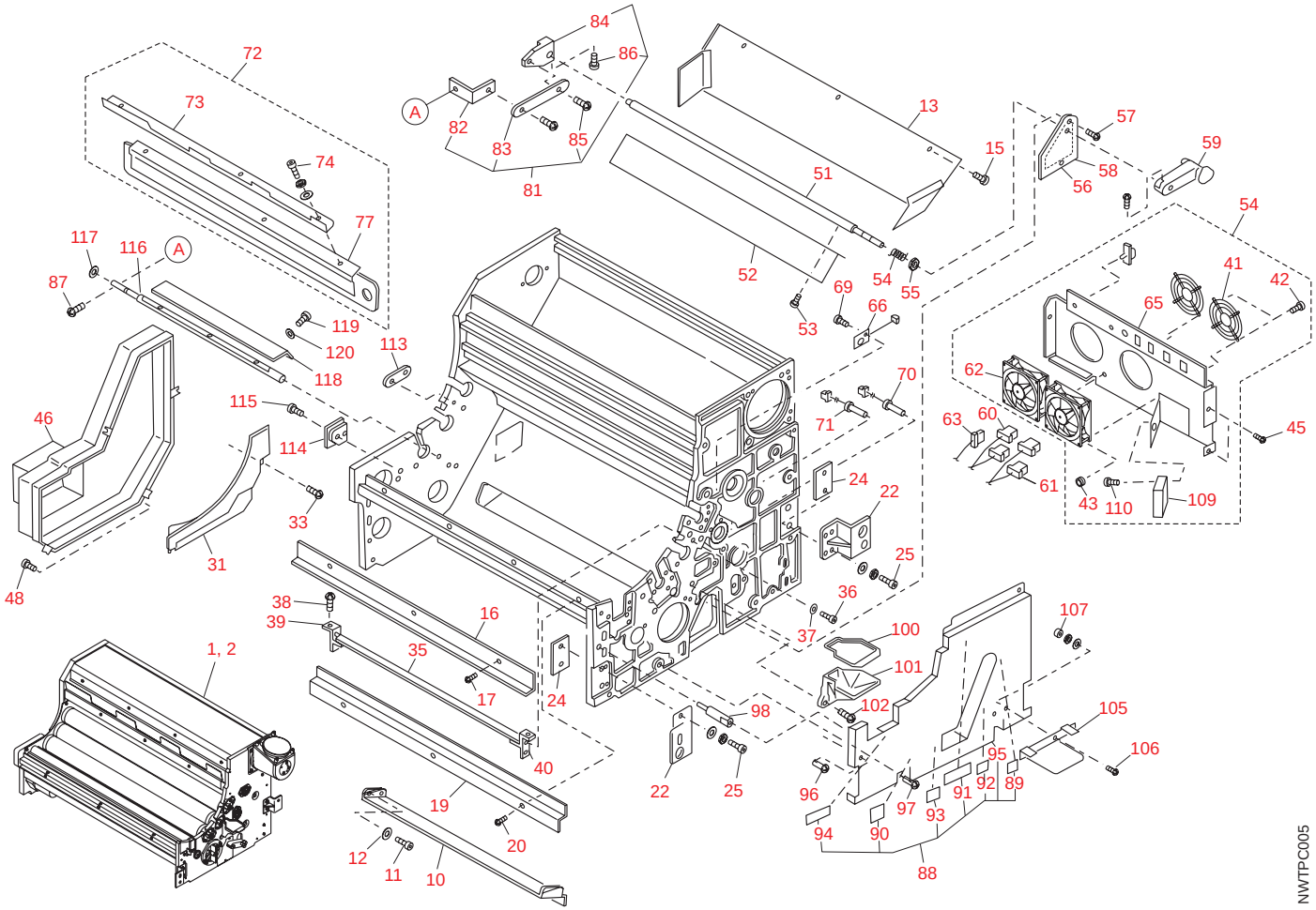
Asm–Index	Part Number	Units	Description
7–		NP	Developer Hardware (Sheet 4 of 5)
–88	57G6731	1	Label, Kit for Developer Front Cover
–89		NP	
–90		NP	
–91		NP	
–92		NP	
–93		NP	
–94		NP	
–95	57G5990	1	Cover, Developer Front Asm
–96	06F0413	1	Screw, Phillips Bind Hd M5 X 12 PP
–97	06F0413	3	Screw, Phillips Bind Hd M4 X 12 PP
–98		NP	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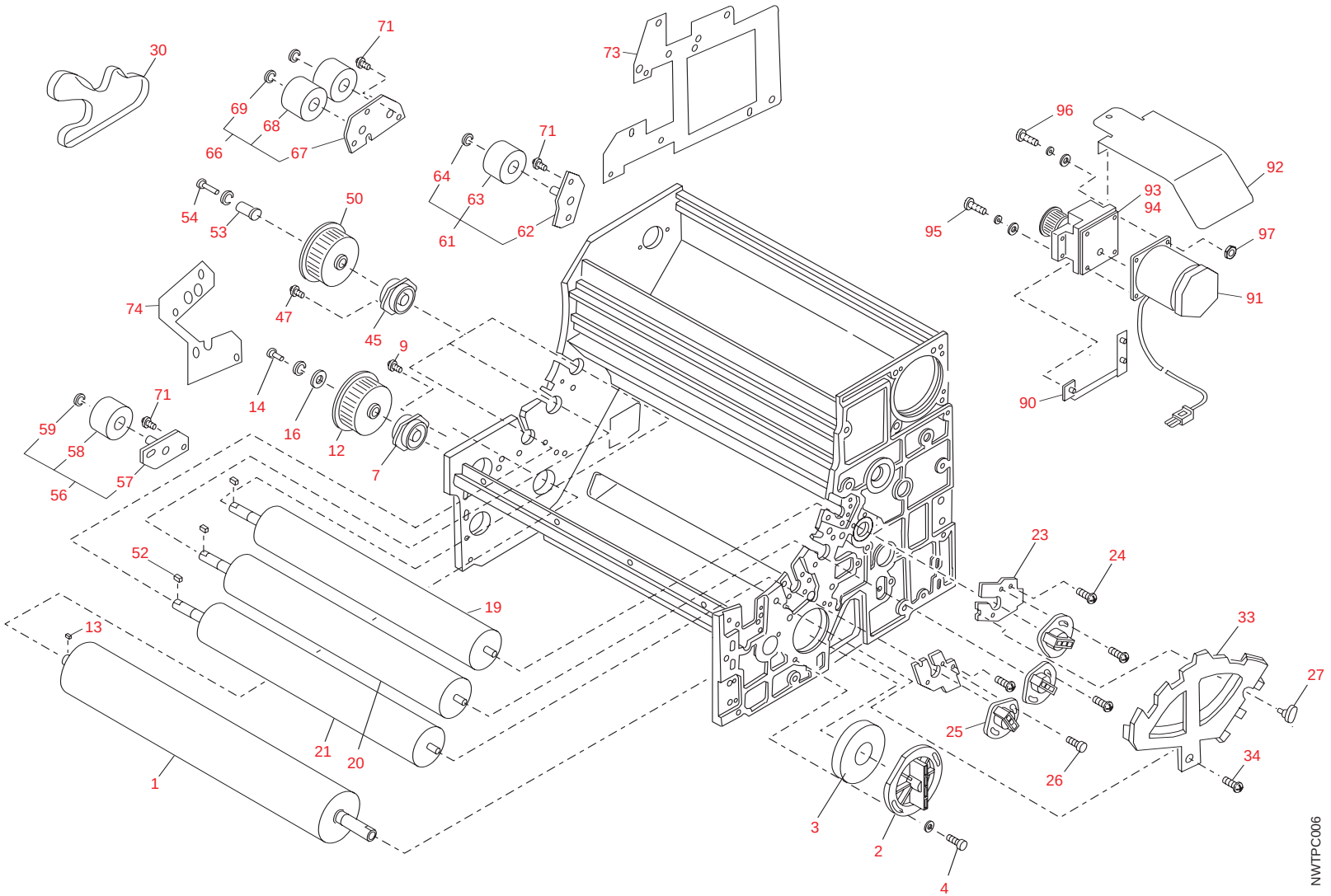
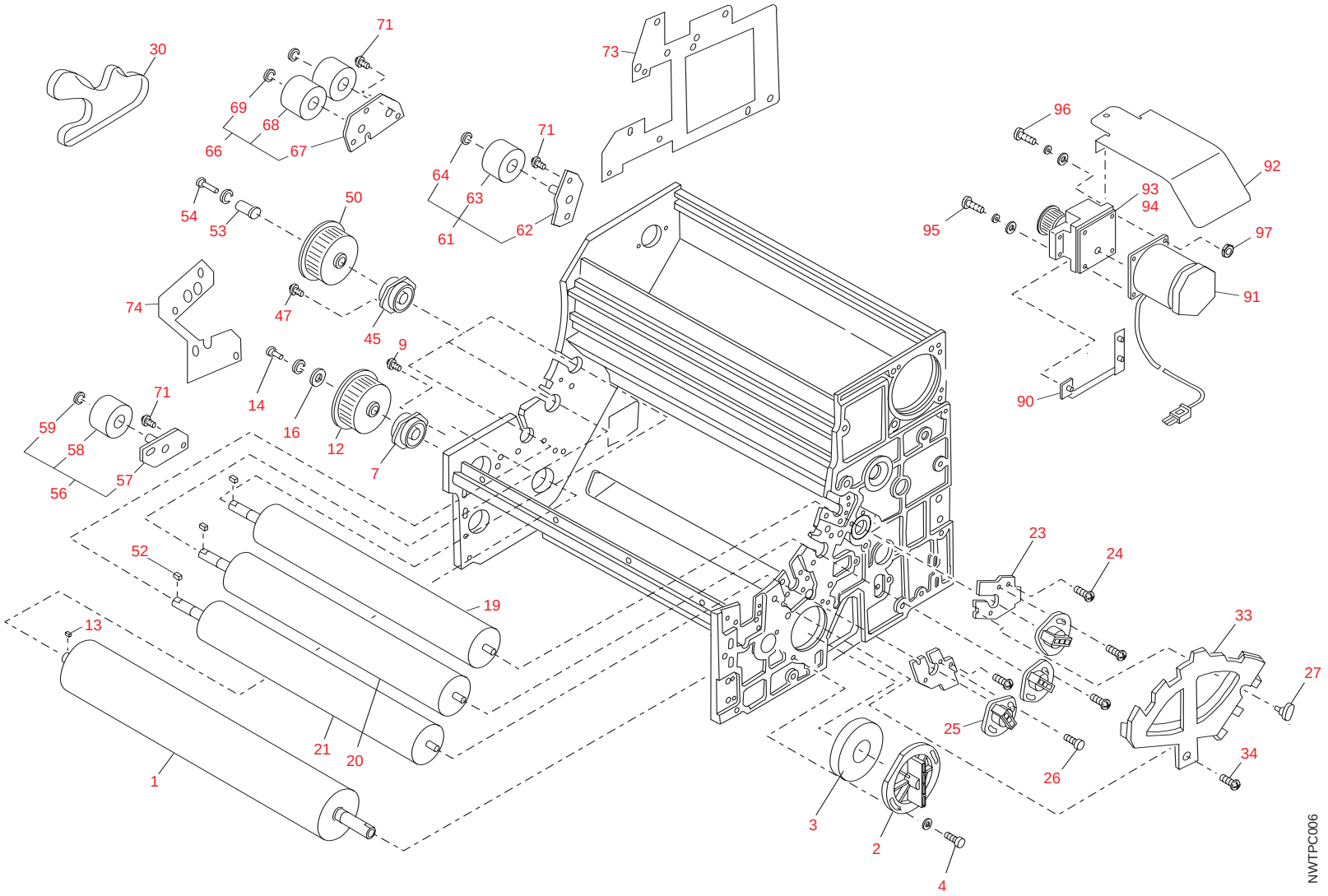
Asm–Index	Part Number	Units	Description
7–		NP	Developer Hardware (Sheet 5 of 5)
–100	88F2522	1	Cap, Developer Mix Inlet
–101	88F2523	1	Inlet, Developer Mix
–102	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–105	88F2524	1	Plate, Tray TN
–106	06F0413	2	Screw, Phillips Bind Hd M4 X 12 PP
–107	06F0407	2	Nut, M4 PP
–109	57G5989	1	Fan
–110	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr PP
–113	57G5988	1	Thermal, Bias
–114	57G5987	1	Seal, Cable Asm
–115	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–116	57G6739	1	Guide, Holder
–117	06F0418	1	E-Clip PP
–118	57G6740	1	Guide, Sub Holder
–119	06F0404	3	Bolt, Hexagon Socket Hd M4 X 8 (stainless) PP
–120	06F0406	3	Washer, Bolt D4 (brass) PP

Assembly 8: Developer Hardware



Asm–Index	Part Number	Units	Description
8–		NP	Developer Hardware (Sheet 1 of 3)
–1	57G6530	1	Roll, Conveyor (For 310 PPM, also order item 3)
–2	88F2525	1	Knob, Conveyor Roll
–3	90H2395	1	Seal, Conveyor Roll (310 PPM)
–4	49G9613	2	Bolt, Hexagon Socket Hd M5 X 14
–7	53F1841	1	Flange Housing and Bearing Asm (Rear)
–9	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–12	57G4408	1	Pulley, Conveyor Roll (All Except 310 PPM, 324 PPM, and IR1/IR2)
–12	04H1089	1	Pulley, Conveyor Roll (310 PPM, 324 PPM, and IR1/IR2 only)
–13	88F1627	1	Key, 4 X 4 X 15 PP
–14	06F0420	1	Screw, Bind Hd with Star Wshr & Wshr 5 X 12 PP
–16	06F0420	1	Washer, Press PP
–19	30H2934	1	Roll, Magnetic A
–20	30H2935	1	Roll, Magnetic B
–21	30H2936	1	Roll, Magnetic C
–23	57G4407	2	Plate, Mag Roll Adjusting
–24	06F0411	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–25	57G4406	3	Cap, End, Mag Roll
–26	06F0411	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–27	45G2106	1	Screw, Shoulder
–30	45G1903	1	Belt, Mag Brush
–33	30H6847	1	Seal, Drum Asm
–34	06F0413	1	Screw, Phillips Bind Hd M5 X 10 PP
–45	53F1841	3	Flange Housing and Bearing Asm (Rear)
–47	06F0420	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–50	90H1373	3	Pulley, Mag Roll Brush (All except 310 PPM, 324 PPM, and IR1/IR2)
–50	04H1090	3	Pulley, Mag Roll Brush (310 PPM, 324 PPM, and IR1/IR2 only)
–52	88F1627	3	Key, 4 X 4 X 15 PP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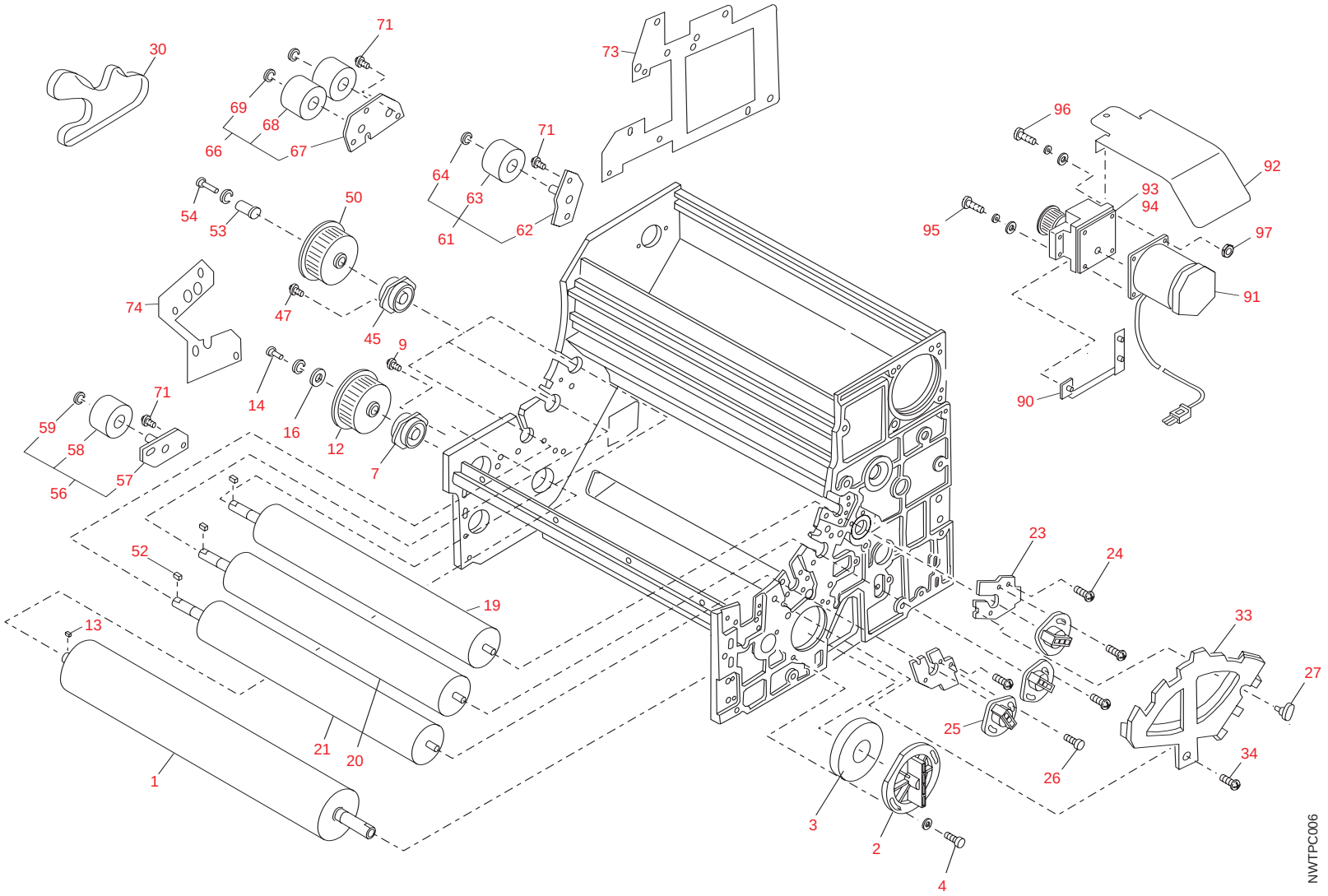
Asm–Index	Part Number	Units	Description
8–		NP	Developer Hardware (Sheet 2 of 3)
–53	57G6741	3	Shaft, Bias
–54	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 30 PP
–56	57G4415	1	Idler Asm, (All except 310 PPM and 324 PPM)
–56	04H1087	1	Idler Asm, (310 PPM, 324 PPM only)
–57	57G4414	1	Support, Idler
–58	45G1897	1	Idler Pulley Asm (All except 310 PPM, 324 PPM, and IR1/IR2)
–58	04H1088	1	Idler Pulley Asm (310 PPM, 324 PPM and IR1/IR2 only)
–59	06F0418	1	E-Clip PP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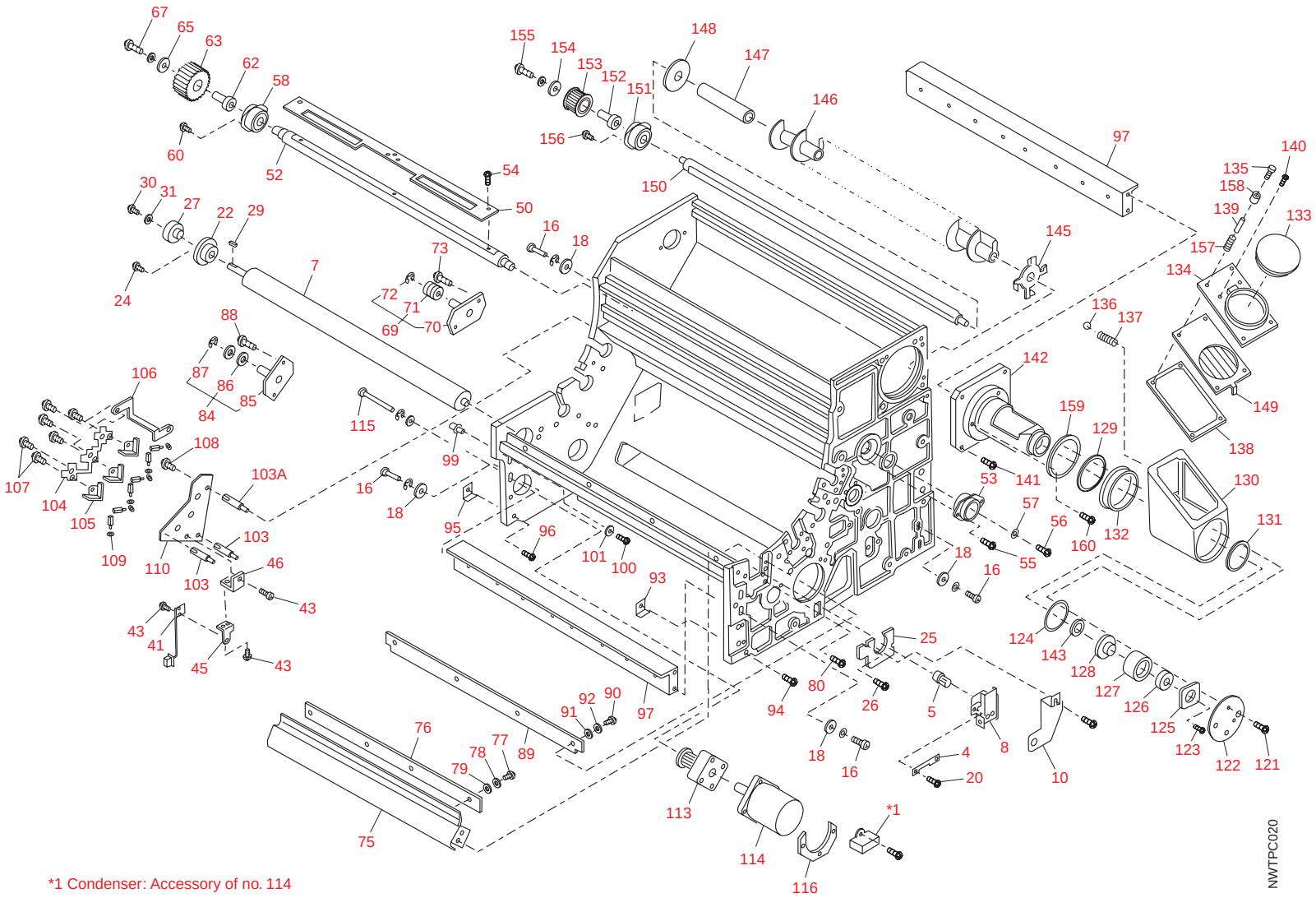
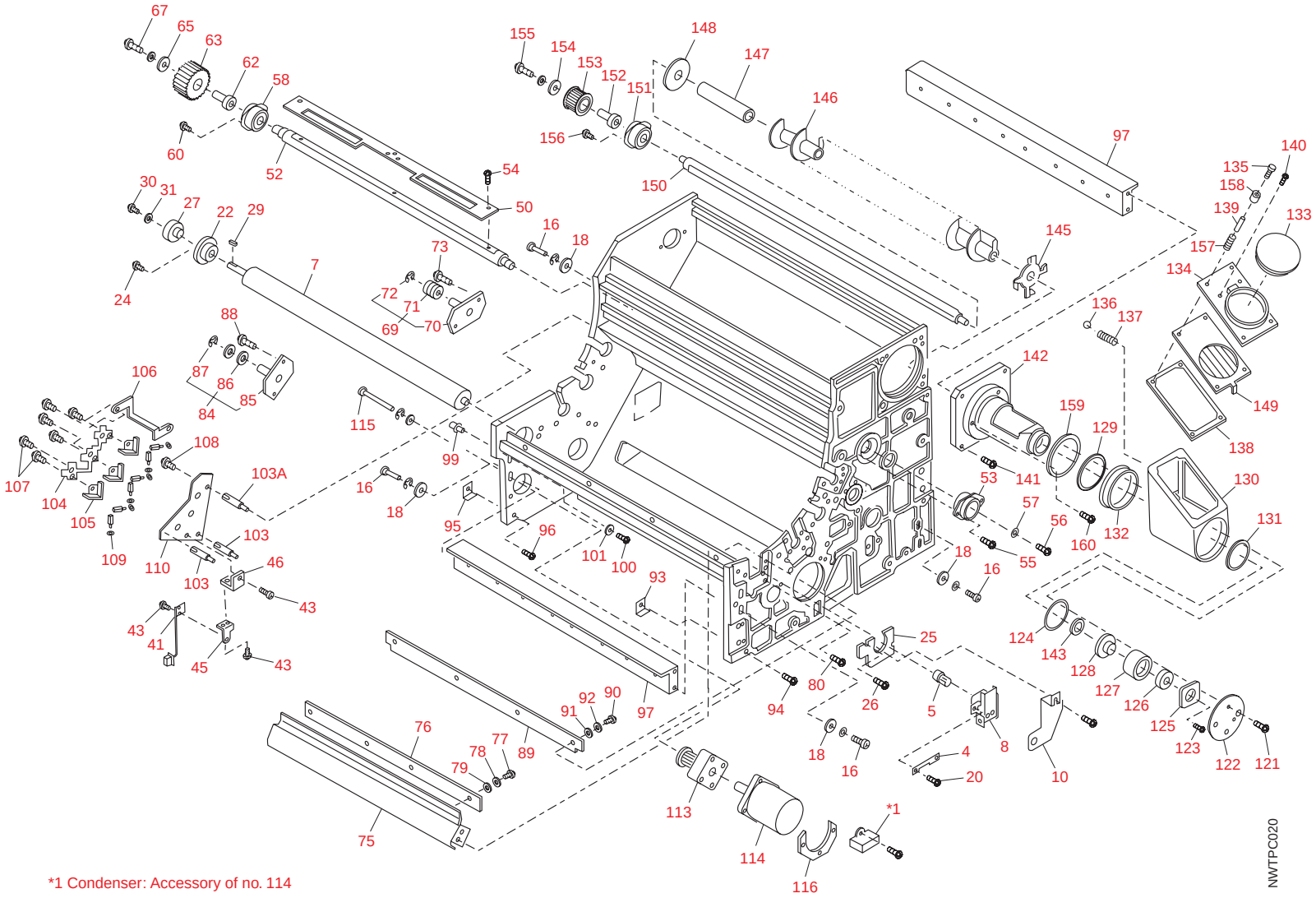
Asm–Index	Part Number	Units	Description
8–		NP	Developer Hardware (Sheet 3 of 3)
–61	57G4413	1	Idler Asm, Mag Roll A (All except 310 PPM, 324 PPM, and IR1/IR2)
–61	90H2396	1	Idler Asm, Mag Roll A (310 PPM, 324 PPM,and IR1/IR2 only)
–62	57G4412	1	Support, Idler
–63	45G1897	1	Idler Pulley Asm (All except 310 PPM, 324 PPM, and IR1/IR2)
–63	04H1088	1	Idler Pulley Asm (310 PPM, 324 PPM, and IR1/IR2 only)
–64	06F0418	1	E-Clip PP
–66	57G4411	1	Idler Asm
–67	57G4410	1	Support, Idler
–68	45G1897	2	Pulley, Idler
–69	06F0418	2	E-Clip PP
–71	06F0420	7	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–73	57G6652	1	Ground, A
–74	57G6653	1	Ground, B
–90	88F2536	1	Plate, Mag Brush Motor
–91	53F1832	1	Motor, Mag Brush (M101) (Except 324 PPM and IR1/IR2)
–91	90H1294	1	Motor, Mag Brush (M101) (324 PPM only)
–91	89H9998	1	Motor, Mag Brush (M101) (IR1/IR2 only)
–92	57G4417	1	Cover, Shield
–93	45G1898	1	Head, Gear Asm 50 Hz (All except 310 PPM, 324 PPM, and IR1/IR2)
–93	04H1099	1	Head, Gear Asm 50 Hz (310 PPM only)
–93	89H9999	1	Head, Gear Asm 50 Hz (IR1/IR2 only)
–93	90H1295	1	Head, Gear Asm 50 Hz (324 PPM only)
–94	45G1899	1	Head, Gear Asm 60 Hz (All except 310 PPM, 324 PPM, and IR1/IR2)
–94	04H1091	1	Head, Gear Asm 60 Hz (310 PPM only)
–94	90H2301	1	Head, Gear Asm 60 Hz (IR1/IR2 only)
–94	90H1296	1	Head, Gear Asm 60 Hz (324 PPM only)
–95	06F0414	3	Bolt, Hexagon Socket Hd M8 X 30 PP
–96	06F0414	4	Bolt, Hexagon Socket Hd M6 X 25 PP
–97	06F0407	4	Nut, M6 PP

Assembly 9: Developer Hardware



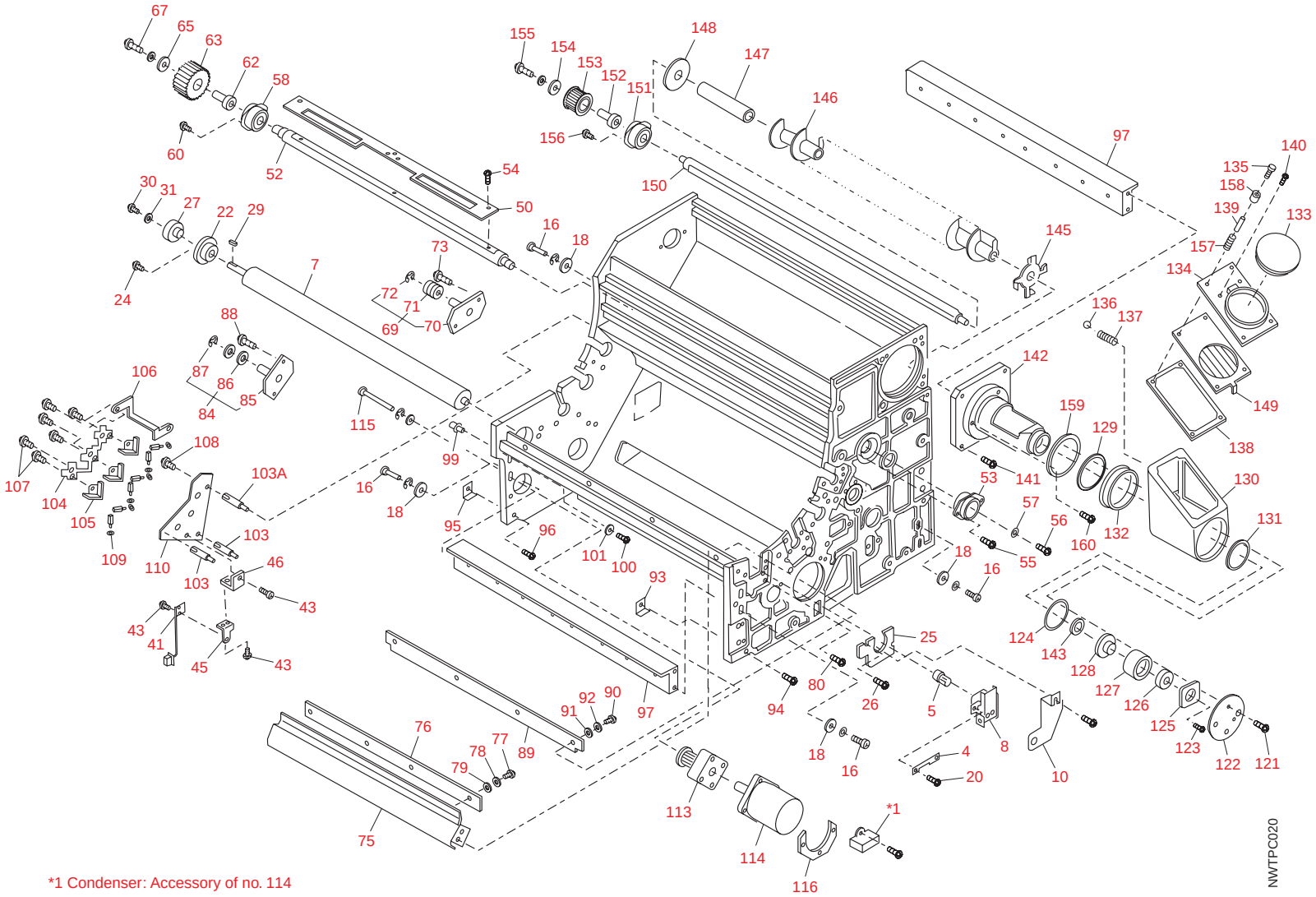
*1 Condenser: Accessory of no. 114

Asm–Index	Part Number	Units	Description
9–		NP	Developer Hardware (Sheet 1 of 5)
–4	88F2541	1	Plate, Scavenger Roll Stopper
–5	88F2542	1	Adapter, Scavenger Roll Asm
–7	57G6534	1	Roll, Scavenger
–8	88F2543	1	Flange, Scavenger Roll Asm
–16	06F0414	8	Bolt, Hexagon Socket Hd M6 X 25 PP
–18	57G4437	8	Washer, Special PP
–20	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–22	45G1895	1	Housing, Scavenger Ball Bearing Asm (All except 324 PPM)
–22	11L5165	1	Housing, Scavenger Ball Bearing Asm (324 PPM only)
–24	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–25	57G4436	1	Plate, Scavenger Roll Adjustment
–26	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–27	06F0616	1	Pulley, Scavenger Roll Asm
–29	06F0408	1	Key, 3 X 3 X 10 PP
–30	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–31	06F0417	1	Washer, VF PP
–41	53F1829	1	Sensor, Conveyer Roll Rotation Asm (113)
–43	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–45	57G4447	1	Holder, Sensor
–46	57G4446	1	Holder, Plate
–50		NP	
–52		NP	
–53	53F1842	1	Flange Housing
–54	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–55	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–56	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–57	06F0417	1	Washer, Press PP



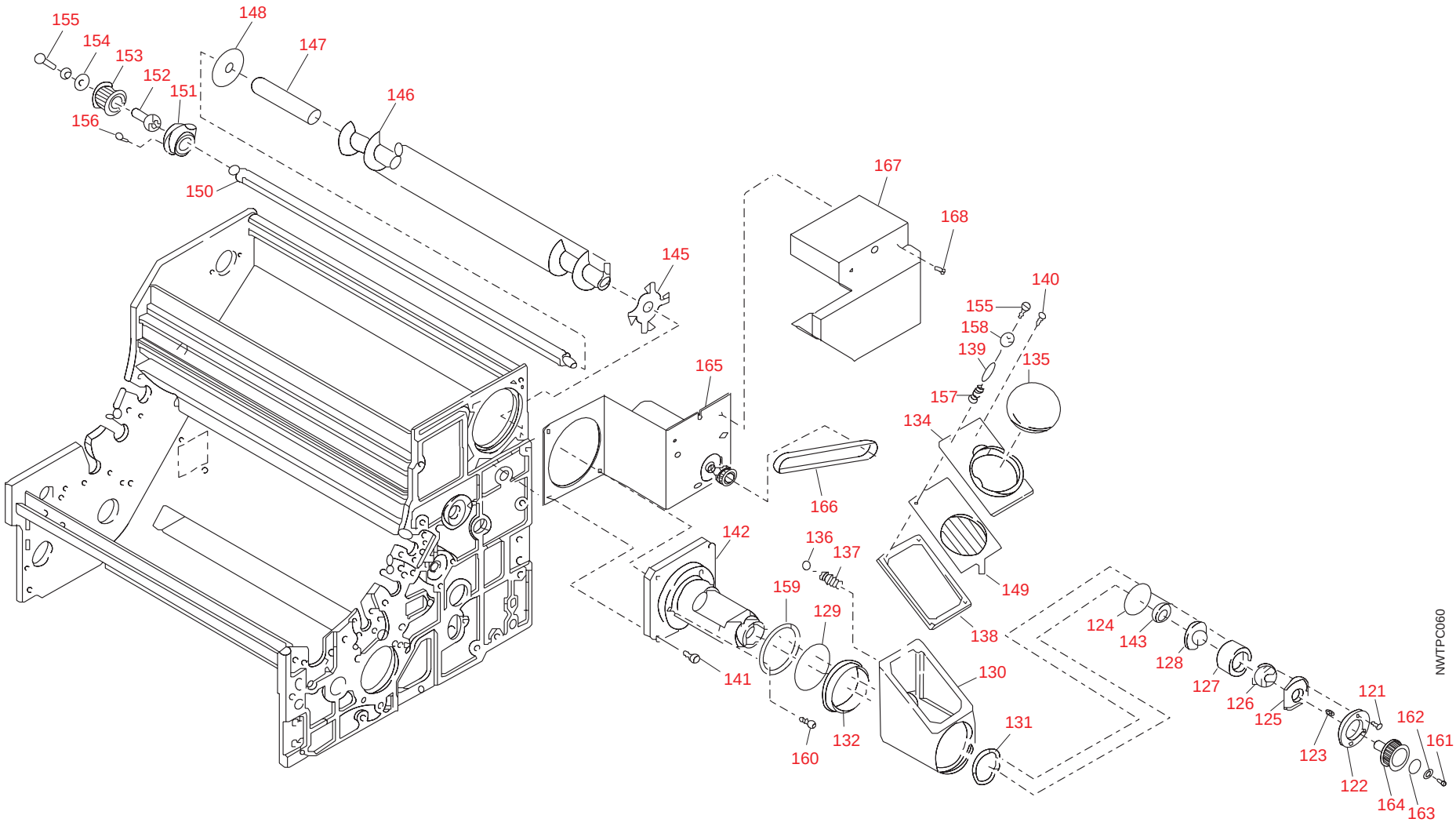
*1 Condenser: Accessory of no. 114

Asm–Index	Part Number	Units	Description
9–		NP	Developer Hardware (Sheet 2 of 5)
–58	53F1841	1	Flange and Bearing Asm
–60	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–62	88F1636	1	Shaft, Pulley Asm
–63	57G4444	1	Pulley, Toner Feed Asm
–65	06F0417	1	Washer, Shaft Clamp PP
–67	88F1626	1	Bolt, Hexagon Socket Hd M4 X 38 PP
–69	57G4443	1	Idler, Toner Feed Asm
–70	57G4442	1	Plate, Idler
–71	45G1904	3	Bearing, Ball
–72	06F0418	1	E-Clip PP
–73	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–75	89H9992	1	Seal, scavenger roll foam
–77	57G4439	4	Bolt, Hexagon Socket Hd M3 X 6 (stainless)
–78	57G4438	4	Washer, Spring (stainless) D3
–79	06F0406	4	Washer, Bolt D3 (brass) PP
–80	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–84	57G5965	1	Idler, Asm



*1 Condenser: Accessory of no. 114

Asm–Index	Part Number	Units	Description
9–		NP	Developer Hardware (Sheet 3 of 5)
–85	57G5964	1	Idler, Support
–86	45G1904	2	Bearing, Ball
–87	06F0418	1	E-Clip PP
–88	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–89	89H9991	1	Seal, Scavenger Roll (Mylar)
–90	57G4439	4	Bolt, Hexagon Socket Hd M3 X 6 (stainless) PP
–91	06F0406	4	Washer, Bolt D3 (brass) PP
–92	57G5961	4	Washer, Spring D3 (stainless)
–93	06F0695	2	Block, Support
–94	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 25 PP
–95	06F0695	2	Block, Support
–96	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–97		NP	
–99	88F2554	1	Pin, Rear Clamp
–100	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–101	06F0420	1	Washer, Press PP
–103	57G5959	2	Standoff, Bias
–103A	57G5959	1	Standoff, Bias (All except 310 PPM, 324 PPM, and 480/600 DPI)
–103A	04H1092	1	Standoff, Bias (310 PPM, 324 PPM, and 480/600 DPI only)
–104	57G5958	1	Plate, Bias
–105	57G5957	3	Holder, Mag Brush Bias Contact
–106	57G4451	1	Mag Brush Bias Contact
–107	06F0420	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–108	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–109	06F0081	6	Brush, Carbon
–110	57G4450	1	Plate, Bias
–113	45G1896	1	Gearhead, Toner Control Asm
–114	53F1838	1	Motor, Toner Control (M103) and Capacitor (C103) Asm
–115	06F0402	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 60 PP
–116	57G4449	1	Plate, Nut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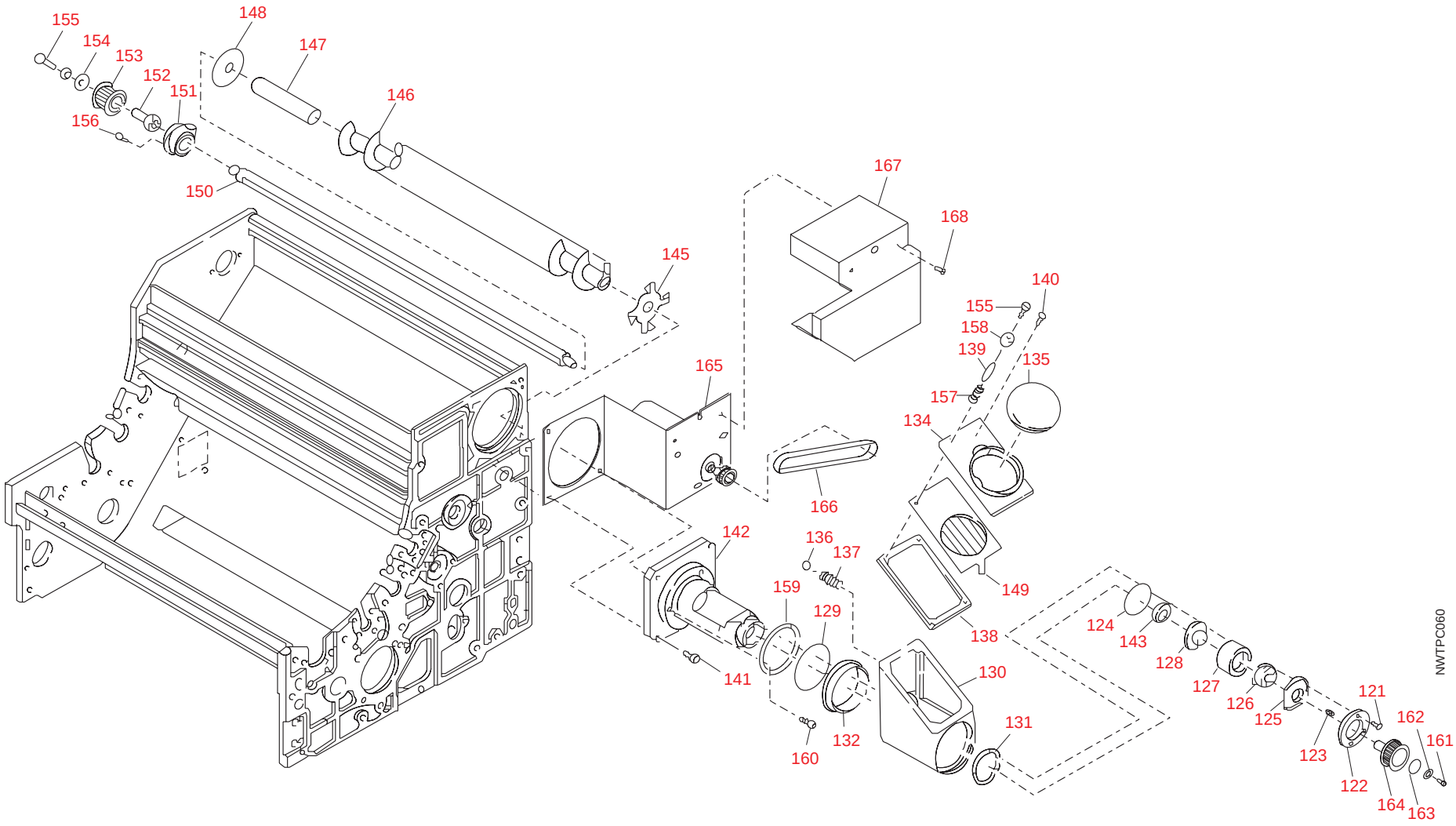
Asm–Index	Part Number	Units	Description
9–		NP	Developer Hardware (Sheet 4 of 5)
–			**With Enhanced Toner Loading System**
–121	57G5966	3	Screw, Flat Hd M4 X 8 PP
–122	04H0889	1	Cover, Toner Hopper
–123	04H0899	1	Key
–124	88F3350	1	Ring, O
–125	04H0887	1	Cam, Toner Inlet
–126	06F0789	1	Bearing, Ball
–127	53F1845	1	Bearing, Toner Inlet
–128	88F2560	1	Spacer, Toner Inlet
–129	88F3351	1	Ring, O
–130	88F2562	1	Base, Toner Inlet
–131	88F2563	1	Sleeve
–132	88F2564	1	Sleeve
–133	88F2565	1	Cap, Toner Inlet
–134	88F2566	1	Cover, Toner Inlet
–135	06F0411	4	Screw, Phillips with Star Wshr & Wshr M4 X 25 PP
–136	88F2567	1	Bearing, Ball
–137	88F2568	1	Spring
–138	88F2569	1	Seal, Toner Inlet Asm
–139	88F2570	4	Spacer
–140	06F0402	4	Screw, Phillips Pan Hd M3 X 5 PP
–141	06F0401	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–142	88F2571	1	Hopper, Toner Inlet
–143	06F0405	1	Washer, D8 PP
–145	88F2573	1	Auger, Toner End
–146	88F2574	5	Auger, Toner
–147	57G6749	1	Collar
–148	88F3352	1	Washer
–149	88F2576	1	Spacer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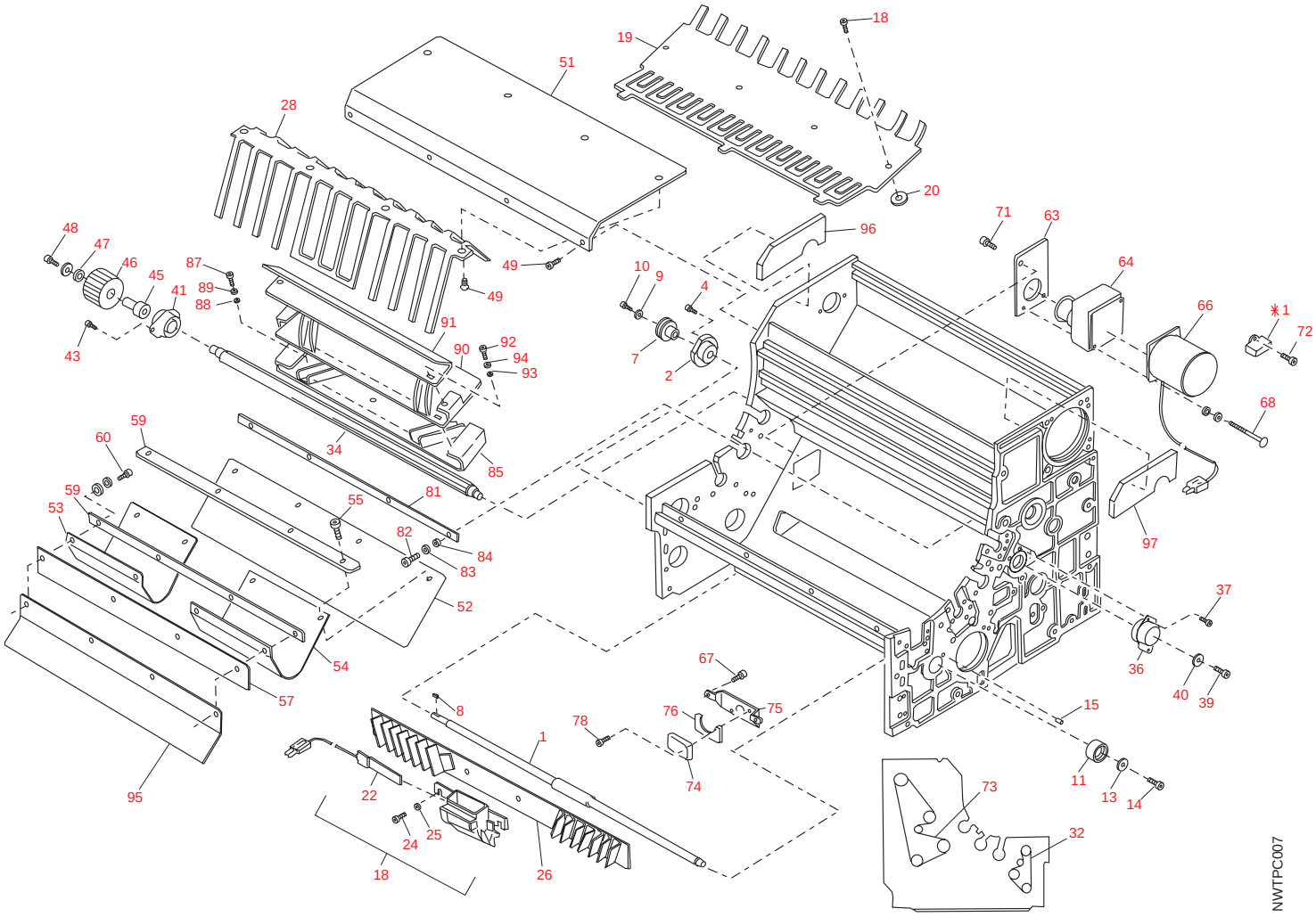
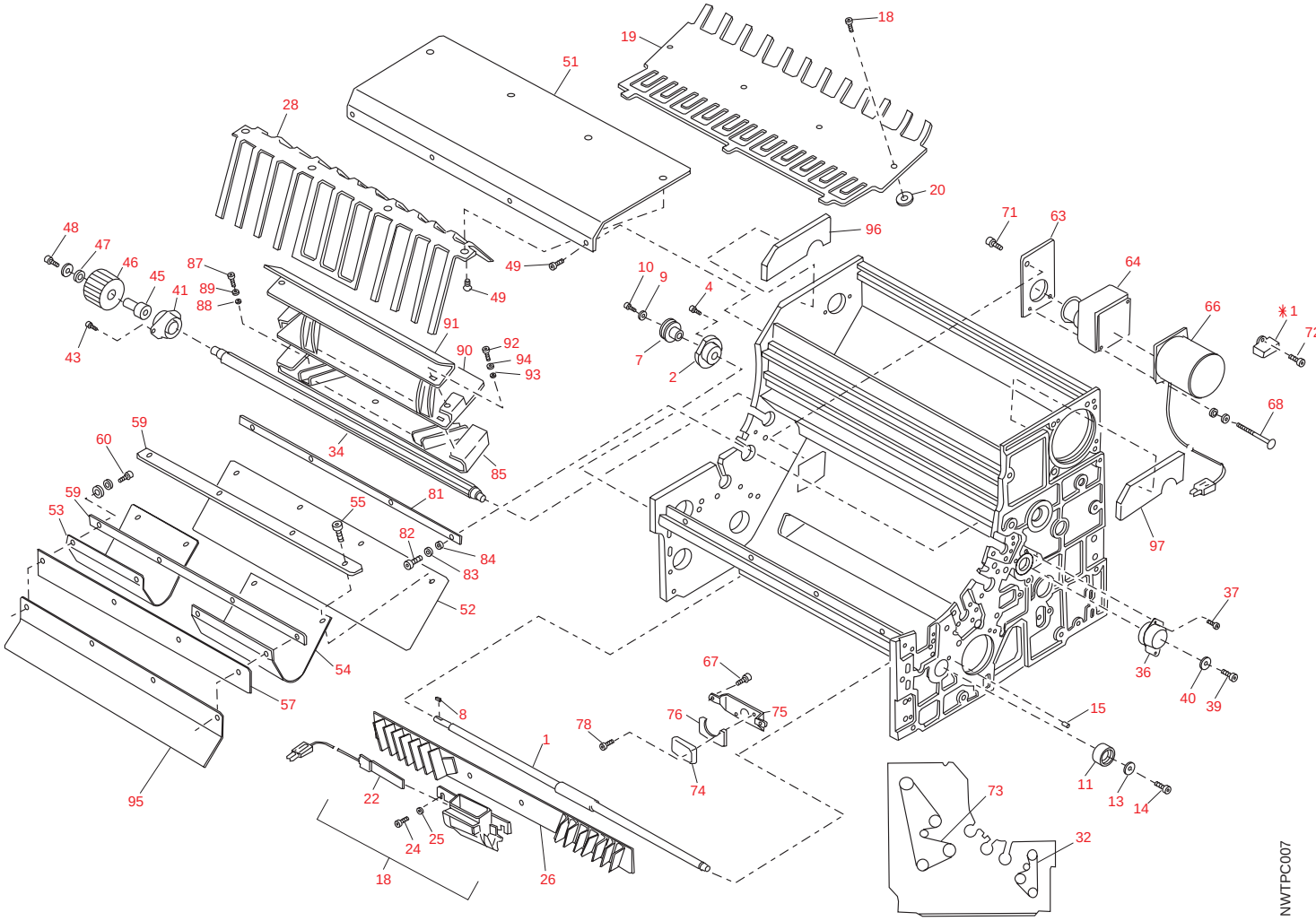
Asm–Index	Part Number	Units	Description
9–		NP	Developer Hardware (Sheet 5 of 5)
–			**With Enhanced Toner Loading System**
–150	04H0913	1	Shaft, Toner Auger
–151	53F1841	1	Flange and Bearing Asm
–152	04H0897	1	Shaft, Pulley Asm
–153	04H0893	1	Pulley, Toner Supply Asm
–154	06F0417	1	Washer, Shaft Clamp PP
–155	88F1626	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 38 PP
–156	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–157	88F2578	4	Spring
–158	88F2579	4	Cap
–159	88F2580	1	Spacer
–160	57G5966	3	Screw, Flat Hd M4 X 8 PP
–161	30H2748	1	Bolt, Hexagon Head M3 X 12 PP
–162	30H2748	1	Washer, Lock PP
–163	30H2748	1	Washer, Flat PP
–164	04H0888	1	Pulley, Toner Auger Drive
–165	04H0890	1	Motor Asm, Toner Auger Drive
–166	04H0898	1	Belt, Toner Auger Drive
–167	04H0891	1	Cover, Toner Auger Drive Motor
–168	30H2748	2	Bolt, Hexagon Socket Head M4 X 10 PP

Assembly 10: Developer Hardware



Asm–Index	Part Number	Units	Description
10–		NP	Developer Hardware (Sheet 1 of 3)
–1	57G6751	1	Roll, Toner Control
–2	45G1895	1	Bearing, Toner Control Asm
–4	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–7	06F0616	1	Pulley, Toner Control Asm
–8	06F0408	1	Key, 3 X 3 X 10 PP
–9	06F0417	1	Washer, VF PP
–10	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–11	53F1843	1	Bearing, Toner Control Asm
–13	06F1158	1	Washer, FP
–14	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–15	88F2582	1	Lock, Bearing
–16	57G4423	1	Control, Toner Asm
–18	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–19	30H2767	1	Plate, Upper Toner Belt
–20	06F0420	4	Washer, Press PP
–22	45G1877	1	Sensor, Toner Control (L101)
–24	06F0404	2	Bolt, Hexagon Socket Hd M4 X 8 (stainless) PP
–25	06F0406	2	Washer, Bolt D4 (brass) PP
–26	57G6658	1	Mixer, Developer (T) Asm (All Except 310 PPM, 324 PPM, 480/600 DPI and 229 PPM duplex)
–28		NP	
–29	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–32	53F1849	1	Belt, Toner Control
–34	57G6754	1	Shaft, Toner Feed
–36	53F1842	1	Flange Housing
–37	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–39	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–40	06F0417	1	Washer PP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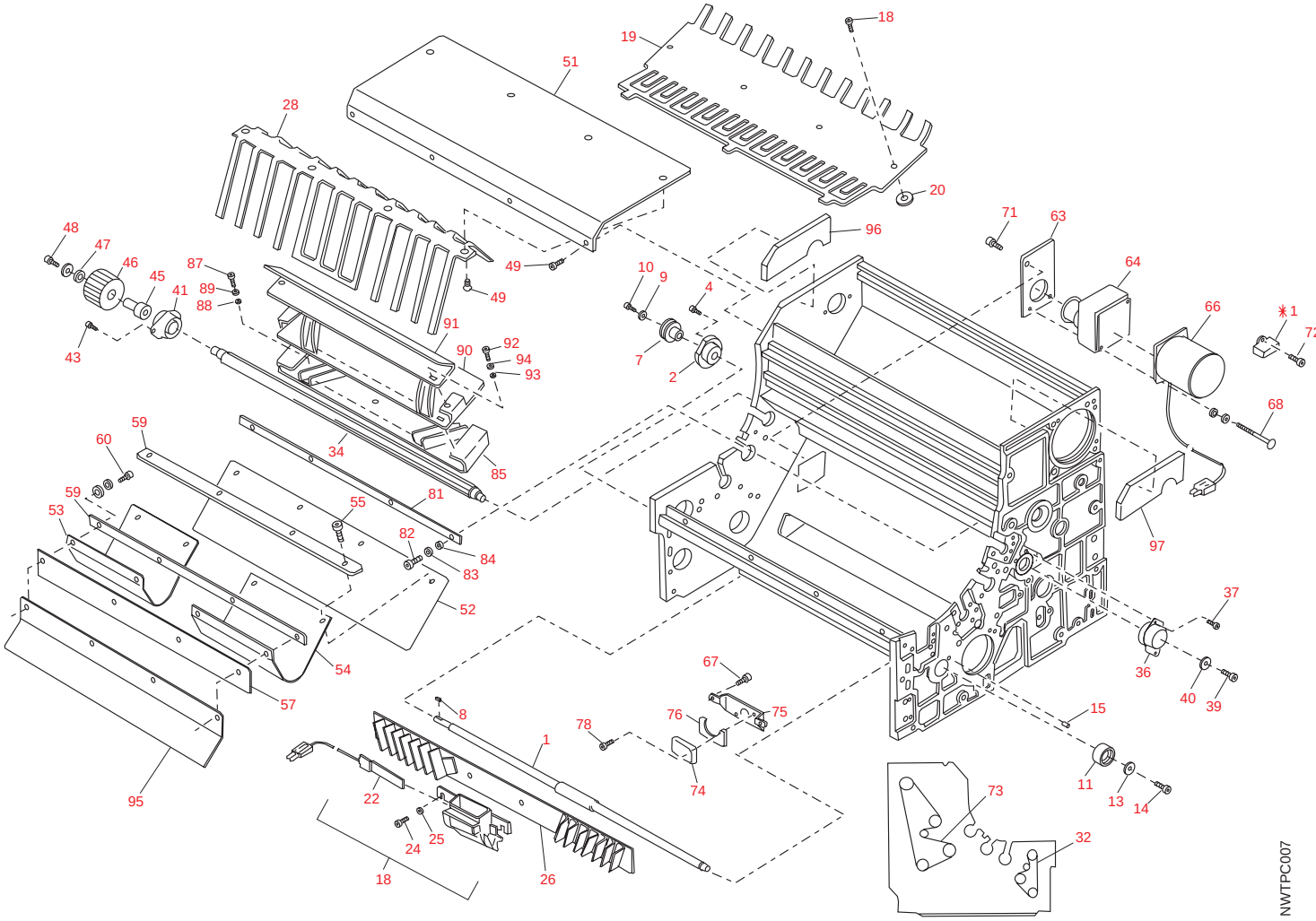
Asm–Index	Part Number	Units	Description
10–		NP	Developer Hardware (Sheet 2 of 3)
–41	53F1841	1	Flange and Bearing Asm
–43	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–45	88F1636	1	Shaft, Pulley Asm
–46	53F1847	1	Pulley, Toner Feed
–47	06F0417	1	Washer, Shaft Clamp PP
–48	88F1626	1	Bolt, Hexagon Socket Hd M4 X 38 PP
–49	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–51		NP	
–52	30H6693	1	Plate, Toner Feed
–53	57G4429	1	Seal, Toner Feed Shaft Cover
–54	57G4428	1	Seal, Toner Feed Shaft Cover
–55	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–57	04H1124	1	Scraper, Toner Feed
–59		NP	
–60	06F0404	4	Bolt, Hexagon Socket Hd M4 X 8 (stainless) PP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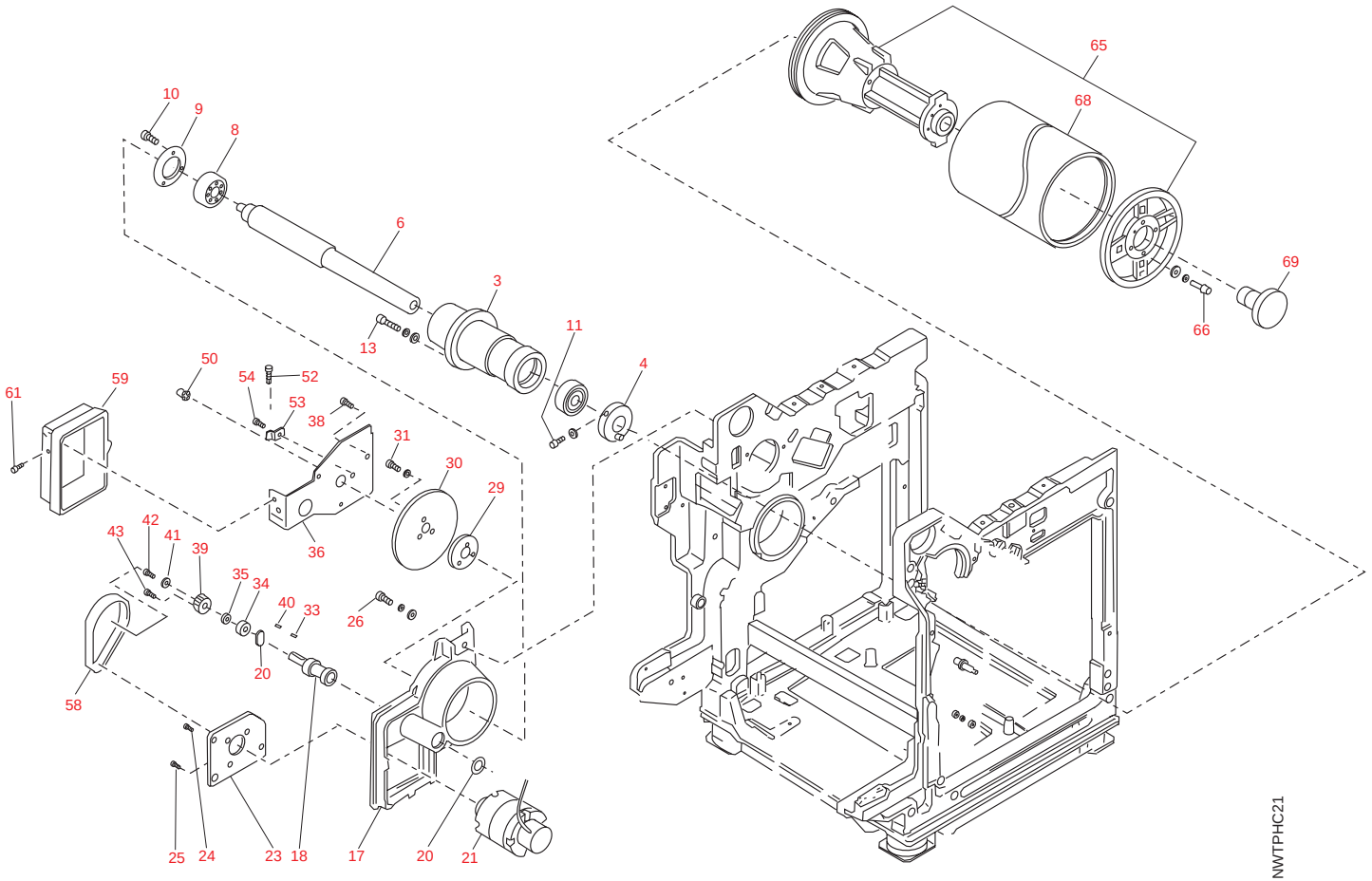
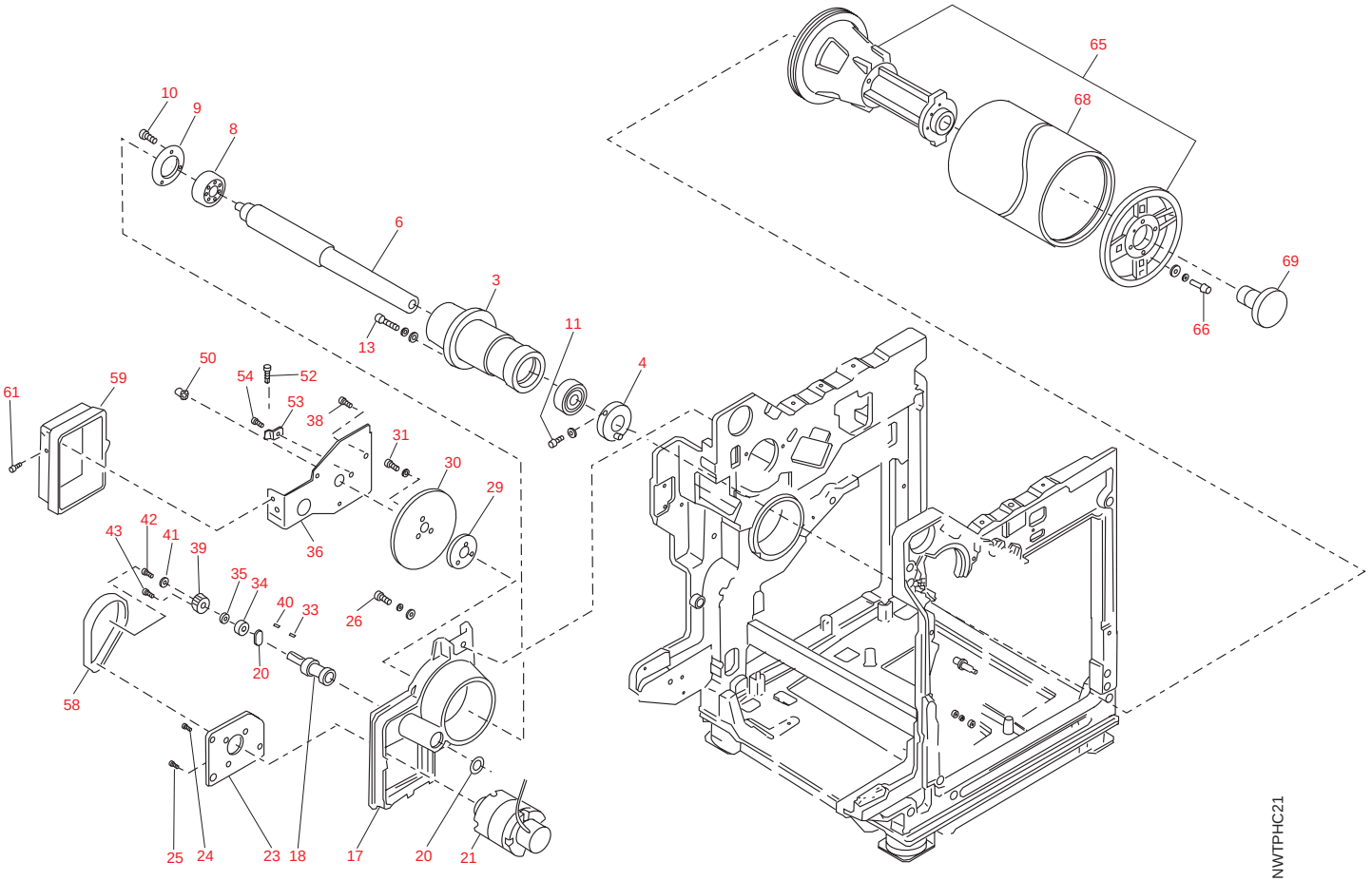
Asm–Index	Part Number	Units	Description
10–		NP	Developer Hardware (Sheet 3 of 3)
–63	57G4426	1	Holder, Toner Feed Motor
–64	45G1900	1	Head, Gear Toner Feed Asm
–66	45G1881	1	Motor, Toner Feed (M102) and Capacitor (C102) Asm
–67	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–68	06F0402	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 60 PP
–71	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–72	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–73	53F1848	1	Belt, Toner Feed
–74	45G1866	1	Sensor, Toner Empty (S106)
–75	57G4425	1	Holder, Toner Empty
–76	88F2598	1	Plate, Toner Empty Beat
–78	88F1626	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 8 PP
–81		NP	
–82	57G4439	4	Bolt, Hexagon Socket Hd M3 X 6 (stainless)
–83	57G4433	4	Washer, Spring D3 (stainless)
–84	06F0406	4	Washer, Bolt D3 (brass) PP
–86	04H1095	1	Plate, Mixing Asm
–87		NP	
–88	06F0406	3	Washer, Bolt D4 (brass) PP
–89	06F0405	3	Washer, Spring D4 PP
–90	04H1094	1	Plate, Mixing U2 Asm
–91	04H1096	1	Plate, Mixing U3
–92	06F0404	4	Screw, Phillips Pan Hd M4 X 8 (brass) PP
–93	06F0406	4	Washer, D4 PP
–94	06F0405	4	Washer, Spring D4 (stainless) PP
–95	04H1093	1	Plate, TF Protector
–96	24H8057	1	Seal, Toner Hopper Rear
–97	24H8058	1	Seal, Toner Hopper Front

Assembly 11: Photoconductor Drum Hardware



Asm–Index	Part Number	Units	Description
11–		NP	Photoconductor Drum Hardware (Sheet 1 of 2)
–3	06F0519	1	Holder, Shaft
–4	06F0518	1	Clamp, Asm
–6	06F0517	1	Shaft, Drum
–8	06F0038	2	Bearing, Ball
–9	06F0516	1	Support, Ball Bearing
–10	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–11	06F0414	1	Bolt, Hexagon Socket Hd M6 X 20 PP
–13	06F0414	3	Bolt, Hexagon Socket Hd M8 X 30 PP
–17	88F2604	1	Drive, Drum Housing
–18	88F2605	1	Shaft, Idler Asm
–20	06F0409	2	Ring, Retaining PP
–21	53F1870	1	Motor, Drum (M107)
–23	88F2606	1	Holder, Motor
–24	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–25	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10 PP
–26	06F0414	2	Bolt, Hexagon Socket Hd M6 X 20 PP
–29	06F0512	1	Spacer, Drum Gear
–30	88F2607	1	Gear, Drum Drive
–31	06F0403	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 35 PP
–33	06F0408	1	Key, 4 X 4 X 10 PP
–34	88F2608	1	Gear, Idler
–35	06F0525	1	Spacer, Idler
–36	88F2609	1	Cover, Drum Gear Asm
–38	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10 PP
–39	06F0523	1	Pulley, Idler
–40	06F0408	1	Key, 4 X 4 X 10 PP
–41	06F0420	1	Washer, Press PP
–42	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10 PP
–43		NP	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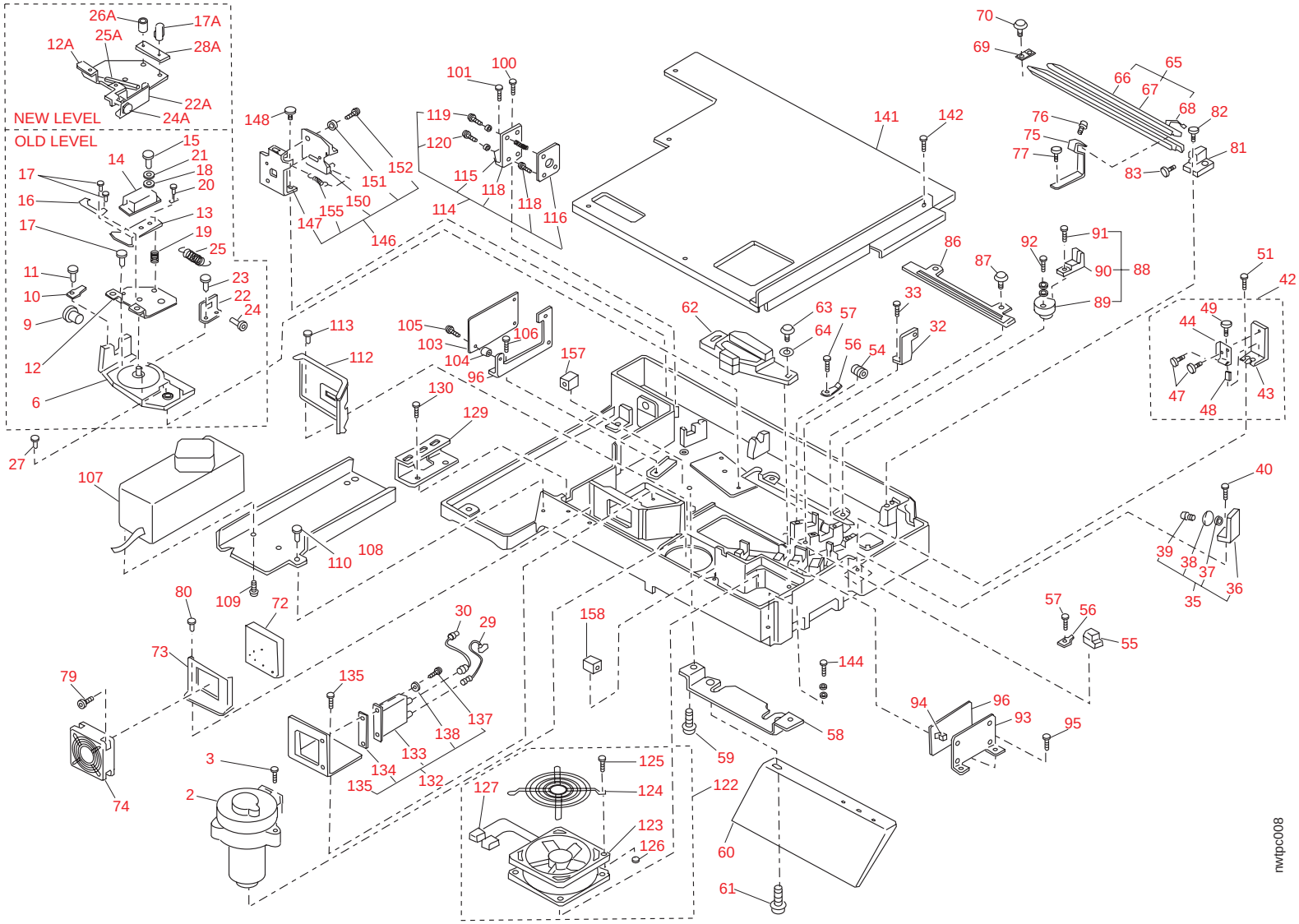
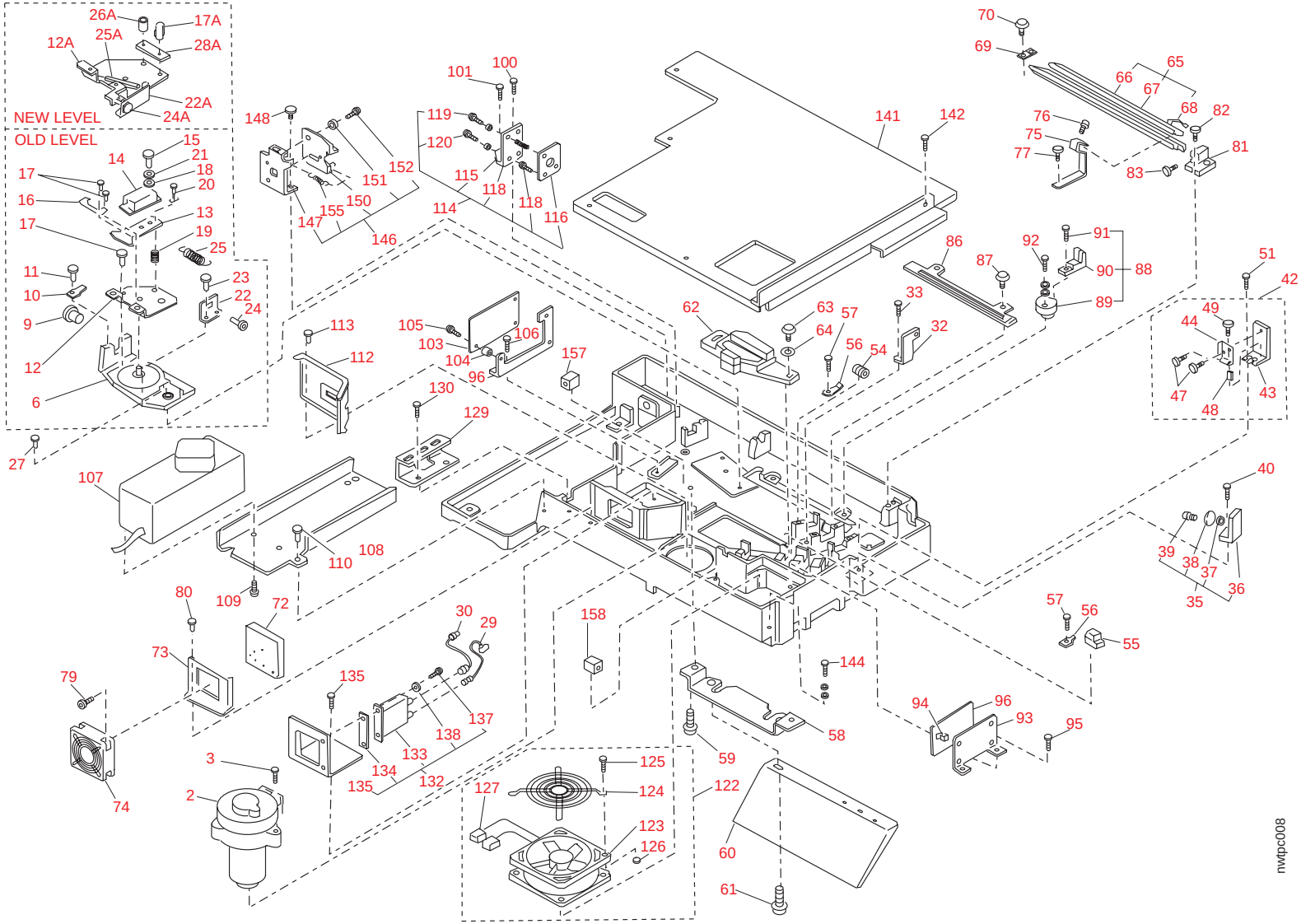
Asm–Index	Part Number	Units	Description
11–		NP	Photoconductor Drum Hardware (Sheet 2 of 2)
–50	88F2610	1	Shaft
–52	06F0081	1	Brush, Carbon
–53	88F2611	1	Holder, Brush
–54	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–58	06F0072	1	Belt, Drum Drive
–59	88F2612	1	Cover, Drum Belt Asm
–61	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10 PP
–65	57G6761	1	Hubs, Drum Asm
–66	06F0414	4	Bolt, Hexagon Socket Hd M6 X 25 PP
–68	57G6461	1	Drum, PC (All except 310 PPM and 324 PPM)
–68	90H1732	1	Drum, PC (310 PPM and 324 PPM only)
–69	88F2613	1	Knob, Drum Asm

Assembly 12: Printhead



Asm–Index	Part Number	Units	Description
12–			Printhead - **Single-Beam (Sheet 1 of 6)**
–2	57G6409	1	Motor, Mirror M201
–3	06F0411	3	Screw, Phillips Pan Hd M4 X 40 with Star Wshr & Wshr PP
–5	57G6765	1	Adjuster, Beam
–6		NP	
–9	88F2617	1	Lens, L2
–10	88F1654	1	Clamp, Lens
–11	88F1626	1	Bolt, Hexagon Socket Hd M5 X 10 with Star Wshr & Wshr PP
–12	88F2618	1	Holder, Modulator AO
–12A	04H0368	1	Holder, Modulator AO
–13	88F2619	1	Table, Modulator AO
–14	53F1858	1	AO Modulator (Single-beam) (AM201)
–15	88F1626	2	Bolt, Hexagon Socket Hd M3 X 10 PP
–16	88F2620	1	Hinge
–17	88F0415	6	Bolt, Hexagon Socket Hd M4 X 12 with Star Wshr & Wshr PP
–17A	88F0415	1	Bolt, Hexagon Socket Hd M4 X 12 with Star Wshr & Wshr PP
–18	88F2818	2	Washer, Bolt D3
–19	88F2621	1	Spring, Compression
–20		NP	
–21	06F0405	2	Washer, Spring D3 PP
–22	88F2622	1	Holder, Modulator AO
–22A	04H0369	1	Holder, Modulator AO
–23	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–24	06F0403	1	Bolt, Hexagon Socket Hd M4 X 16 PP
–24A	04H0370	1	Thumbscrew M4 X 16 PP
–25	88F2623	1	Spring, Extension
–25A	04H0371	1	Spring, Extension
–26A	30H6509	1	Spring, Clamp PB
–27	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 20 PP
–28A	30H6508	1	Holder, AO Lock
–29	57G6768	1	Cable, AO Modulator
–30	57G6769	1	Cable, AO Driver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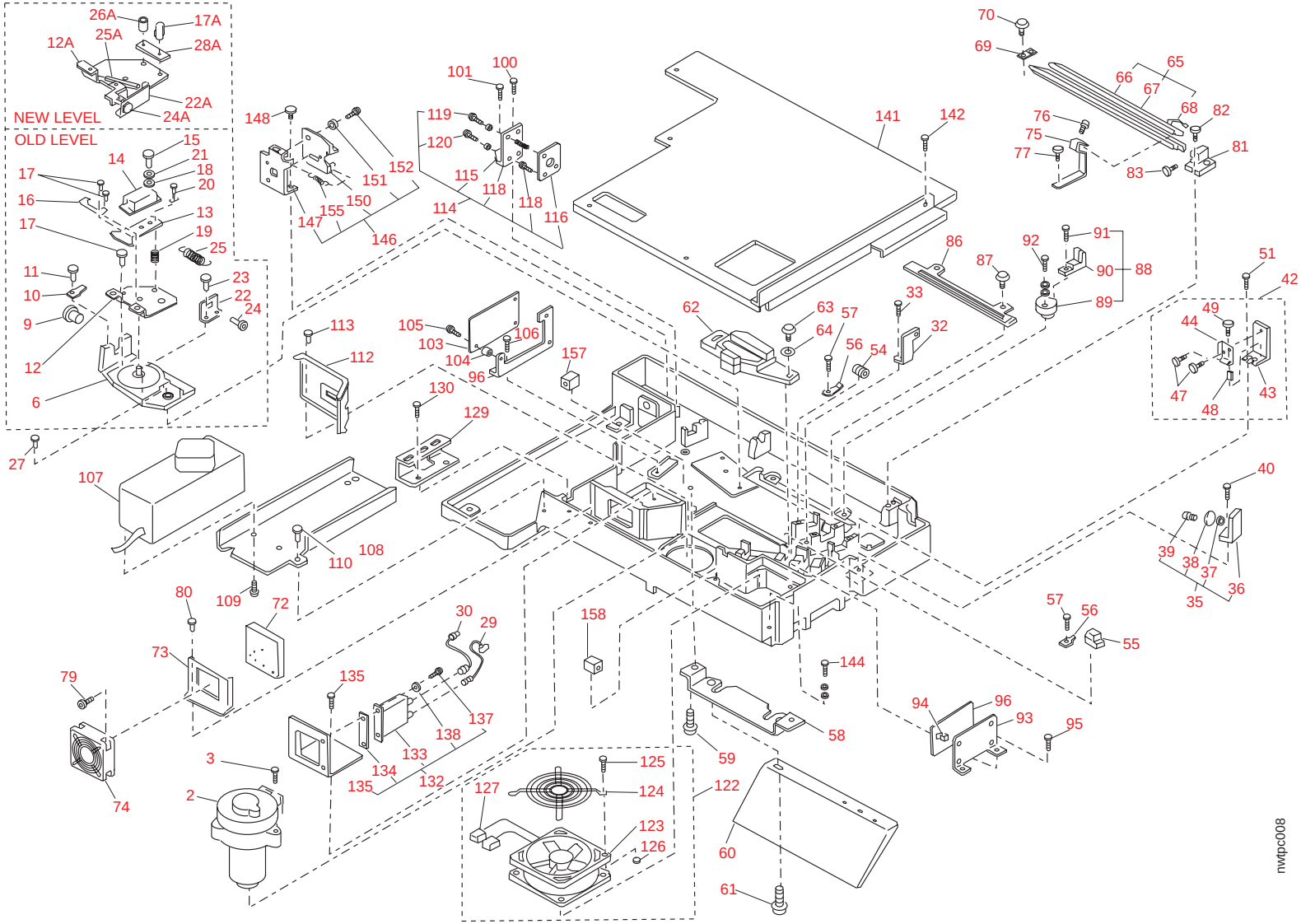
Asm–Index	Part Number	Units	Description
12–			Printhead - **Single-Beam (Sheet 2 of 6)**
–32		NP	Aperture
–33	06F0415	1	Bolt, Hexagon Socket Hd M5 X 12 with Star Wshr & Wshr PP
–35	57G6654	1	Mirror, 2 Asm
–36	57G6655	1	Stand, Mirror 2
–37	88F2629	1	Spring, Mirror 2
–38	57G6656	1	Plate, Mirror 2
–39	88F2631	3	Screw, Adjust
–40	06F0415	2	Bolt, Hexagon Socket Hd M4 X 16 with Star Wshr & Wshr PP
–42	57G6771	1	Mirror, Beam Detect Asm
–43	88F2633	1	Stand, Beam Detect Mirror
–44		NP	
–47	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–48	88F2636	1	Spring, Compression
–49	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 20 PP
–51	06F0415	2	Bolt, Hexagon Socket Hd M5 X 20 with Star Wshr & Wshr PP
–54	57G6773	1	Lens, L1 Asm
–55	57G6774	1	Lens, Cylindrical Asm (CYL1)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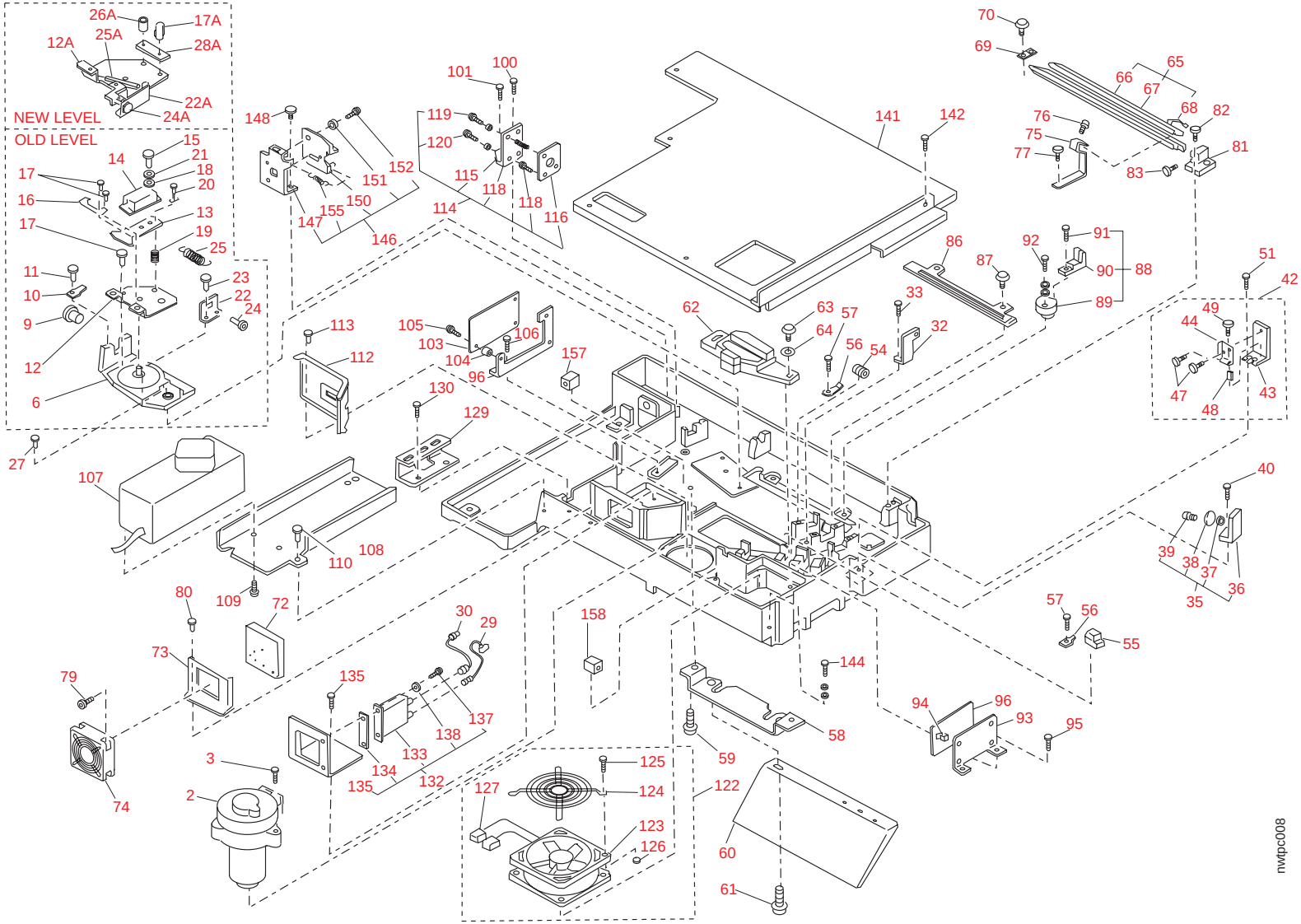
Asm–Index	Part Number	Units	Description
12–			Printhead - **Single-Beam (Sheet 3 of 6)**
–56	88F1654	3	Clamp, Lens
–57	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–58		NP	
–59	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–60		NP	
–61	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–62	57G6775	1	Lens, F-theta
–63	06F0403	2	Bolt, Hexagon Hd with Star Wshr & Wshr M5 X 20 PP
–64	06F0420	2	Washer, Press PP
–65	88F2643	1	Mirror, Return Asm
–66	88F2644	1	Holder, Return Mirror
–67	88F2645	1	Mirror, Return
–68	88F2646	2	Spring, Return Mirror
–69	88F2647	1	Clamp, Return Mirror
–70	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–72	53F1862	1	Filter
–73	88F2648	1	Base, Fan
–74	04H0822	1	Fan, Printhead Pressurizing Asm (B202)
–75	88F3377	1	Mirror, Tool
–76	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–77	06F0403	1	Bolt, Hexagon Socket Hd M4 X 20 PP
–79	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–80	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–81	88F3389	1	Holder, Return Mirror
–82	06F0415	2	Bolt, Hexagon Hd with Star Wshr & Wshr M5 X 12 PP
–83	06F0415	1	Bolt, Hexagon Hd with Star Wshr & Wshr M4 X 16 PP
–86		NP	
–87	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP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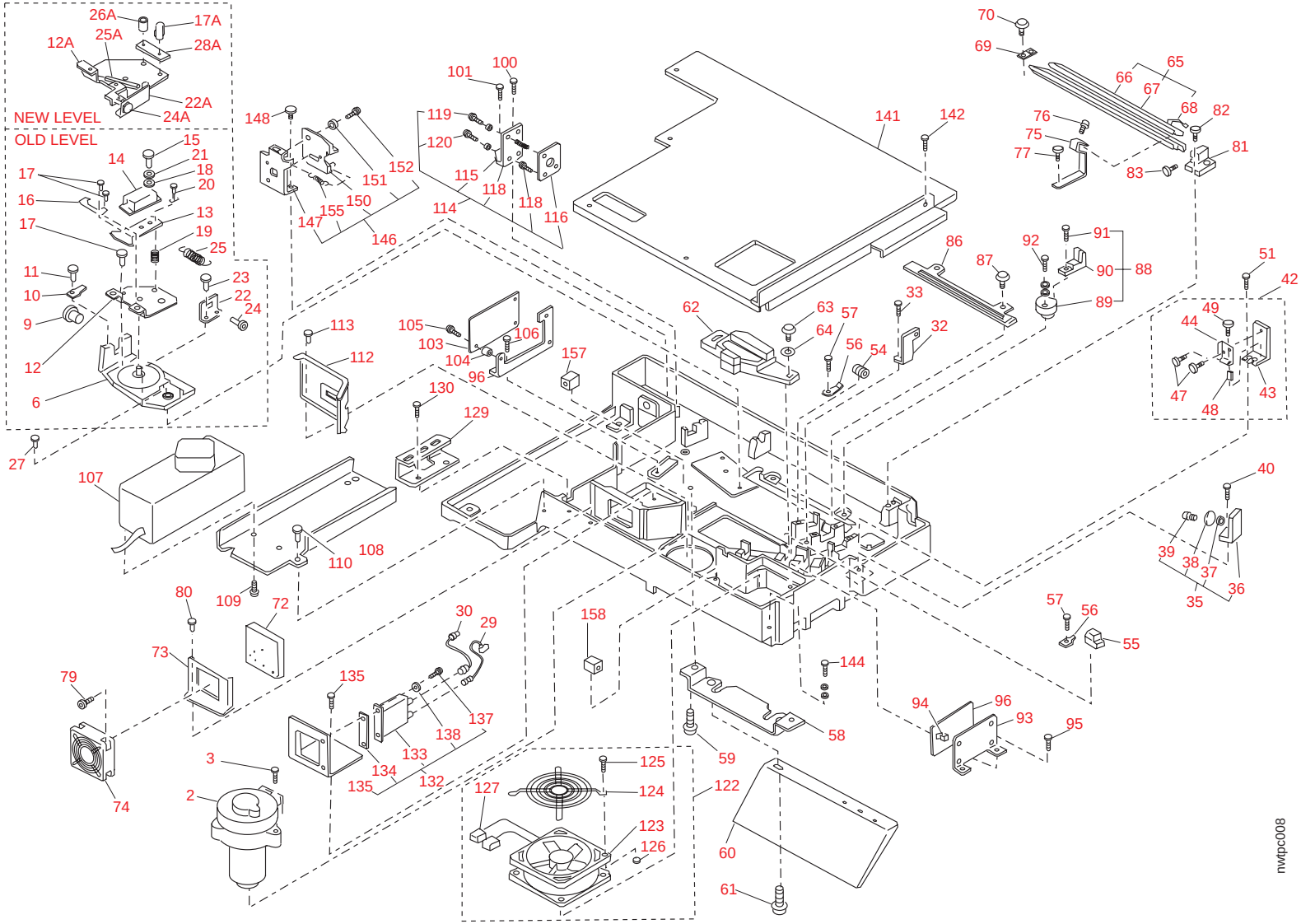
Asm–Index	Part Number	Units	Description
12–			Printhead - **Single-Beam (Sheet 4 of 6)**
–88		NP	
–89		NP	
–90	57G6779	1	Mirror, Interrupt
–91	06F0415	1	Bolt, Hexagon Hd with Star Wshr & Wshr M4 X 10 PP
–92	06F0403	1	Bolt, Hexagon Socket Hd M4 X 30 PP
–93		NP	
–94	88F1630	4	Holder, VI111 Mounting
–95	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–96	57G4358	1	Card, Printhead Interface (VI111) (Single-beam)
–98	57G6781	1	Holder, BD121
–100	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 20 PP
–101	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 16 PP
–103	45G1863	1	Card, Beam Detect (BD121) (Single-beam)
–104	06F0957	3	Collar
–105	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–106	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–107	49G8819	1	Laser Package Asm
–108	57G6629	1	Holder, Laser 2U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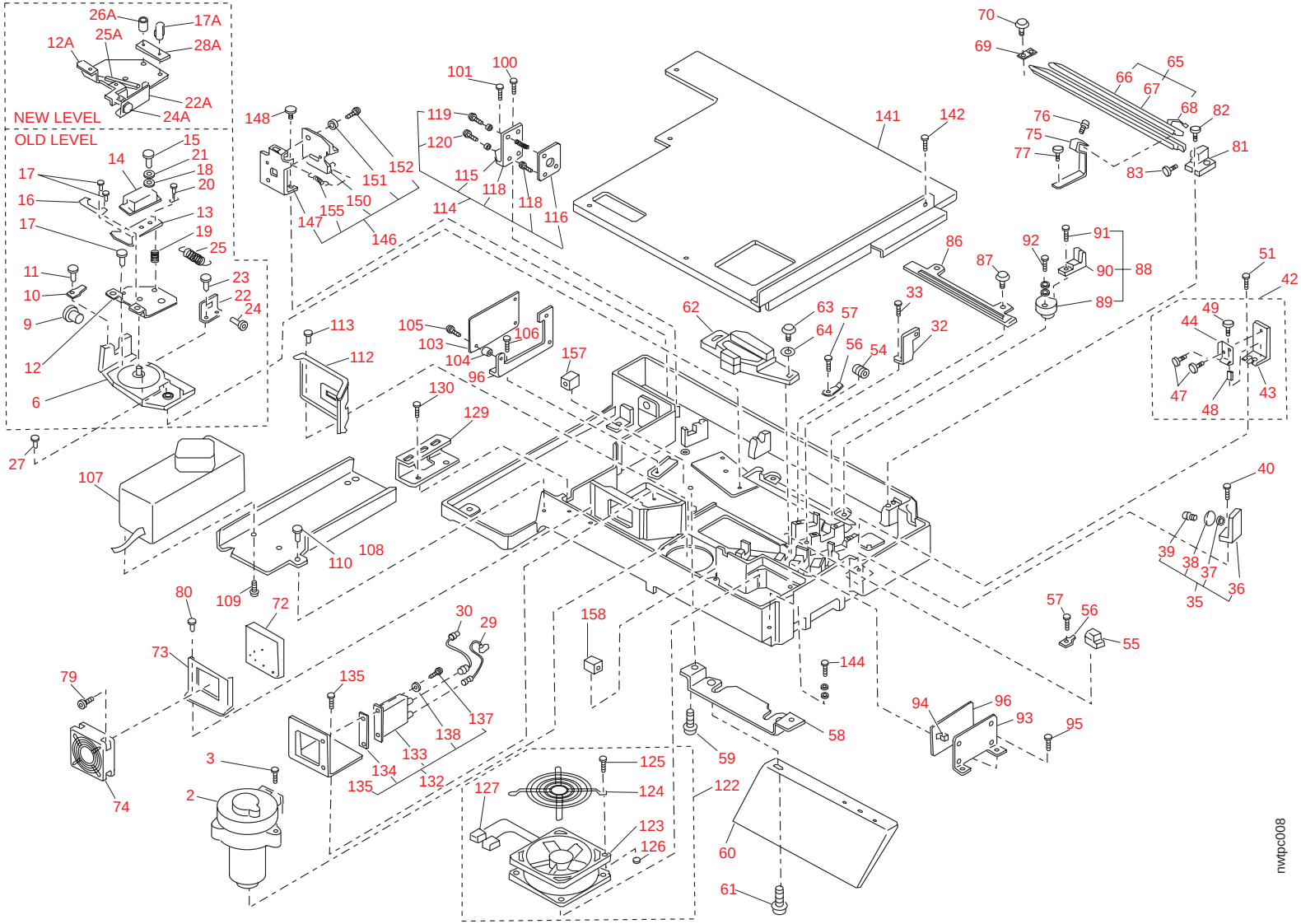
Asm–Index	Part Number	Units	Description
12–			Printhead - **Single-Beam (Sheet 5 of 6)**
–109	06F0412	3	Screw, Phillips Flat Hd M5 X 12 PP
–110	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–112		NP	
–113	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–114		NP	Mirror, M1 Asm
–115		NP	
–116		NP	
–117		NP	
–118	88F2848	3	Spring, Compression
–119	06F0403	2	Bolt, Hexagon Socket Hd M4 X 20 PP
–120	06F0403	1	Bolt, Hexagon Socket Hd M4 X 16 PP
–122		NP	
–123	53F1860	1	Fan, Rear Printhead (B201)
–124	06F0569	1	Guard, B201 Finger
–125	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–126	06F0407	2	Nut, M3 PP
–127		NP	
–129		NP	
–130	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–132		NP	
–133	53F1859	2	Driver, AO (AM202)
–134	06F0637	1	Sheet, Driver Insulating
–135		NP	
–137	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 10 PP
–138	06F0635	2	Washer, Insulating
–139	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP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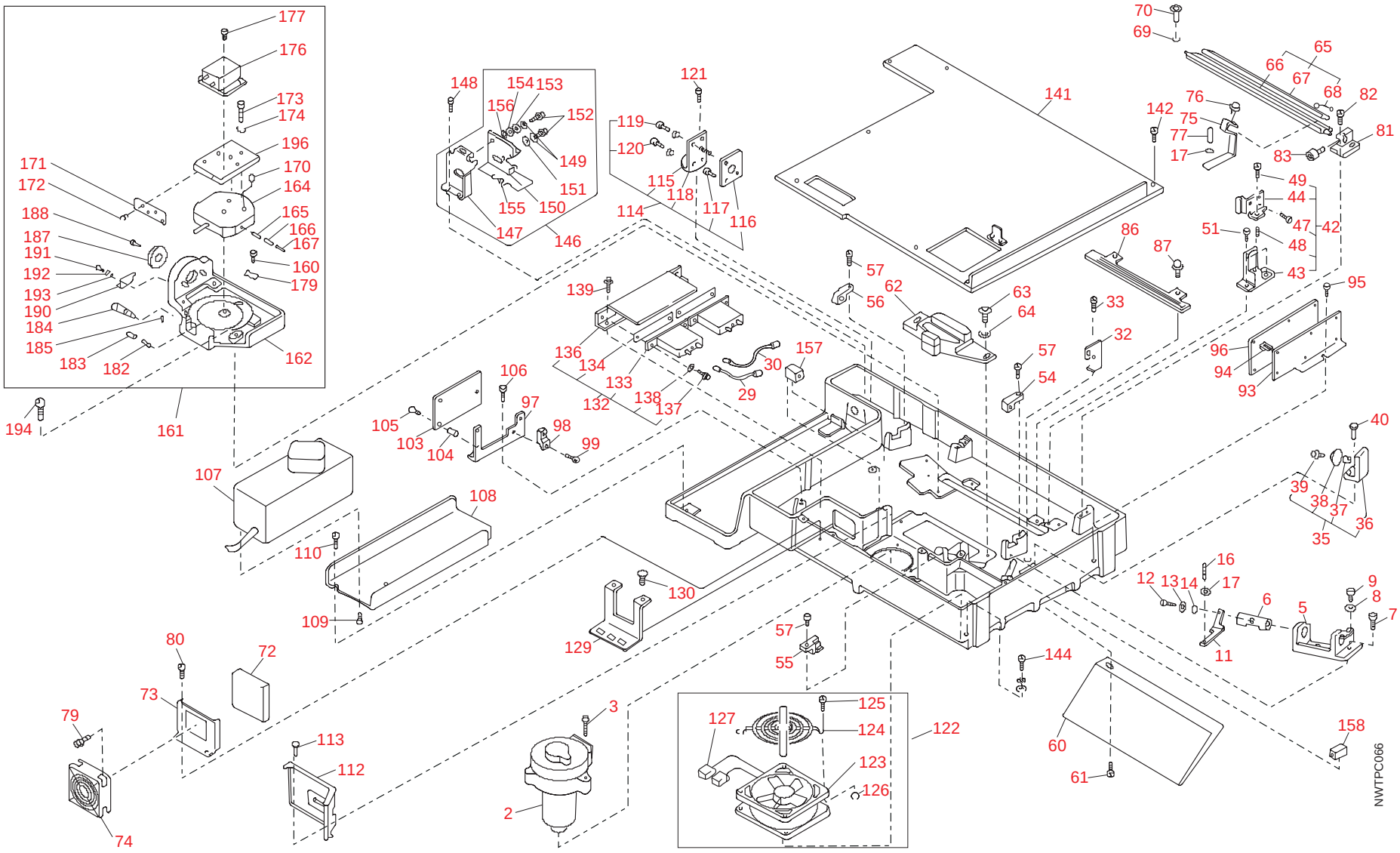
Asm–Index	Part Number	Units	Description
12–			Printhead - **Single-Beam (Sheet 6 of 6)**
–141		NP	
–142	06F0411	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–144	06F0414	4	Bolt, Hexagon Socket Hd M8 X 30 PP
–146		NP	
–147		NP	
–148	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–150		NP	
–151	88F2662	2	Holder, Laser Safety Filter Lens
–152	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–155	88F3440	1	Spring, Extension
–157	88F3390	2	Ferrite Bead
–158	88F3391	1	Ferrite Bead
–159	57G6570	1	Ferrite Bead (Coax)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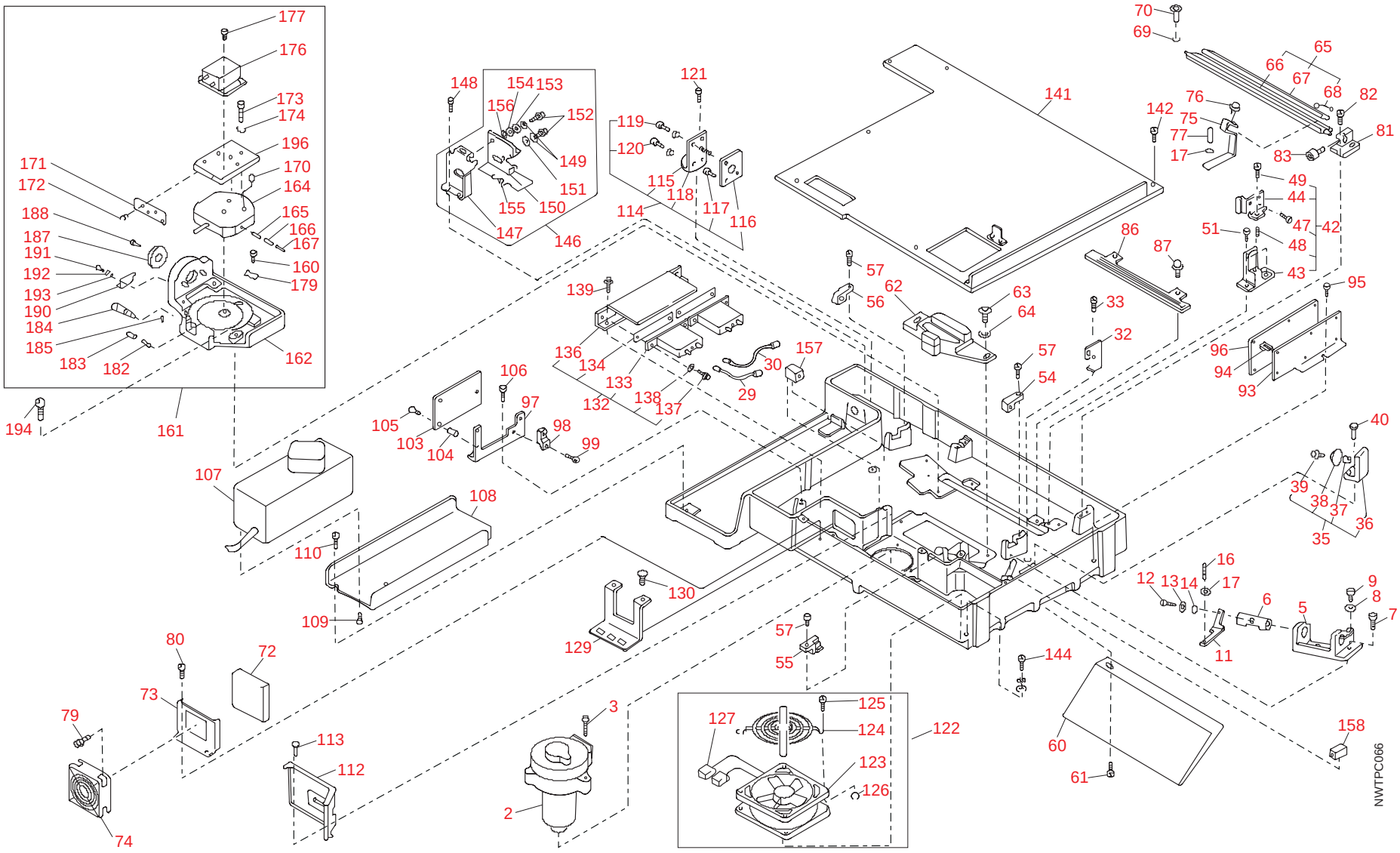
Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240 (Sheet 1 of 7)**
–2T	04H0845	1	Motor, Mirror M201
–3T	06F0411	3	Screw, Phillips Pan Hd M4 X 40 with Star Wshr & Wshr PP
–5T		NP	
–6T	04H0829	1	Prism Asm, Dove
–7T	06F0415	2	Bolt, Hexagon Socket Hd M5 X 20 with Star Wshr & Wshr PP
–8T	06F0406	1	Washer, D4 PP
–9T	06F0403	1	Bolt, Hexagon Socket Hd M4 X 16 PP
–11T	08H7670	1	Lever, Adjusting, Dove Prism
–12T	06F0403	1	Bolt, Hexagon Socket Hd M4 X 8 PP
–13T	06F0405	1	Washer, Spring D4 PP
–14T	06F0405	1	Washer D4 PP
–16T	06F0416	1	Set Screw, Hexagon Socket Hd M4 X 20 PP
–17T	06F0407	2	Nut, Lock M4 PP
–29T	30H3157	2	Cable, AO Modulator
–30T	30H6737	2	Cable, AO Driver
–32T	08H7673	1	Aperture
–33T	06F0415	1	Bolt, Hexagon Socket Hd M5 X 12 with Star Wshr & Wshr PP
–35T	04H0801	1	Mirror, M2 Asm
–36T	57G6655	1	Stand, Mirror 2
–37T	88F2629	1	Spring, Mirror 2
–38T	57G6656	1	Plate, Mirror 2
–39T	88F2631	3	Screw, Adjust
–40T	06F0415	2	Bolt, Hexagon Socket Hd M4 X 16 with Star Wshr & Wshr PP
–42T	04H0802	1	Mirror, Beam Detect Asm
–43T	88F2633	1	Stand, Beam Detect Mirror
–44T	08H7674	1	Holder, Beam Detect Mirror
–47T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–48T	88F2636	1	Spring, Compression
–49T	06F0403	1	Bolt, Hexagon Socket Hd with Star Wshr M3 X 20 PP
–51T	06F0415	2	Bolt, Hexagon Socket Hd M4 X 16 with Star Wshr & Wshr PP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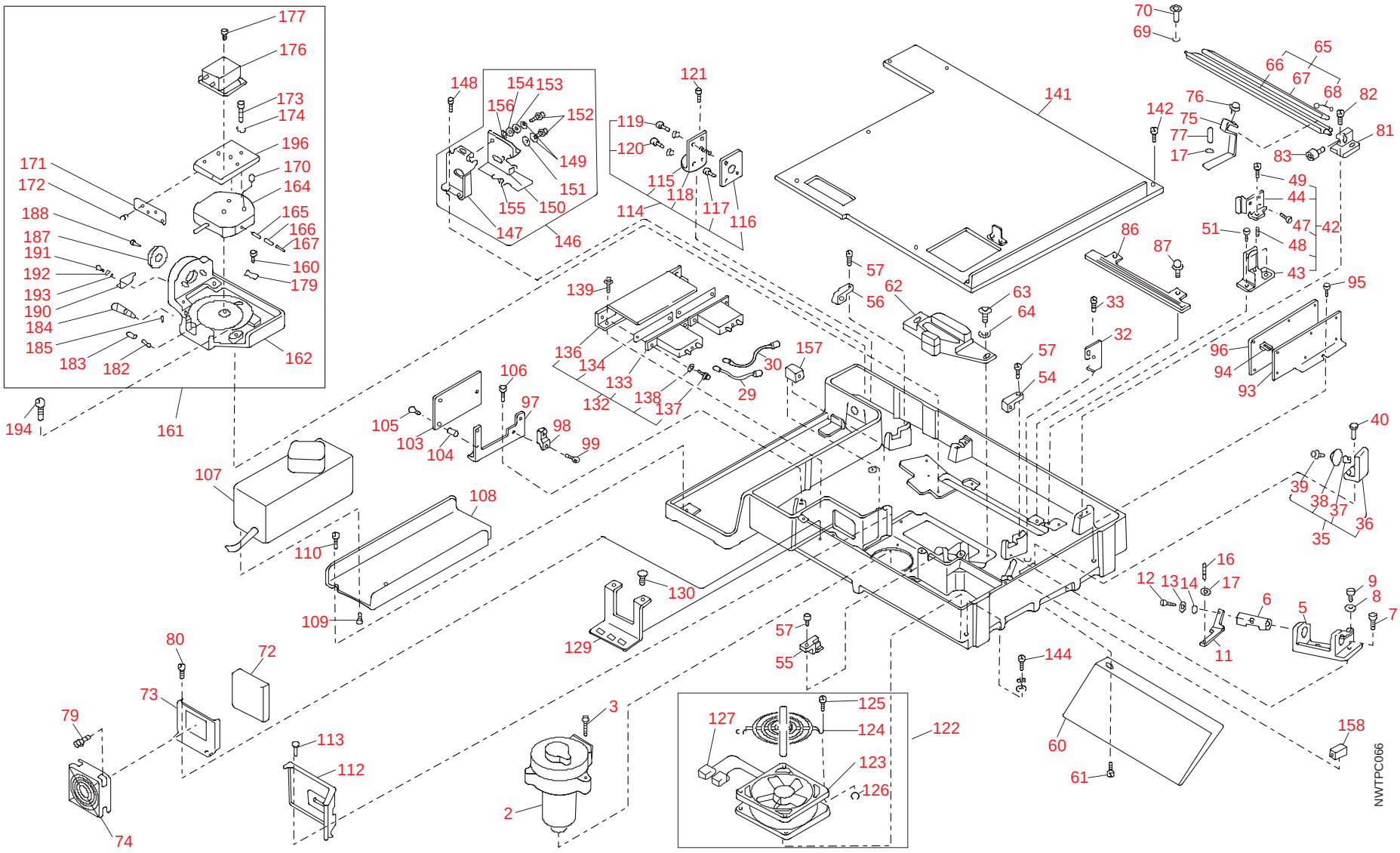
Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240 (Sheet 2 of 7)**
–54T	08H7675	1	Lens, L1 Asm
–55T	08H7676	1	Lens, Cylinder CYL1
–56T	04H0847	1	Prism, Wollaston
–57T	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr M5 X 16 PP
–60T		NP	
–61T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–62T	04H0810	1	Lens, F-theta
–63T	06F0403	2	Bolt, Hexagon Hd with Star Wshr & Wshr M5 X 20 PP
–64T	06F0420	2	Washer, Press PP
–65T	04H0803	1	Mirror, Return Asm
–66T	88F2644	1	Holder, Return Mirror
–67T	88F2645	1	Mirror, Return
–68T	88F2646	2	Spring, Return Mirror
–69T	88F2647	1	Clamp, Return Mirror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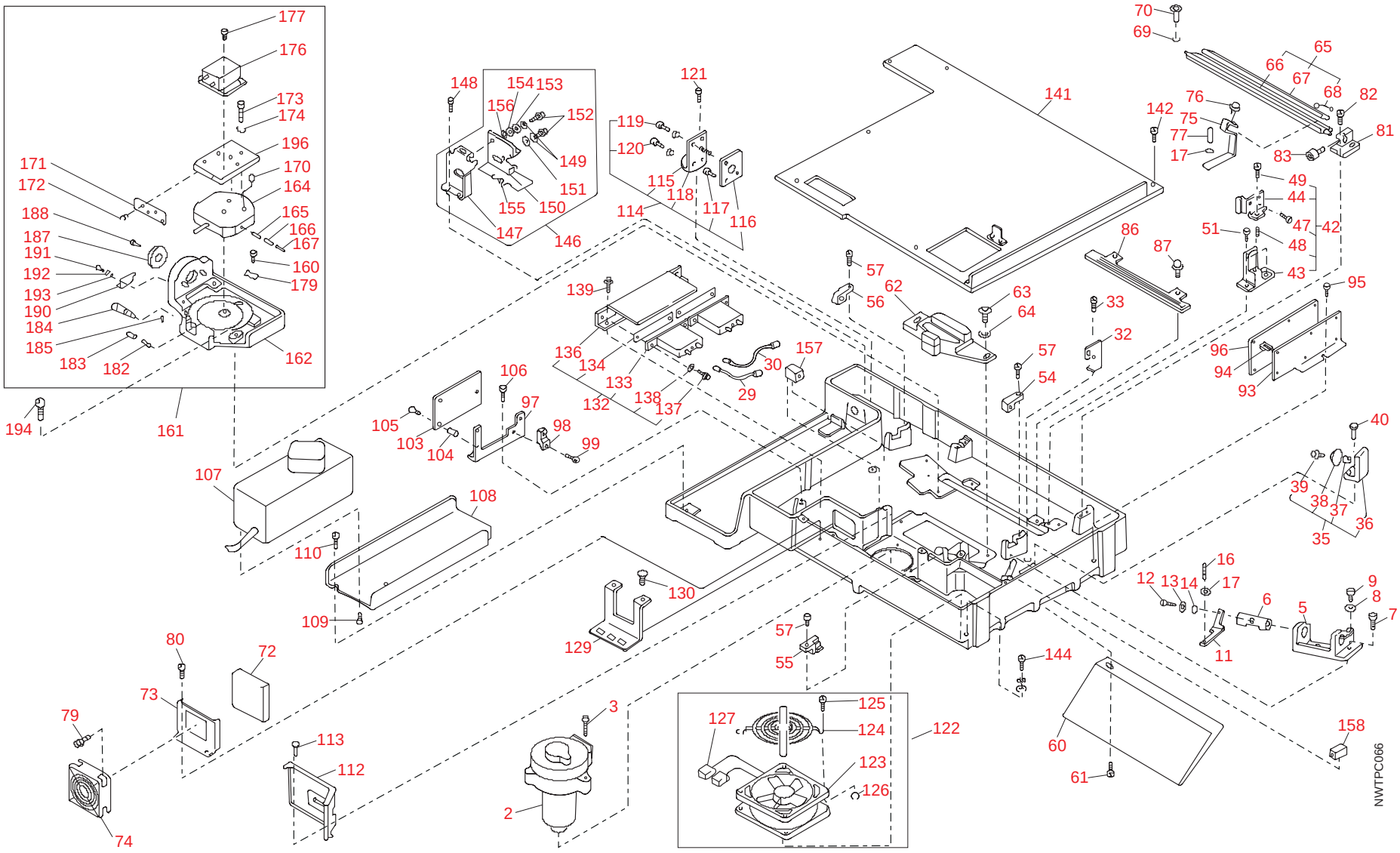
Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240 (Sheet 3 of 7)**
–70T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–72T	04H0823	1	Filter
–73T	88F2648	1	Base, Fan
–74T	04H0822	1	Fan, Printhead Pressurizing Asm (B202)
–75T	04H0805	1	Lever, Return Mirror Adjusting
–76T	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–77T	06F0416	1	Bolt, Hexagon Socket Hd Set Screw M4 X 16 PP
–79T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–80T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–81T	88F3389	1	Holder, Return Mirror
–82T	06F0415	2	Bolt, Hexagon Hd with Star Wshr & Wshr M5 X 12 PP
–83T	06F0415	1	Bolt, Hexagon Hd with Star Wshr & Wshr M4 X 16 PP
–86T	30H6727	1	Shutter, Beam
–87T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–93T	30H6728	1	Plate, VI141 Card Mounting
–94T	30H6696	6	Clip, VI141 Card Mounting
–95T	06F0411	1	Screw, Hexagon Hd with Star Wshr & Wshr M4 X 12 PP
–96T	04H0769	1	Card, Printhead Interface (VI141)
–97T	04H0812	1	Holder, Beam Detect Sensor
–98T	57G6781	1	Holder, BD132
–99T	06F0411	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–103T	30H6867	1	Card, Beam Detect (BD132)
–104T	06F0957	3	Collar
–105T	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–106T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–107T	30H2786	1	Laser Package Asm (20 MW)
–108T	04H0820	1	Holder, Laser
–109T	06F0412	3	Screw, Phillips Flat Hd M5 X 12 PP
–110T	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP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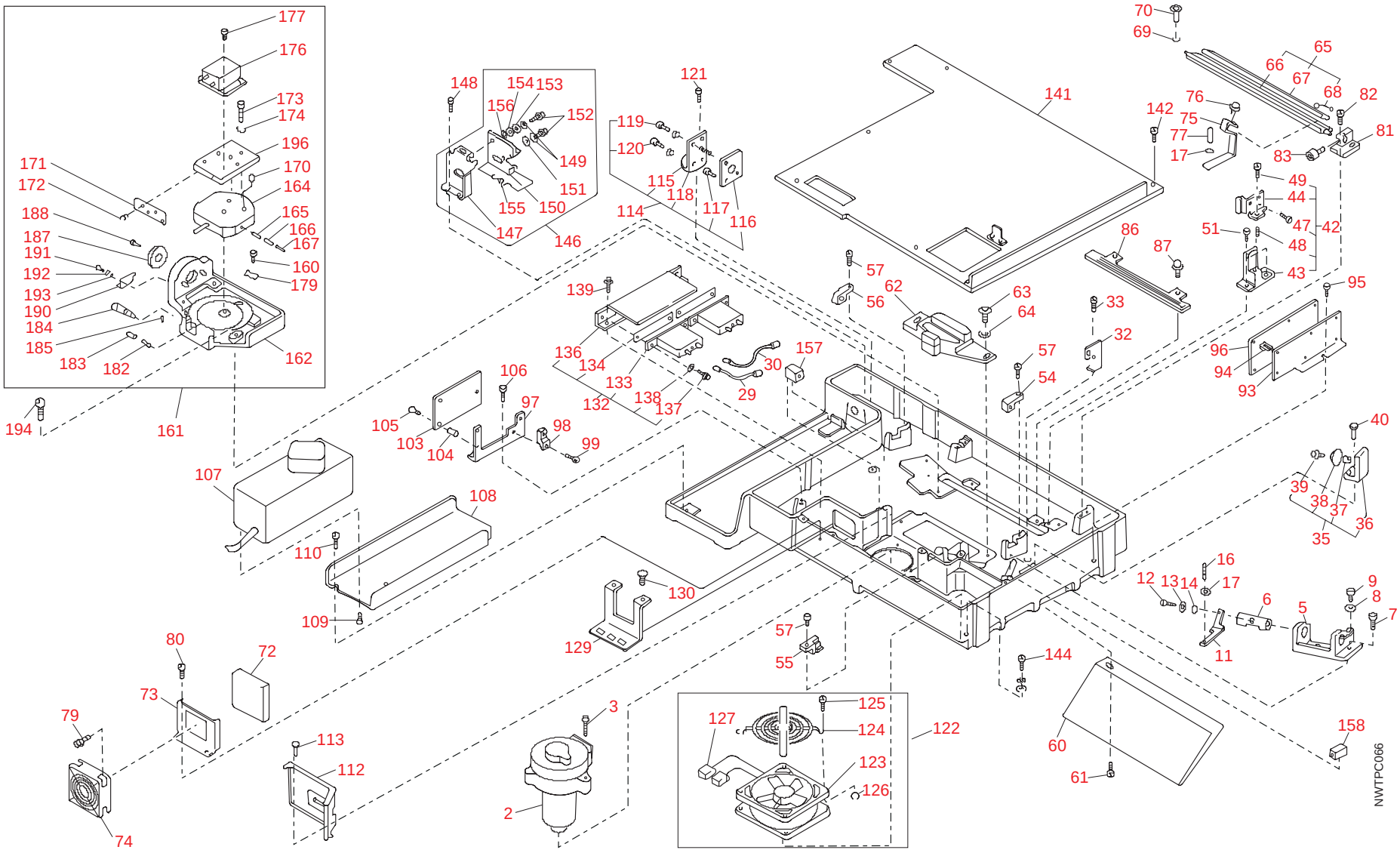
Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240 (Sheet 4 of 7)**
–112T		NP	
–113T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–114T		NP	Mirror, M1 Asm
–115T		NP	
–116T		NP	
–117T		NP	
–118T	88F2848	3	Spring, Compression
–119T	06F0403	2	Bolt, Hexagon Socket Hd M4 X 20 PP
–120T	06F0403	1	Bolt, Hexagon Socket Hd M4 X 16 PP
–121T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–122T		NP	
–123T	53F1860	1	Fan, Front Printhead (B201)
–124T	06F0569	1	Guard, B201 Finger
–125T	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–126T	06F0407	2	Nut, M3 PP
–127T		NP	
–129T		NP	
–130T	06F0412	2	Screw, Phillips Flat Hd M4 X 12 PP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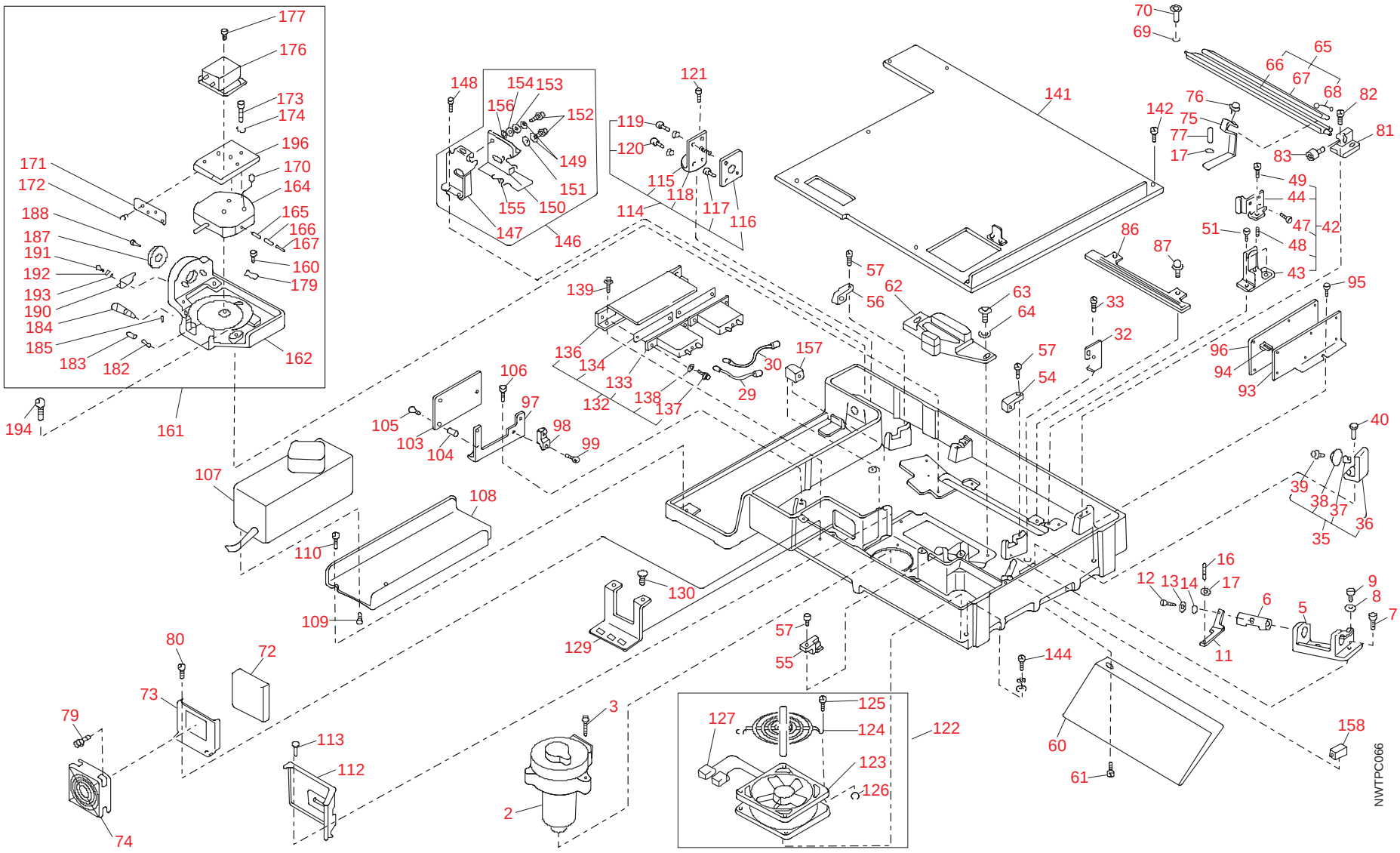
NWTPC066

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240 (Sheet 5 of 7)**
–132T		NP	
–133T	24H7996	2	Driver, AO (AM202 and AM203)
–134T	06F0637	2	Sheet, Driver Insulating
–136T	30H6734	1	Holder, AO Driver
–138T	06F0635	4	Washer, Insulating
–139T	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–141T		NP	
–142T	06F0411	7	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–144T	06F0414	6	Bolt, Hexagon Socket Hd M8 X 30 PP
–146T	04H0807	1	Stand, Laser Filter Asm
–147T		NP	
–148T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–149T	06F0405	2	Washer, D4 PP
–150T		NP	
–151T	88F2662	1	Holder, Laser Safety Filter Lens
–152T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–153T		NP	
–154T	06F0417	1	Washer, Wave PP
–155T	88F3440	1	Spring, Extension
–156T		NP	
–157T	88F3390	2	Ferrite Bead
–158T	88F3391	1	Ferrite Bead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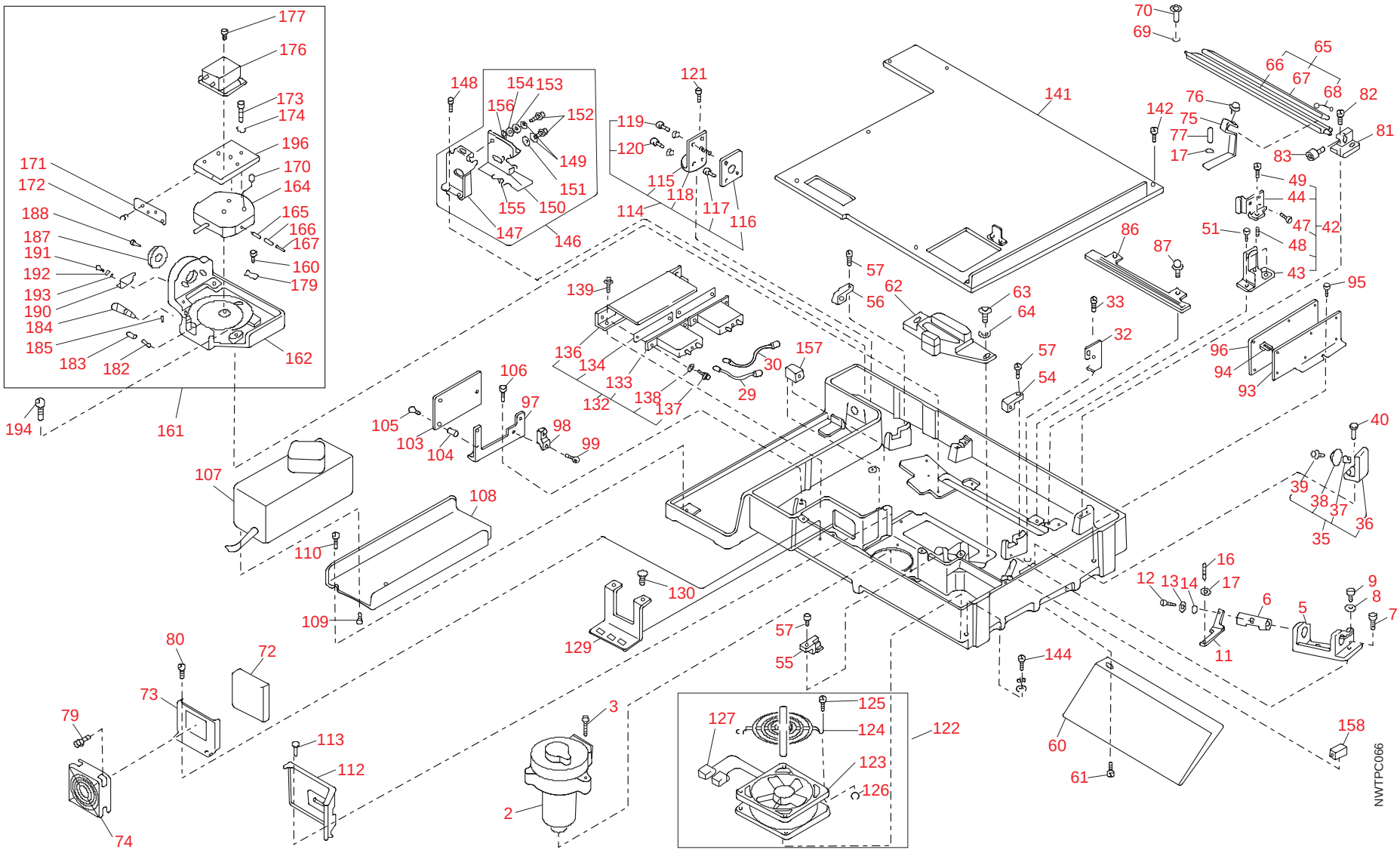
NWTPC066

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240 (Sheet 6 of 7)**
–161T		NP	
–162T	04H0788	1	Plate, AO Modulator Base
–164T	04H0789	1	Plate, Circle
–165T	04H0790	1	Chip
–166T	04H0791	1	Spring, AO Adjust
–167T	06F0416	1	Bolt, Hexagon Socket Hd Set Screw M4 X 16 PP
–169T	04H0792	1	Plate, Taper
–170T	04H0793	2	Spring, AO
–171T	04H0794	1	Spring, Hinge
–172T	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–173T	30H6698	1	Screw, Adjust
–174T	06F0405	1	Washer, D4 PP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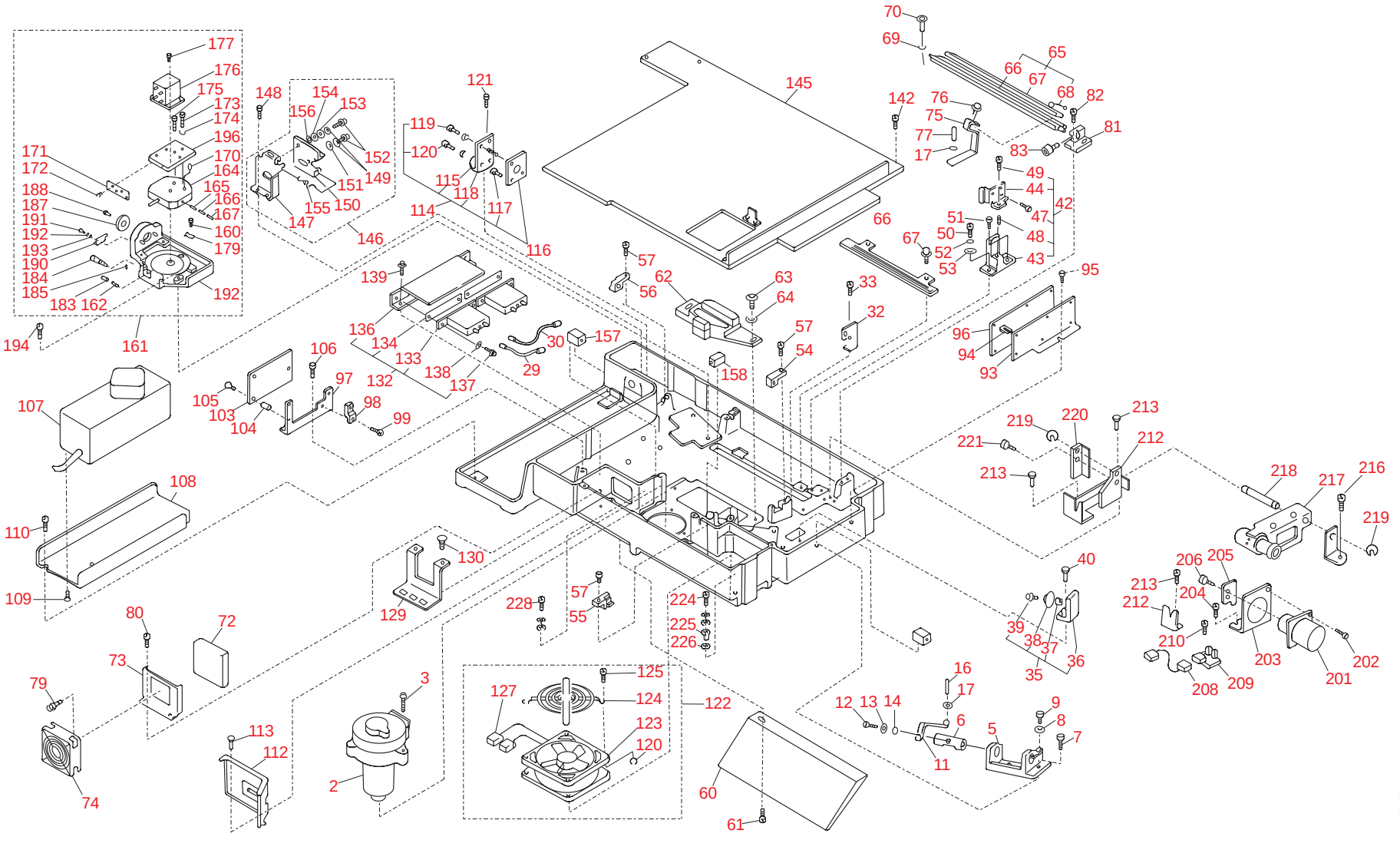
Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240 (Sheet 7 of 7)**
–176T	24H8041	1	AO Modulator AM201 (Two-beam 240)
–177T	06F0403	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M3 X 8 PP
–179T	04H0796	2	Plate, Rise
–180T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–182T	04H0797	2	Spring, FT
–183T	06F0669	1	Pin, D6 X 12 PP
–184T	04H0798	1	Micro Head
–185T	88F1626	1	Screw, Set, Hexagon Socket Hd M4 X 8 PP
–187T	04H0799	1	Lens, L2 Asm
–188T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–190T		NP	
–191T	30H6700	1	Screw, Shoulder
–192T	06F0417	1	Washer, Wave PP
–193T	06F0405	1	Washer D6 PP
–194T	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 30 PP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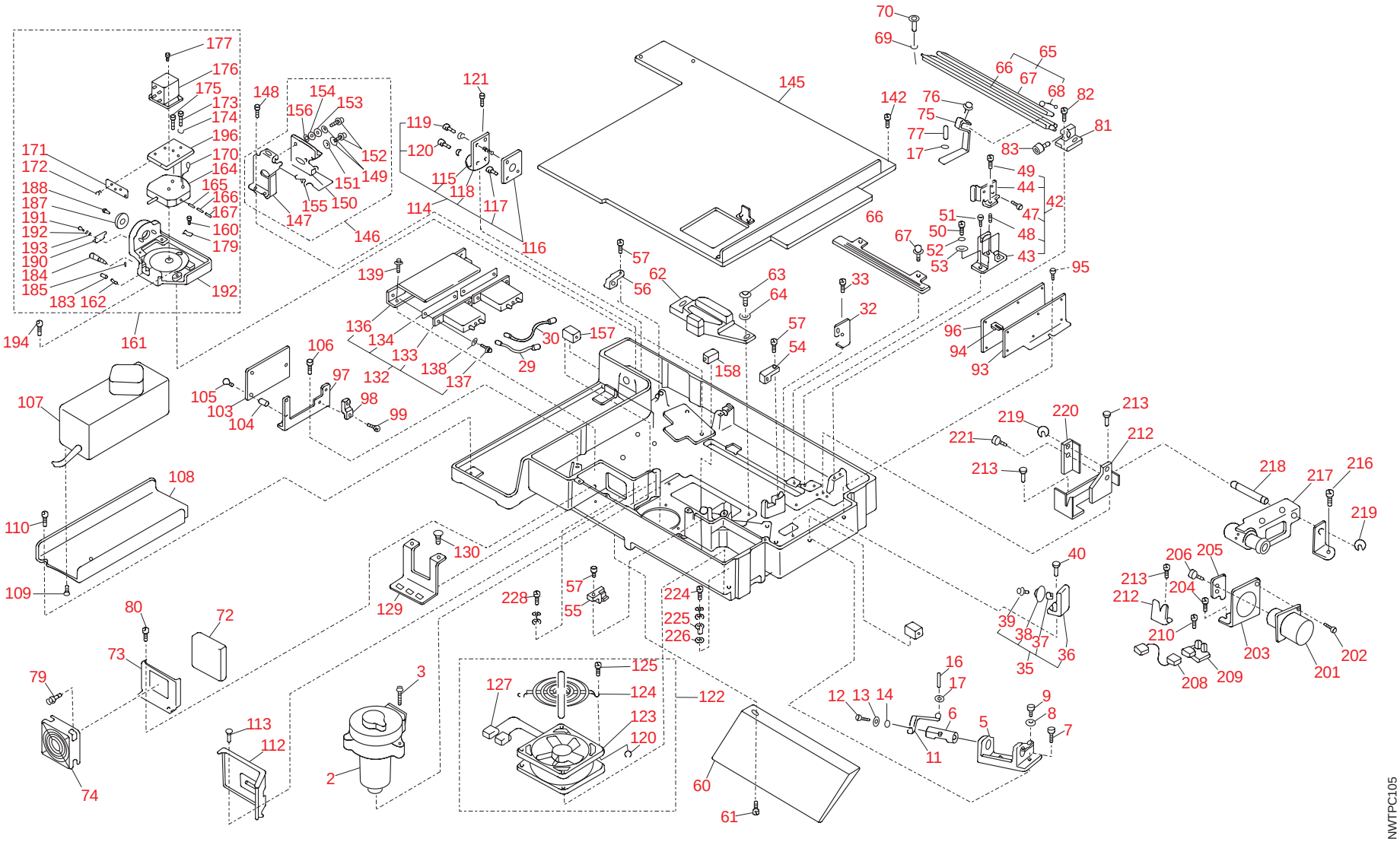
NWTPC105

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 1 of 8)**
–2S	57G6409	1	Motor, Mirror M201 (Except 324 PPM)
–2S	04H0845	1	Motor, Mirror M201 (324 PPM)
–3S	06F0411	3	Screw, Phillips Pan Hd M4 X 40 with Star Wshr & Wshr PP
–5S	08H7668	1	Holder, Dove Prism
–6S	04H0829	1	Prism Asm, Dove
–7S	06F0415	2	Bolt, Hexagon Socket Hd M5 X 20 with Star Wshr & Wshr PP
–8S	06F0406	1	Washer, D4 PP
–9S	06F0403	1	Bolt, Hexagon Socket Hd M4 X 16 PP
–11S	08H7670	1	Lever, Adjusting, Dove Prism
–12S	06F0403	1	Bolt, Hexagon Socket Hd M4 X 8 PP
–13S	06F0405	1	Washer, Spring D4 PP
–14S	06F0405	1	Washer D4 PP
–16S	06F0416	1	Set Screw, Hexagon Socket Hd M4 X 20 PP
–17S	06F0407	2	Nut, Lock M4 PP
–29S	30H3157	2	Cable, AO Modulator
–30S	30H6737	2	Cable, AO Driver
–32S		NP	Aperture
–33S	06F0415	1	Bolt, Hexagon Socket Hd M5 X 12 with Star Wshr & Wshr PP
–35S	04H0801	1	Mirror, M2 Asm
–36S	57G6655	1	Stand, Mirror 2
–37S	88F2629	1	Spring, Mirror 2
–38S	57G6656	1	Plate, Mirror 2
–39S	88F2631	3	Screw, Adjust
–40S	06F0415	2	Bolt, Hexagon Socket Hd M4 X 16 with Star Wshr & Wshr PP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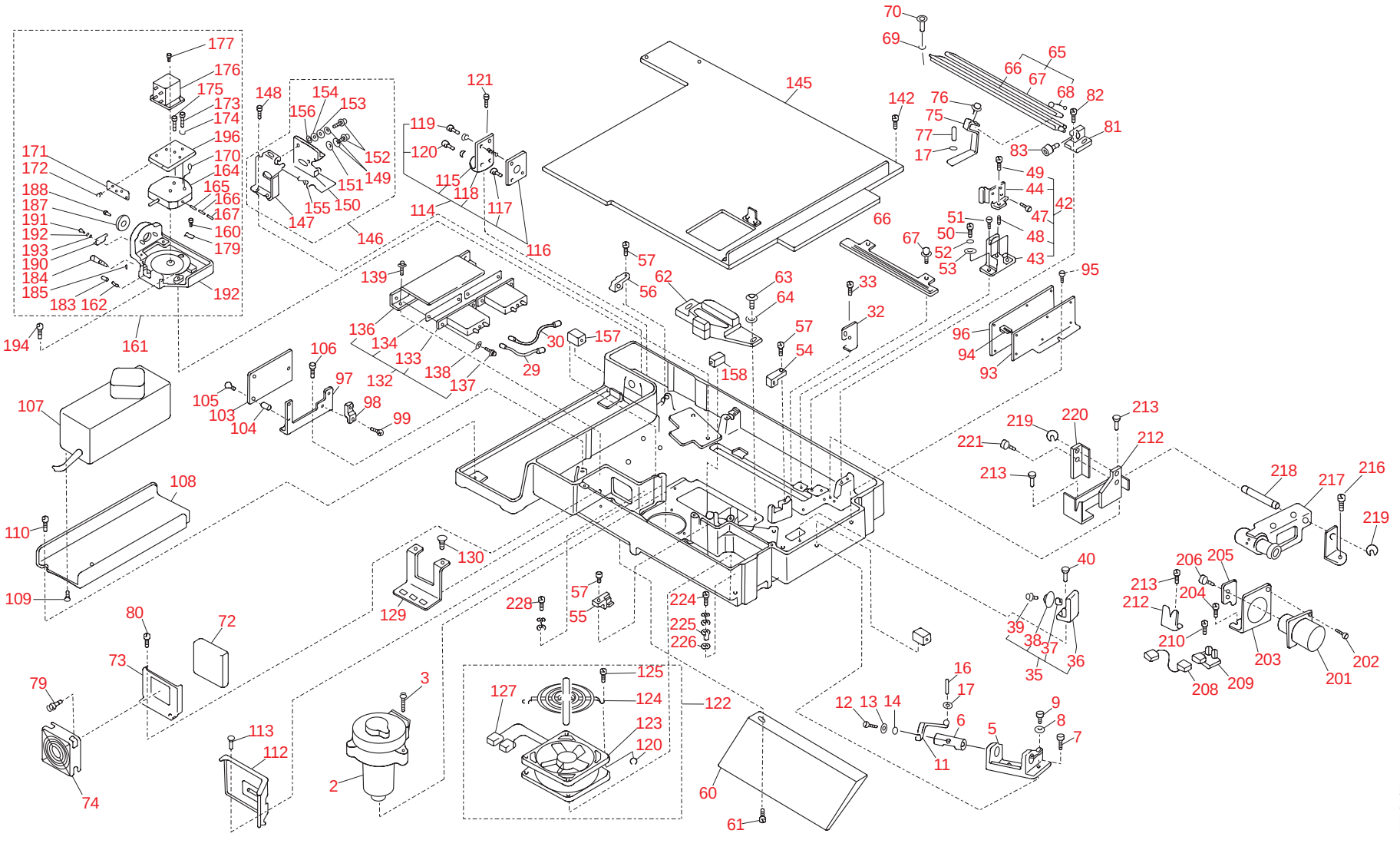
Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 2 of 8)**
–42S	04H0802	1	Mirror, Beam Detect Asm
–43S	88F2633	1	Stand, Beam Detect Mirror
–44S		NP	
–47S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–48S	88F2636	1	Spring, Compression
–49S	06F0403	1	Bolt, Hexagon Socket Hd with Star Wshr M3 X 20 PP
–51S	06F0415	2	Bolt, Hexagon Socket Hd M4 X 16 with Star Wshr & Wshr PP
–54S	90H1133	1	Lens, L1 Asm
–55S	08H7676	1	Lens, Cylinder CYL1
–56S	30H6695	1	Prism, Wollaston (two beam 240/300)
–56S	11L5157	1	Prism, Wollaston (two beam 240/300 - 324 PPM)
–57S	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr M5 X 16 PP
–60S		NP	
–61S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–62S	04H0810	1	Lens, F-theta
–63S	06F0403	2	Bolt, Hexagon Hd with Star Wshr & Wshr M5 X 20 PP
–64S	06F0420	2	Washer, Press PP
–65S	04H0803	1	Mirror, Return Asm
–66S	88F2644	1	Holder, Return Mirror
–67S	88F2645	1	Mirror, Return
–68S	88F2646	2	Spring, Return Mirror
–69S	88F2647	1	Clamp, Return Mirror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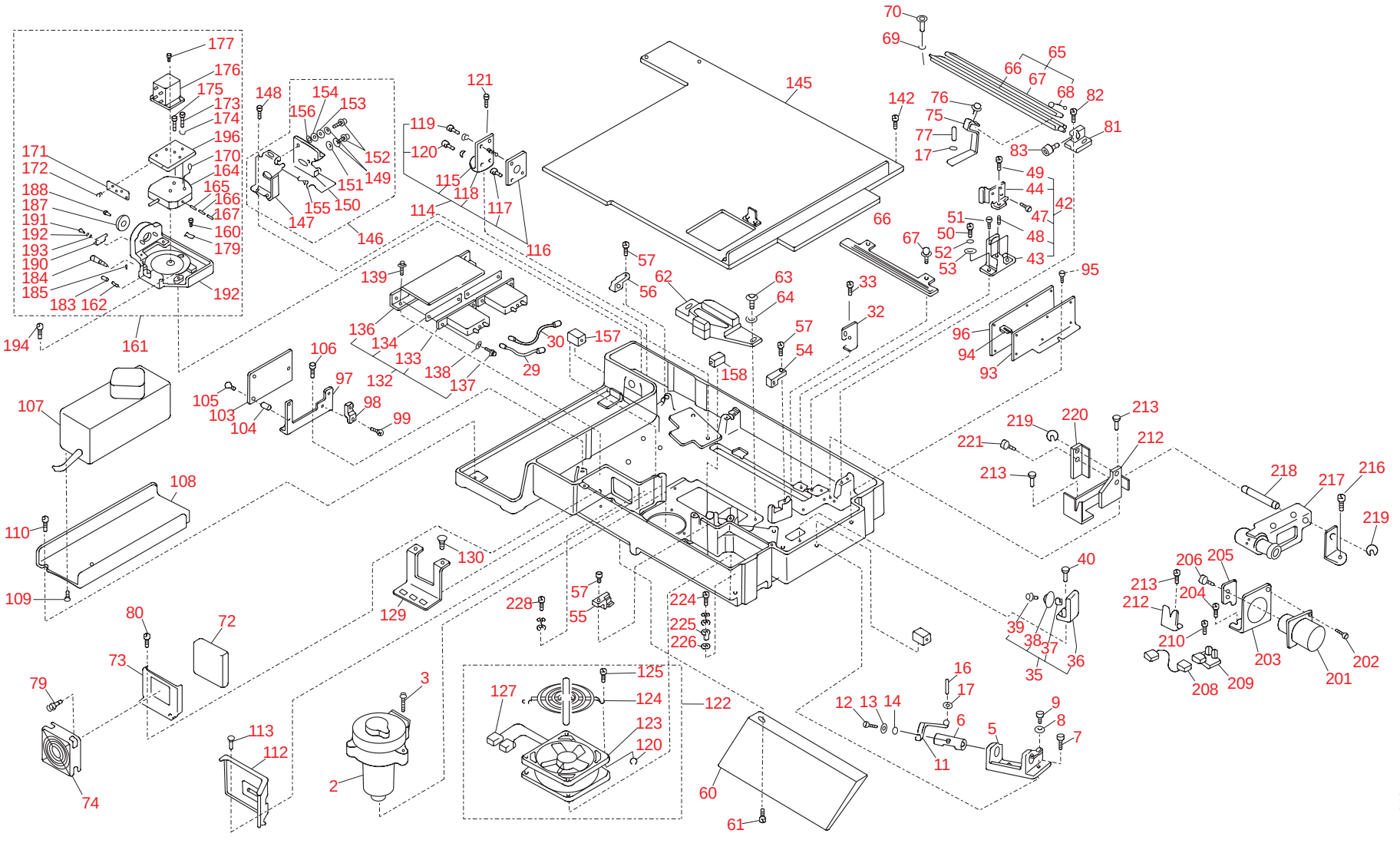
NWTPC105

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 3 of 8)**
–70S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–72S	04H0823	1	Filter
–73S	88F2648	1	Base, Fan
–74S	04H0822	1	Fan, Printhead Pressurizing Asm (B202)
–75S	90H1131	1	Lever, Return Mirror Adjusting
–76S	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–77S	06F0416	1	Bolt, Hexagon Socket Hd Set Screw M4 X 16 PP
–79S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–80S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 10 PP
–81S	88F3389	1	Holder, Return Mirror
–82S	06F0415	2	Bolt, Hexagon Hd with Star Wshr & Wshr M5 X 12 PP
–83S	06F0415	1	Bolt, Hexagon Hd with Star Wshr & Wshr M4 X 16 PP
–86S	30H6727	1	Shutter, Beam
–87S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–93S	30H6728	1	Plate, VI141 Card Mounting
–94S	30H6696	6	Clip, VI141 Card Mounting
–95S	06F0411	1	Screw, Hexagon Hd with Star Wshr & Wshr M4 X 12 PP
–96S	04H0769	1	Card, Printhead Interface (VI141)
–97S	04H0812	1	Holder, Beam Detect Sensor
–98S	57G6781	1	Holder, BD131
–99S	06F0411	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–103S	04H0833	1	Card, Beam Detect (BD131)
–103S	30H6867	1	Card, Beam Detect (BD132)
–104S	06F0957	3	Collar
–105S	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–106S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–107S	30H2786	1	Laser Package Asm (20 MW) (Two Beam 240/300)
–107S	90H1276	1	Laser Package Asm (30 MW) (Two Beam 240/300 - 324 PPM)
–108S	04H0820	1	Holder, Laser
–109S	06F0412	3	Screw, Phillips Flat Hd M5 X 12 PP
–110S	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP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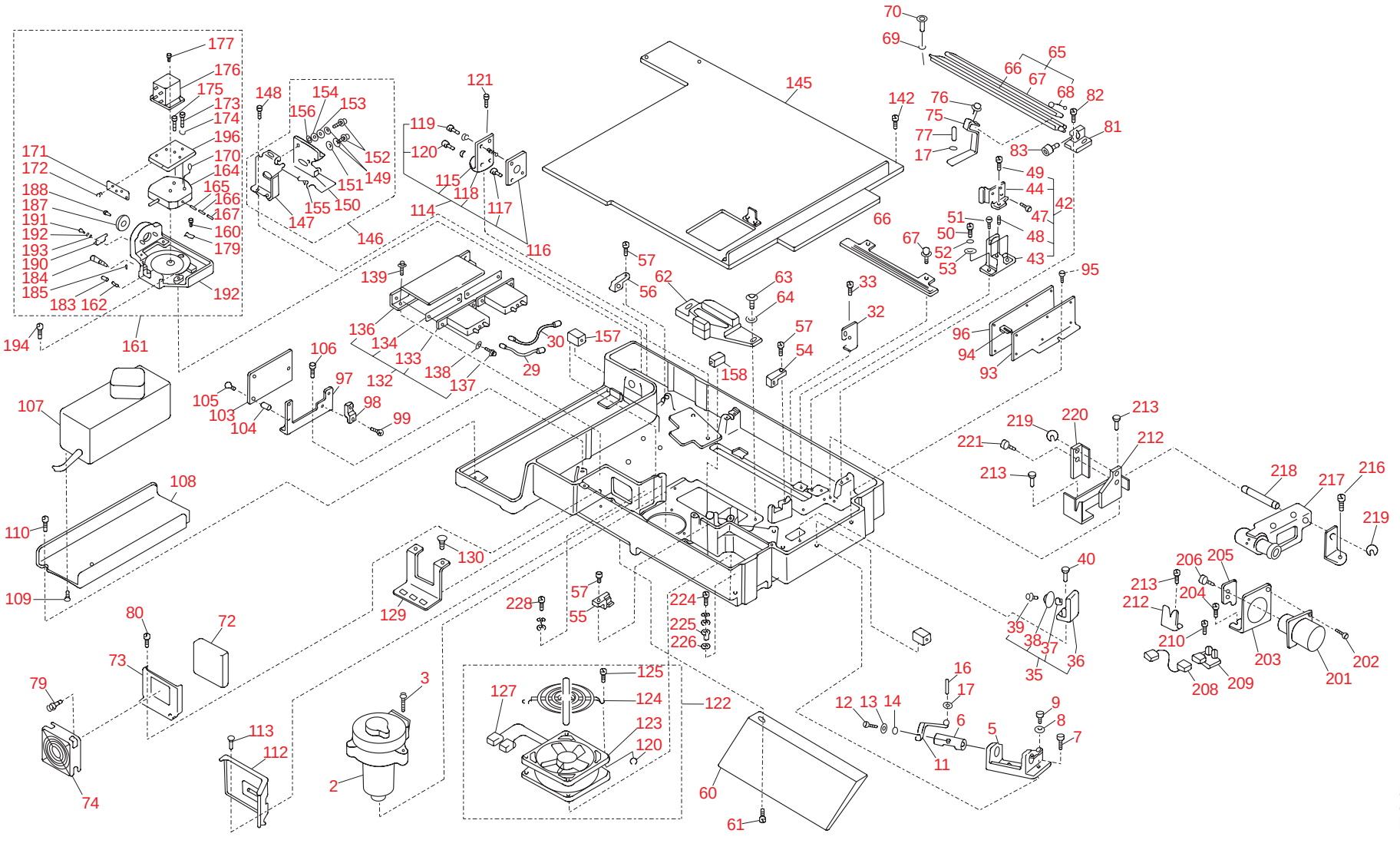
NWTPC105

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 4 of 8)**
–112S		NP	
–113S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–114S		NP	Mirror, M1
–115S		NP	
–116S		NP	
–117S		NP	
–118S	88F2848	3	Spring, Compression
–119S	06F0403	2	Bolt, Hexagon Socket Hd M4 X 20 PP
–120S	06F0403	1	Bolt, Hexagon Socket Hd M4 X 16 PP
–121S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–122S		NP	
–123S	53F1860	1	Fan, Front Printhead (B201)
–124S	06F0569	1	Guard, B201 Finger
–125S	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–126S	06F0407	2	Nut, M3 PP
–127S		NP	
–129S		NP	
–130S	06F0412	2	Screw, Phillips Flat Hd M4 X 12 PP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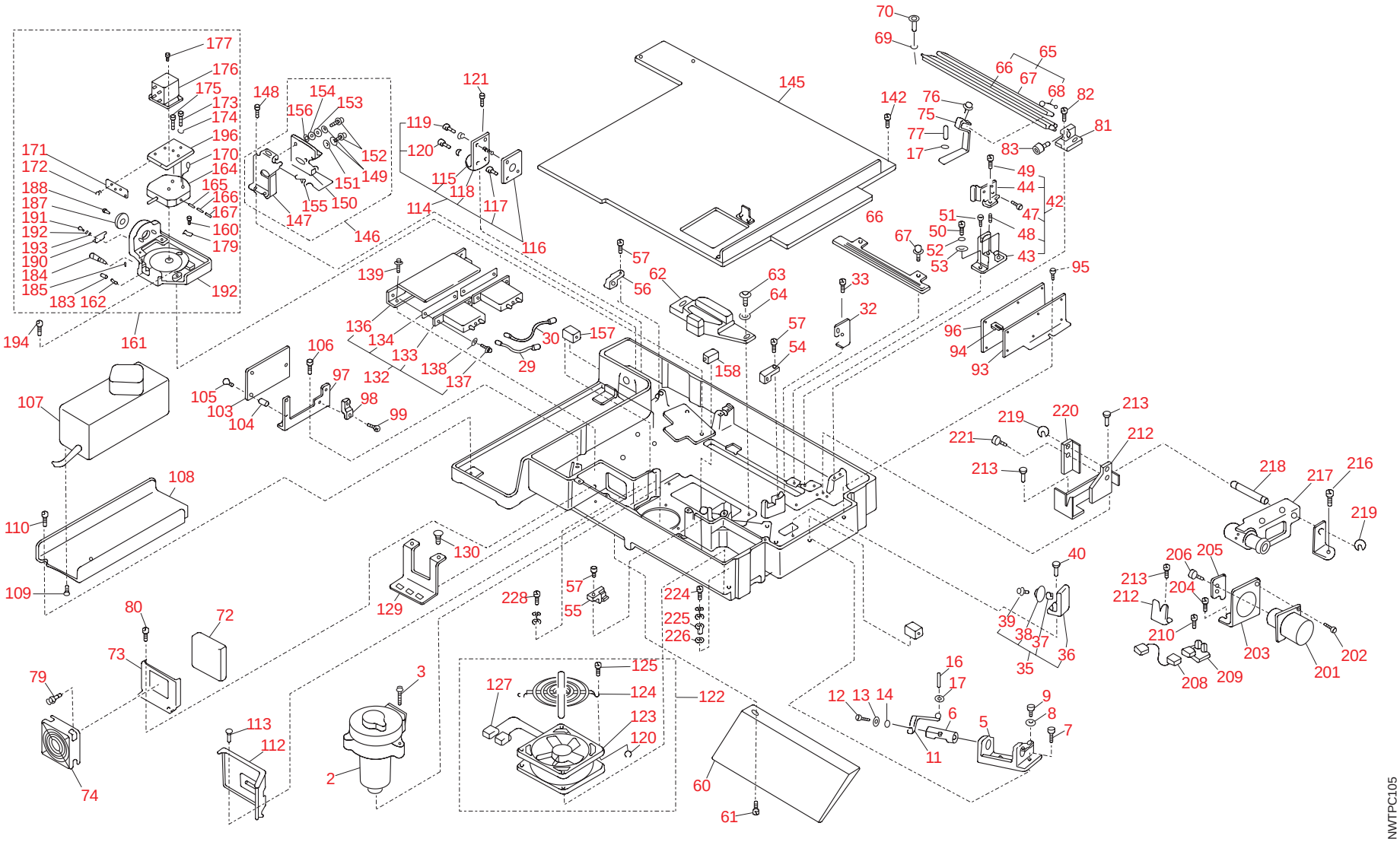
NWTPC105

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 5 of 8)**
–132S		NP	
–133S	24H7996	2	Driver, AO (AM202 and AM203)
–134S	06F0637	2	Sheet, Driver Insulating
–136S	30H6734	1	Holder, AO Driver
–138S	06F0635	4	Washer, Insulating
–139S	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–141S		NP	
–142S	06F0411	7	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–144S	06F0414	6	Bolt, Hexagon Socket Hd M8 X 30 PP
–146S	04H0807	1	Stand, Laser Filter Asm (Except 324 PPM)
–146S	11L5156	1	Stand, Laser Filter Asm (324 PPM)
–147S		NP	
–148S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–149S	06F0405	2	Washer, D4 PP
–150S		NP	
–151S	88F2662	1	Holder, Laser Safety Filter Lens
–152S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–153S		NP	
–154S	06F0417	1	Washer, Wave PP
–155S	88F3440	1	Spring, Extension
–156S		NP	
–157S	88F3390	2	Ferrite Bead
–158S	88F3391	1	Ferrite Bead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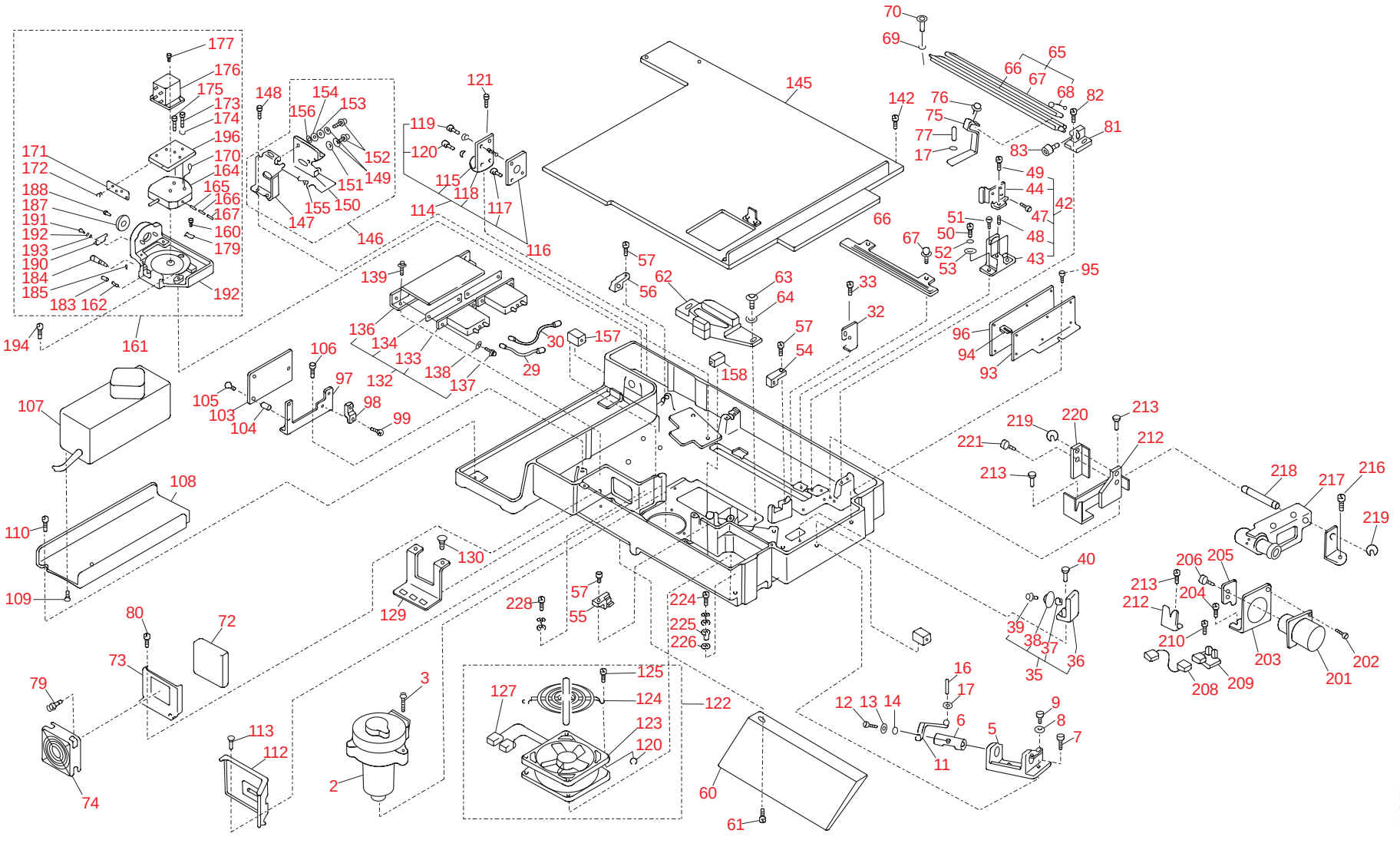
NWTPC105

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 6 of 8)**
–161S		NP	
–162S	04H0788	1	Plate, AO Modulator Base
–164S	04H0789	1	Plate, Circle
–165S	04H0790	1	Chip
–166S	04H0791	1	Spring, AO Adjust
–167S	06F0416	1	Bolt, Hexagon Socket Hd Set Screw M4 X 16 PP
–169S	04H0792	1	Plate, Taper
–170S	04H0793	2	Spring, AO
–171S	04H0794	1	Spring, Hinge
–172S	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–173S	30H6698	1	Screw, Adjust
–174S	06F0405	1	Washer, D4 PP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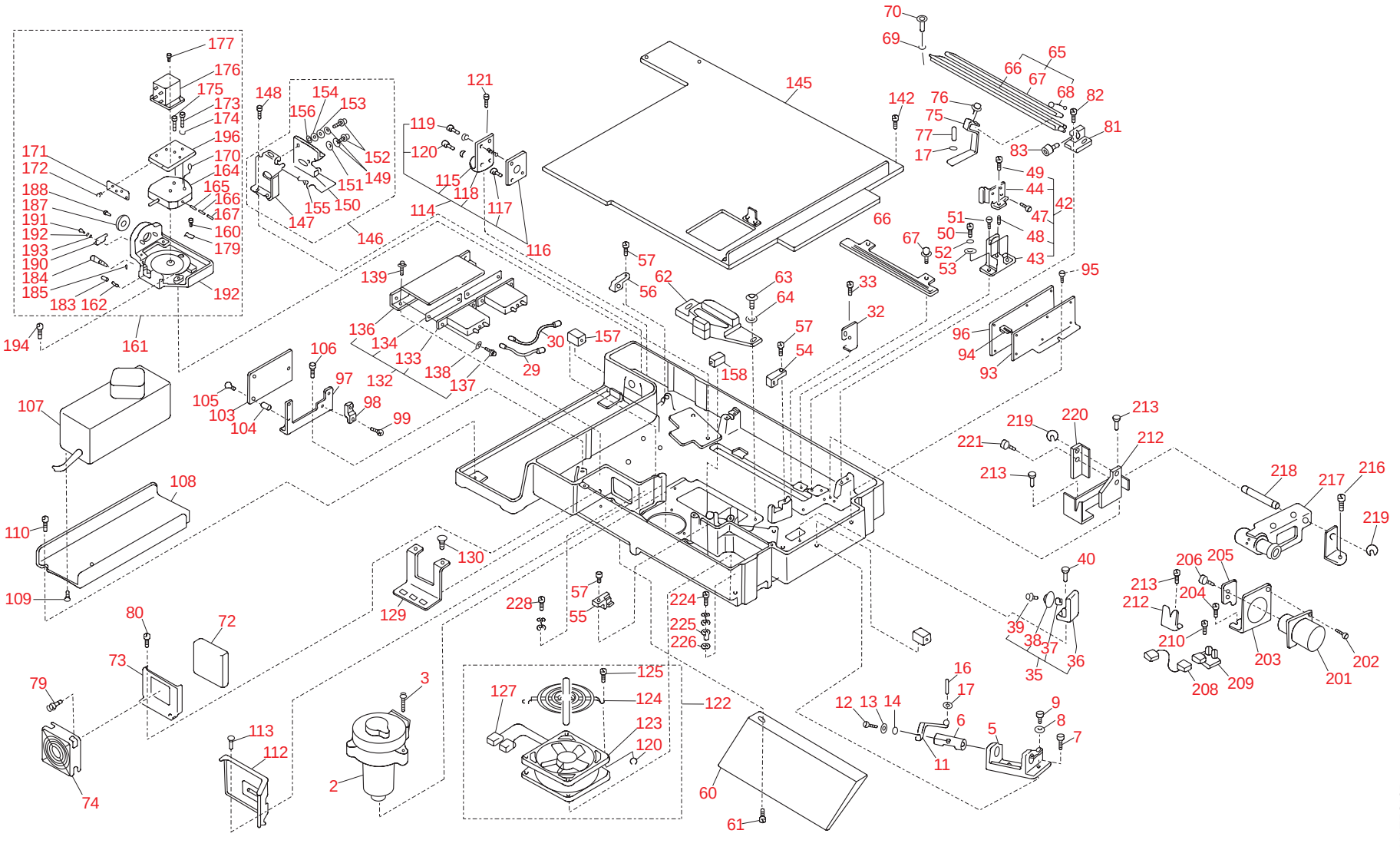
NWTPC105

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 7 of 8)**
–175S	06F0404	1	Bolt, Hexagon Socket Hd M4 X 12 PP
–176S	24H8041	1	AO Modulator (AM201) (Two-beam 240/300)
–177S	06F0403	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M3 X 8 PP
–178S	06F0415	2	Bolt, Hexagon Socket Hd M4 X 20 PP
–179S	04H0796	2	Plate, Rise
–180S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–182S	04H0797	2	Spring, FT
–183S	06F0669	1	Pin, D6 X 12 PP
–184S	04H0798	1	Micro Head
–185S	88F1626	1	Screw, Set, Hexagon Socket Hd M4 X 8 PP
–187S	04H0799	1	Lens, L2 Asm
–188S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–190S		NP	
–191S	30H6700	1	Screw, Shoulder
–192S	06F0417	1	Washer, Wave PP
–193S	06F0405	1	Washer D6 PP
–194S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 30 PP
–201S	30H6819	1	Motor, Resolution Switching Lens (M202)
–202S	06F0413	2	Screw, Phillips Bind Hd with Star Wshr & Wshr M4 X 8 PP
–203S	30H6821	1	Motor Holder
–204S	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–205S	30H6813	1	Plate, Sensor
–206S	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–208S		NP	
–209S	30H6814	1	Sensor, Resolution Lens Position (S202)
–210S	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–212S		NP	
–213S	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP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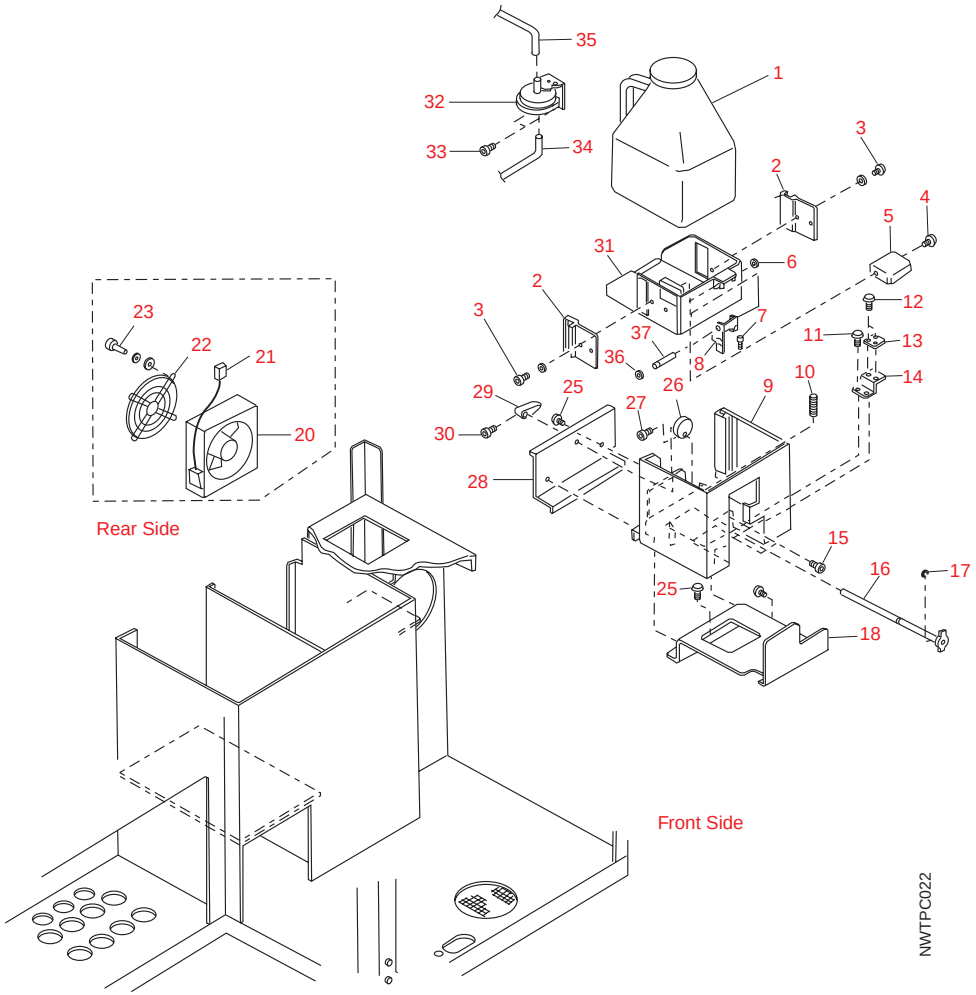
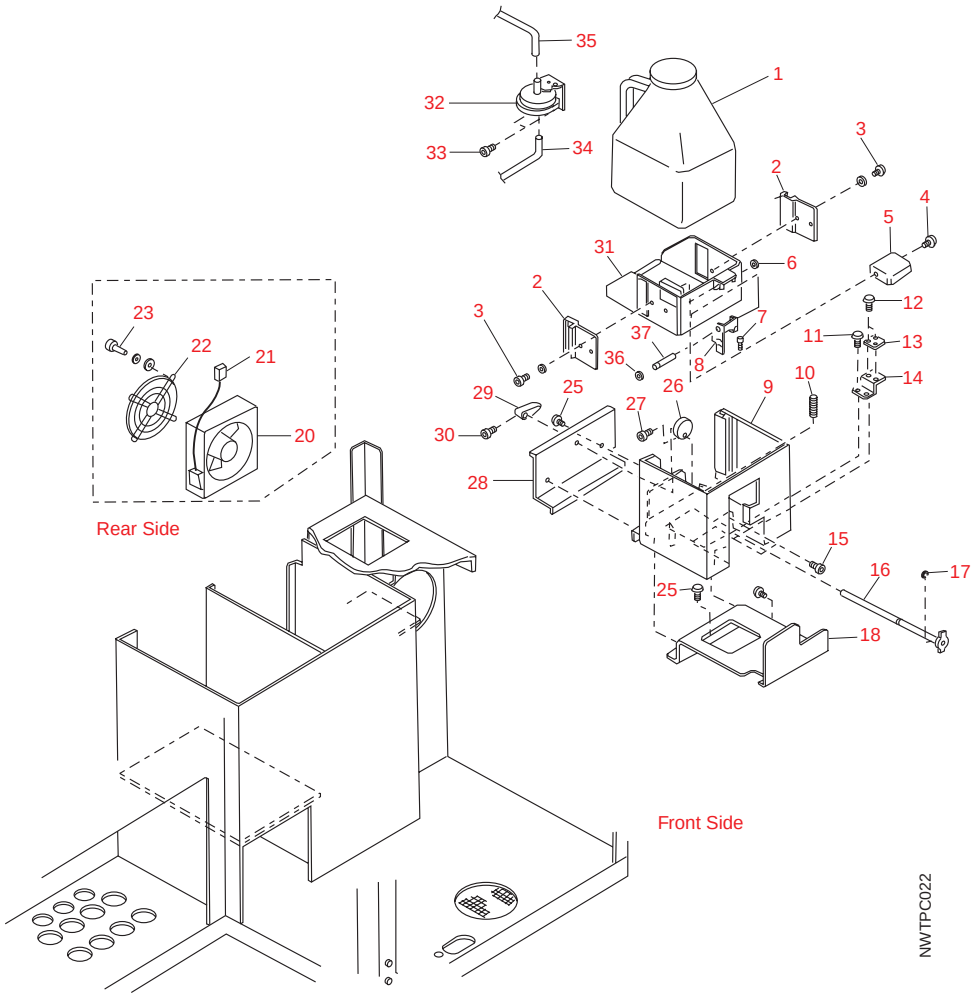
NWTPC105

Asm–Index	Part Number	Units	Description
12–			Printhead - **Two-Beam 240/300 Switchable (Sheet 8 of 8)**
–215S		NP	
–216S	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–217S	90H1154	1	Lens, Resolution Switching (two-beam 240/300)
–218S		NP	
–219S	06F0418	2	Retaining Ring
–220S		NP	
–221S	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–224S	06F0414	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–225S		NP	
–226S	06F0417	1	Washer, Wave
–229S	06F0414	2	Bolt, Hexagon Socket Hd M8 X 20 PP

Assembly 13: Air System



Asm–Index	Part Number	Units	Description
13–		NP	Air System (Sheet 1 of 5)
–1		NP	Bottle, Toner Empty (Reference only)
–2	88F2671	2	Guide, Table
–3	06F0413	4	Screw, Phillips Bind Hd M4 X 10 PP
–4	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–5	88F2673	1	Guide, Cam
–6	06F0418	1	Ring-E PP
–7	88F2676	1	Spring, Extension
–8	88F2674	1	Stopper
–9	88F2666	1	Holder, Toner Bag Asm
–10	88F2667	2	Spring, Compression
–11	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–12	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–13	88F2678	1	Switch, Toner Collector (S118)
–14	88F2677	1	Holder, Read Switch
–15	06F0403	2	Bolt, Hexagon Socket Hd M4 X 8 PP
–16	88F2669	1	Shaft, Toner Collector Asm
–17	06F0418	2	Ring-E PP
–18	88F2710	1	Stand, Toner Bottle
–20	06F0194	1	Fan, Asm (B102)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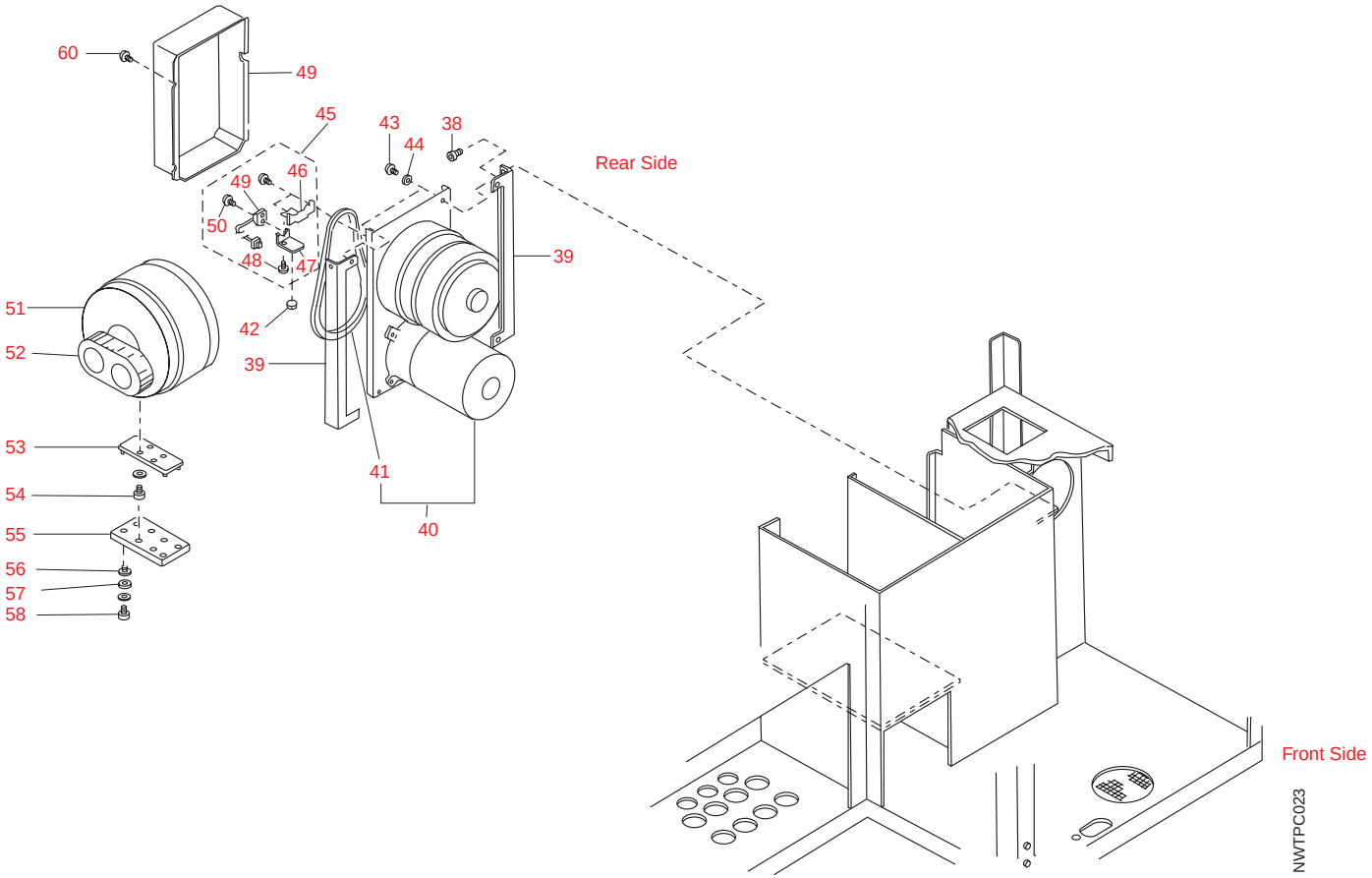
Asm–Index	Part Number	Units	Description
13–		NP	Air System (Sheet 2 of 5)
–21		NP	
–22		NP	
–23	06F0413	2	Screw, Phillips Bind Hd M4 X 50 PP
–25	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–26	88F2668	1	Cam, Toner Collector
–27	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–28	88F2684	1	Cover, Toner Collector Lever
–29	06F0868	1	Lever
–30	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–31	88F2670	1	Table, Toner Collector
–32	53F1986	1	Switch, Filter Pressure Asm (S102)
–33	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–34	88F2713	1	Tube, Silicone
–35	06F0736	1	Tube, Silicone
–36	06F0418	1	Ring-E PP
–37	88F2675	1	Shaft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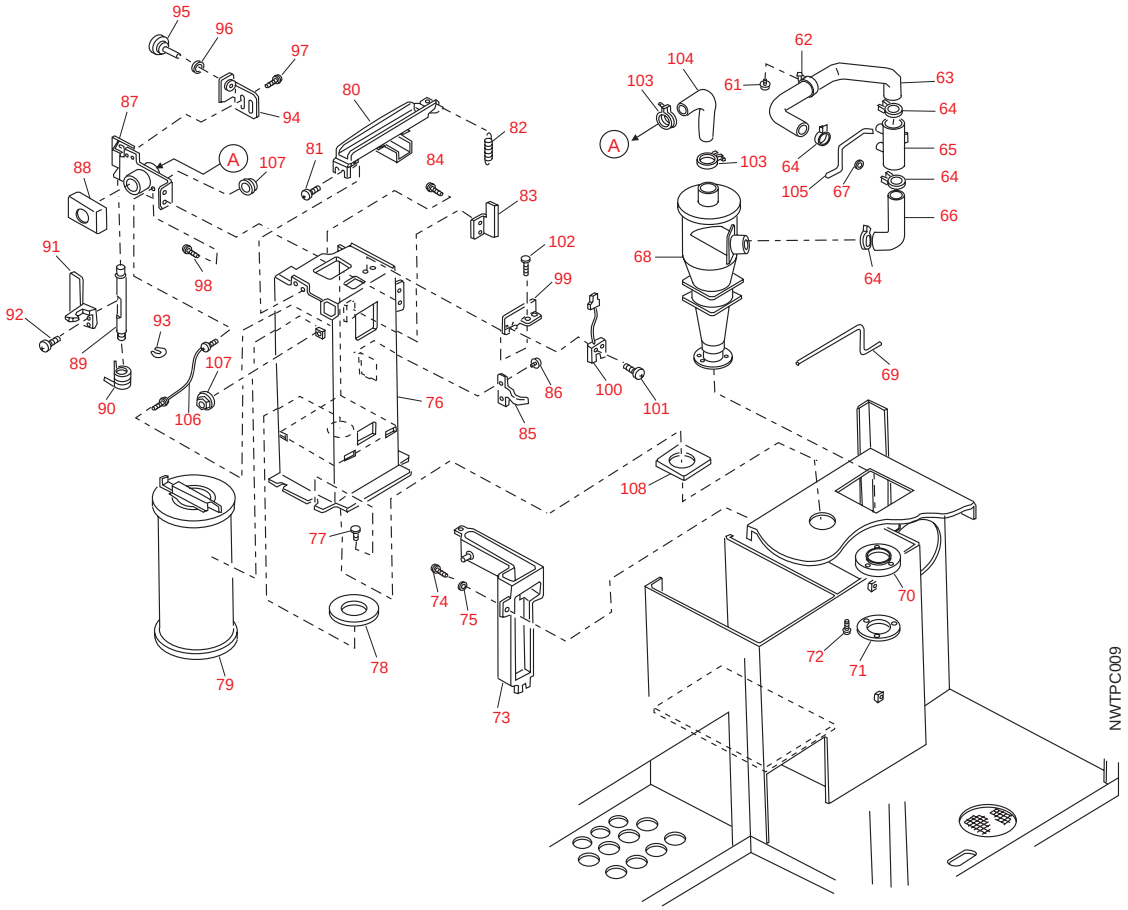
Asm–Index	Part Number	Units	Description
13–		NP	Air System (Sheet 3 of 5)
–38	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–39	88F2703	2	Holder, Cyclone Blower
–40	53F1987	1	Blower, Cyclone Asm (M104)
–41	53F1988	1	Belt, Cyclone Blower
–42	06F0419	1	Clamp, Cable PP
–43	06F0415	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–44	06F0420	4	Washer, Press PP
–45	88F2705	1	Sensor, Cyclone Rotation Asm
–46	88F2706	1	Holder
–47	88F2707	1	Holder
–48	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–49	53F1829	1	Sensor, Cyclone Blower Rotation (S116)
–50	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–51	06F0041	1	Blower, Vacuum Asm (M105)
–52	88F2708	1	Seal, Vacuum
–53	06F0731	1	Holder, Blower
–54	06F0414	4	Bolt, Hexagon Socket Hd M6 X 12 PP
–55	06F0729	1	Sheet, Blower Rubber
–56	88F2709	4	Bushing, Insulator
–57	06F0406	4	Washer, Special PP
–58	06F0403	4	Bolt, Hexagon Socket Hd M5 X 25 PP
–59	88F2717	1	Cover, Blower Belt Asm
–60	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP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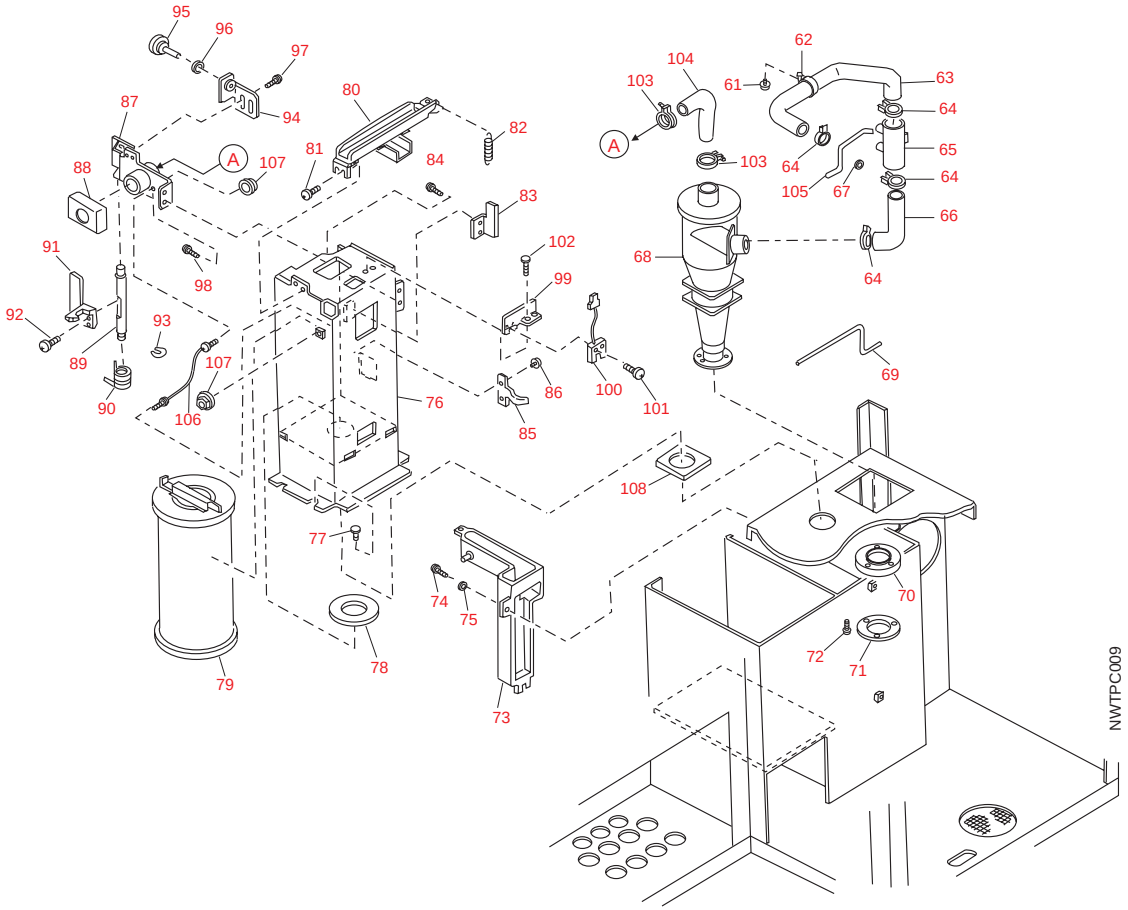
Asm–Index	Part Number	Units	Description
13–		NP	Air System (Sheet 4 of 5)
–61	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–62	06F0410	2	Clip, Nylon PP
–63	06F0342	1	Hose, Vacuum
–64	06F0463	4	Band, Wire
–65	88F2679	1	Pipe
–66	88F2680	1	Hose, Cyclone
–67	06F0492	1	Cap, Sleeve
–68	88F2664	1	Cyclone Asm
–69	88F2681	1	Tube, Silicone D
–70	88F2711	1	Holder, Toner Collector
–71	88F2712	1	Seal, Toner Collector
–72	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–73		NP	
–74	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–75	06F0420	2	Washer, Press PP
–76		NP	
–77	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–78	57F6794	1	Seal, Filter
–79	04H0290	1	Filter, Fine
–80		NP	
–81	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–82		NP	
–83		NP	
–84	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–85		NP	
–86	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–87		NP	
–88	57G6795	1	Seal, Foam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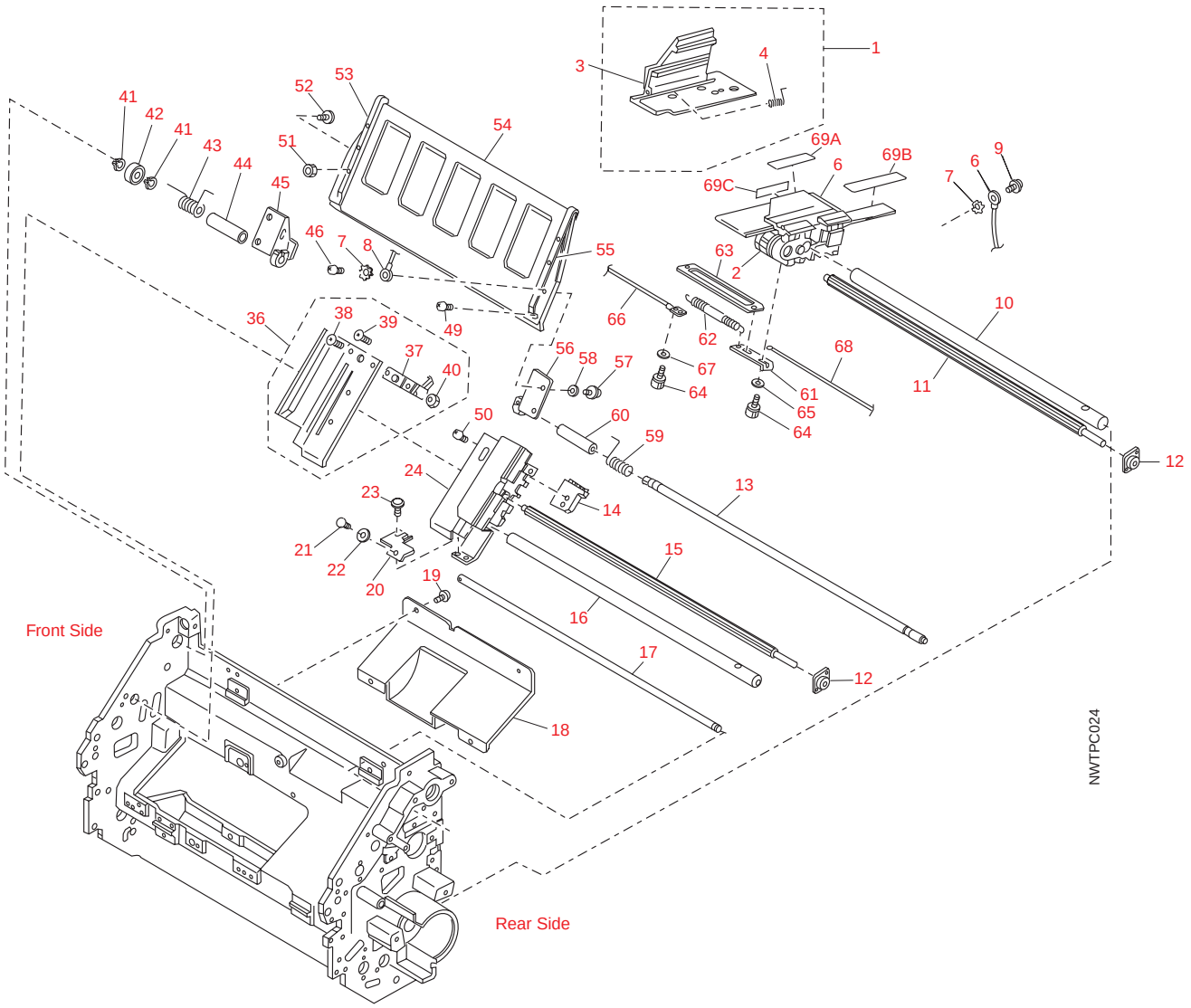
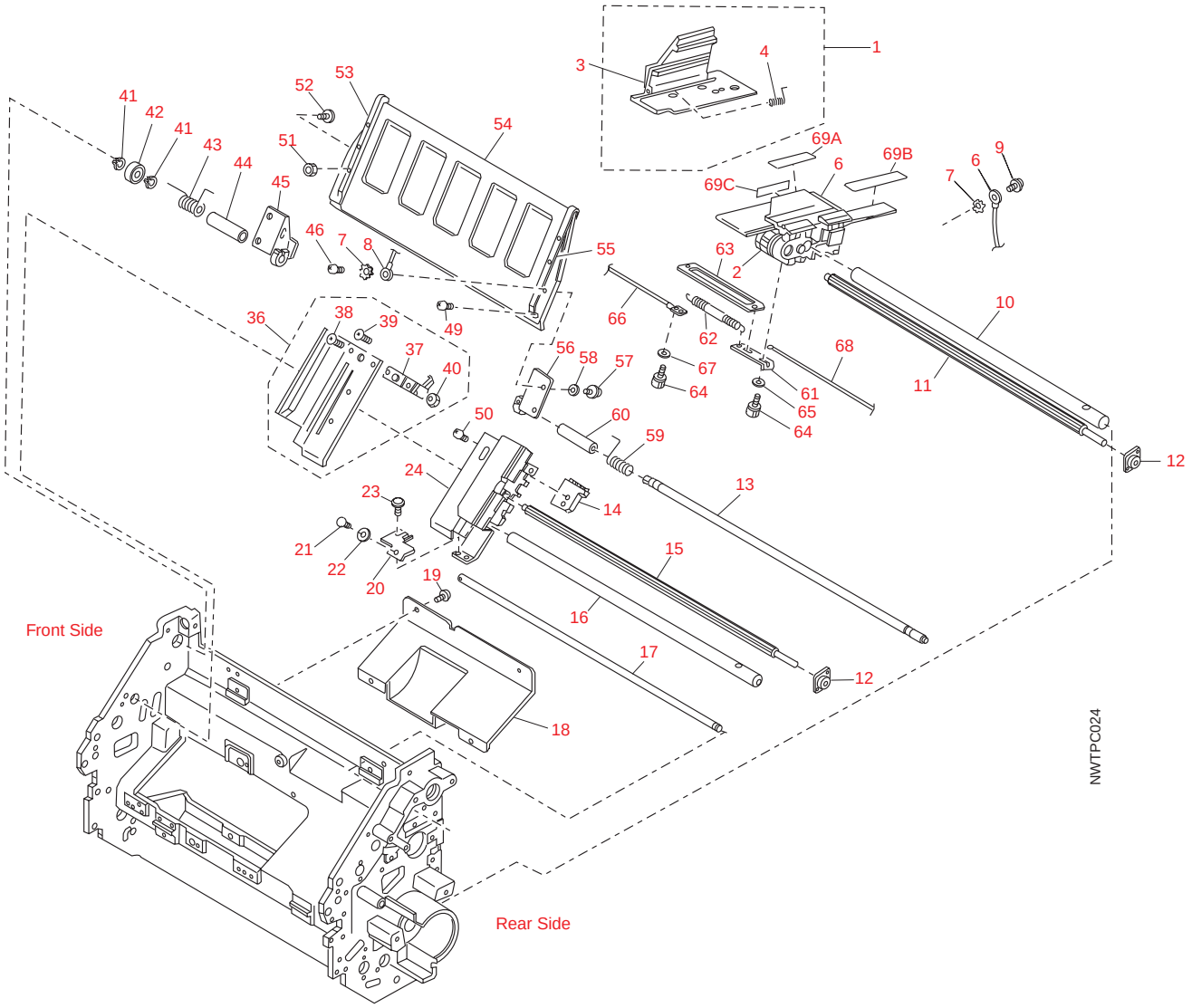
Asm–Index	Part Number	Units	Description
13–		NP	Air System (Sheet 5 of 5)
–89		NP	
–90		NP	
–91		NP	
–92	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–93	06F0418	1	Ring-E PP
–94		NP	
–95	06F0214	1	Bearing, Plastic
–96	06F0405	1	Washer, Spring D6 PP
–97	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–98	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–99		NP	
–100		NP	
–101	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–102	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–103	06F0463	2	Band, Wire
–104		NP	
–105	88F2682	1	Tube, Silicone D
–106		NP	
–107		NP	
–108		NP	

Assembly 14: Transfer Station



Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 1 of 17)
–1	45G1839	1	Tractor, Lower Front
–2	88F3373	4	Belt, Tractor
–3	88F3458	8	Pin, Tractor Door Hinge
–4	88F3459	4	Spring, Tractor Cover
–6	53F1797	1	Tractor, Lower Rear
–7	06F0406	2	Washer, Toothed D5 PP
–8	88F2799	1	Cable, Ground
–9	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10 PP
–10	57G6796	1	Shaft, Tractor Guide
–11	57G6797	1	Shaft, Drive
–12	53F1808	2	Flange, Ball Bearing
–13	30H5518	1	Shaft, BF Hinge (Also shown on Asm 14-107A) (New style with Brake)
–14	88F2820	1	Plate, Magnet
–14	04H1055	1	Plate, Magnet (Printers with 8-inch minimum paper width)
–15	57G6797	1	Shaft, Drive
–16	57G6796	1	Shaft, Tractor Guide
–17		NP	
–18	30H2805	1	Cover, Retractor Motor
–19	06F0413	4	Screw, Bind Hd with Star Wshr & Wshr M5 X 12 PP
–20		NP	
–21	06F0402	1	Screw, Phillips Pan Hd M3 X 6 PP
–22	88F2818	1	Washer, Bolt D3
–23	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–24	53F1799	1	Tractor, Upper Rear (9-inch minimum)
–24	11L5192	1	Tractor, Upper Rear (8-inch minimum)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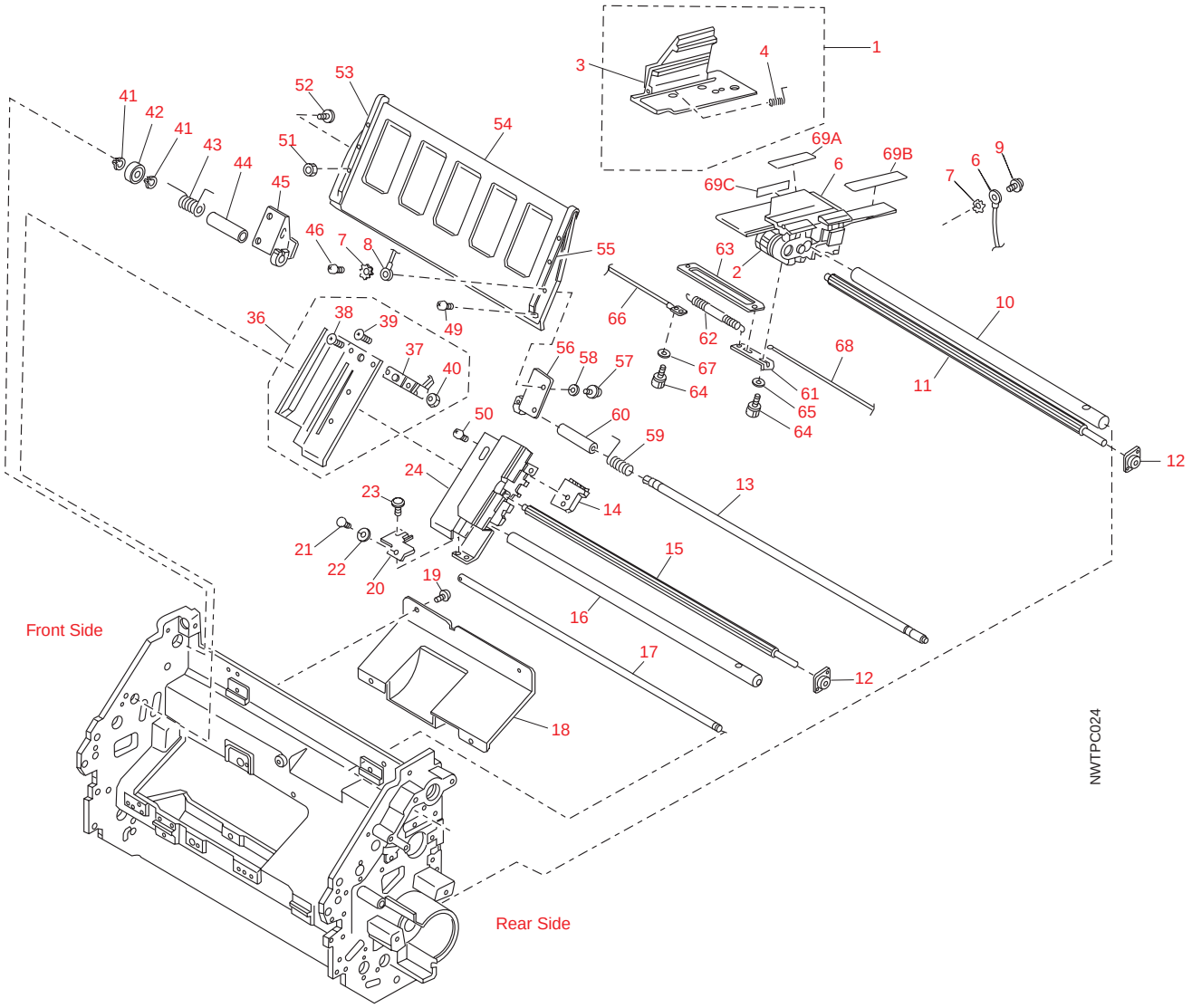
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 2 of 17)
–36	53F1798	1	Tractor, Upper Front
–37	53F1795	1	Sensor, Upper Tractor Jam (Q301)
–38	88F1626	1	Screw, Phillips Flat Hd M3 X 6 PP
–39	06F0412	1	Screw, Phillips Flat Hd M4 X 10 PP
–40	06F0407	1	Nut, M4 PP
–41	88F1627	2	Ring, Retaining PP
–42	06F0054	1	Bearing, Ball
–43	88F3431	1	Spring, Front Tension Arm, heavy (For printers with EC-C87554A installed)
–43	88F2791	1	Spring, Front Tension Arm, light (For printers Without EC-C87554A installed)
–44	88F2792	2	Sleeve, Spring
–45	88F2788	1	Arm, Tension Buffer Asm
–	90H2620	1	Tractor, rebuild kit (3 bearings)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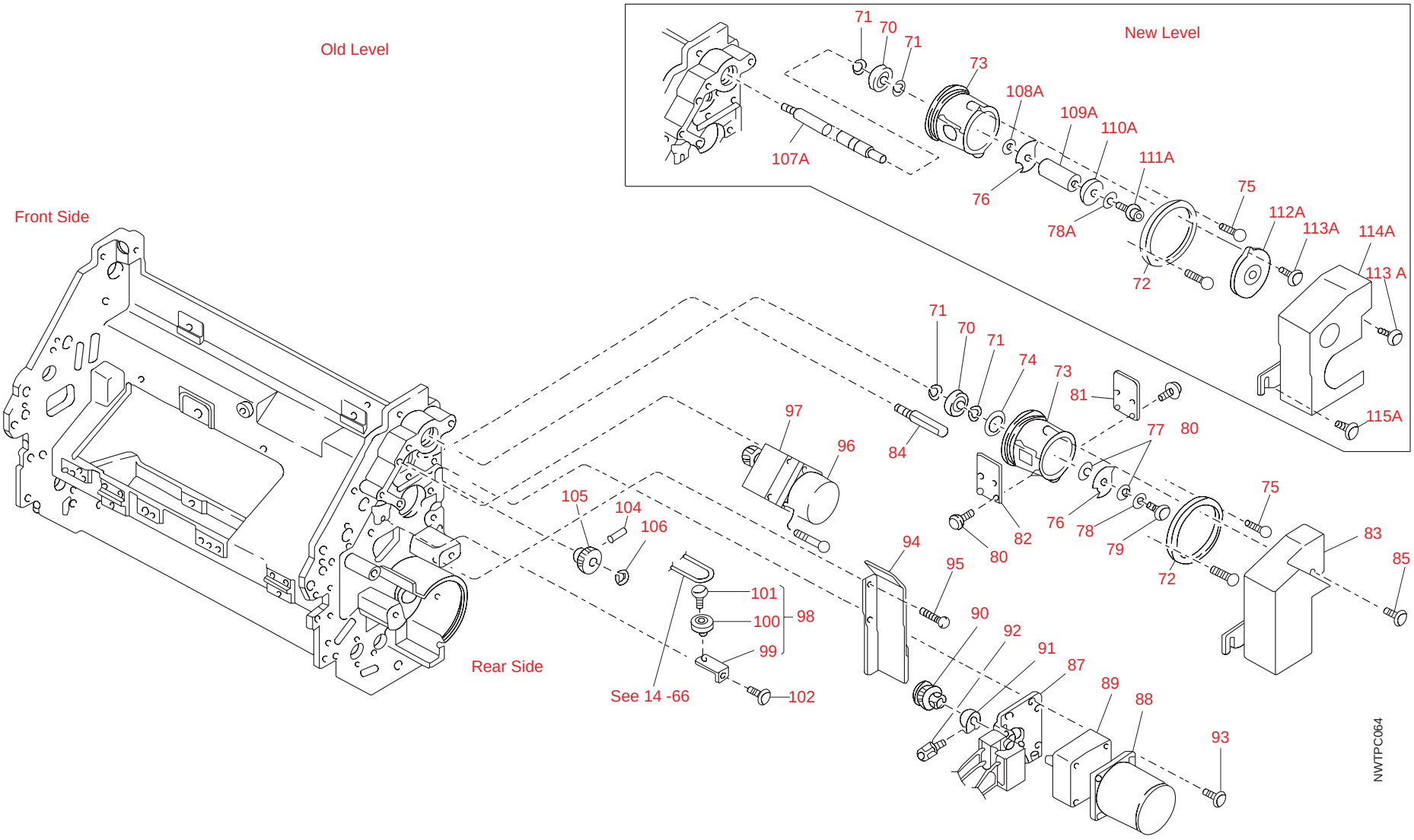
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 3 of 17)
–46	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–49	06F0413	4	Screw, Phillips Bind Hd M5 X 10 PP
–50	06F0413	2	Screw, Phillips Bind Hd M4 X 8 PP
–51	06F0407	4	Nut, M4 PP
–52	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–53	88F2797	1	Stay, Tension Arm
–54		NP	
–55	88F2798	1	Stay, Tension Arm
–56	88F2789	1	Arm, Tension Buffer Asm
–57	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 20 PP
–58	06F0405	2	Washer, Bolt D4 PP
–59	88F3432	1	Spring, Rear Tension Arm, heavy (For printers with EC-C87554A installed)
–59	88F2790	1	Spring, Rear Tension Arm, light (For printers Without EC-C87554A installed)
–60	88F2792	1	Sleeve, Spring
–61	88F2760	1	Plate, Connection
–62	88F2761	1	Cable, Tension SP
–63	88F2762	1	Connector, Cable
–64	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–65	06F0420	2	Washer, Press PP
–66	57G6799	1	Cable, Tractor Positioning
–67	06F0405	1	Washer, Bolt D4 PP
–68	57G6800	1	Cable, Tractor Positioning
–69A	88F3447	1	Scale, Forms Length E1
–69B	88F3448	1	Scale, Forms Length E2
–69C	88F3449	1	Scale, Forms Length E3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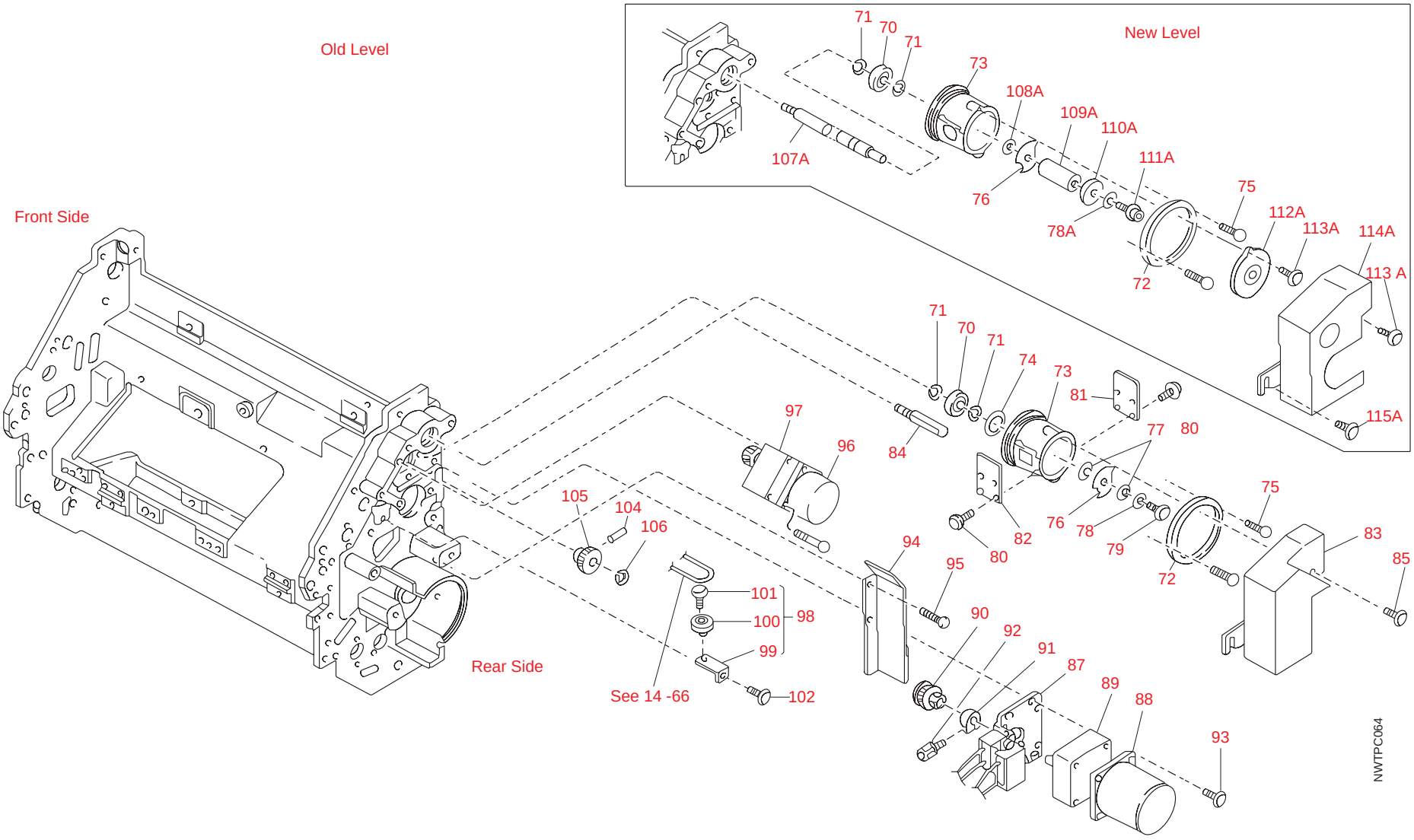
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 4 of 17)
–70	53F1814	1	Bearing, Ball
–71	88F1627	2	Ring, Retaining PP
–72	88F2793	1	Holder, Tension Arm Encoder
–73	88F2794	1	Encoder, Tension Arm Housing
–74	06F0409	1	Ring, Retaining PP
–75	06F0413	2	Screw, Bind Hd with Star Wshr & Wshr M5 X 25 PP
–76	88F2796	1	Encoder, Tension Arm
–77	06F0405	2	Washer, Bolt D8 PP
–78	06F0417	1	Washer PP
–78A	04H0900	1	Washer PP
–79	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–80	06F0401	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–81	53F1792	1	Board, Tension Arm Encoder (EN123)
–82	53F1790	1	Board, Tension Arm Encoder (EN122)
–83	88F2832	1	Cover, Cable Asm
–84	88F2834	1	Cable, Bridge
–85	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–87	88F2777	1	Base, Capstan Roll
–88	53F1802	1	Motor, Capstan Roll (M302) and Capacitor (C302) Asm
–89	53F1805	1	Gearbox, Capstan Roll Motor
–90	88F2778	1	Pulley, Drive
–91	06F0292	1	Ring, Clamping
–92	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 16 PP
–93	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–94	88F2840	1	Guide, Cable
–95	06F0413	2	Screw, Phillips Bind Hd M4 X 20 PP
–96	53F1803	1	Motor, Capstan Pinch Roll (M301) and Capacitor (C301) Asm
–97	53F1806	1	Gearbox, Capstan Pinch Roll Open Asm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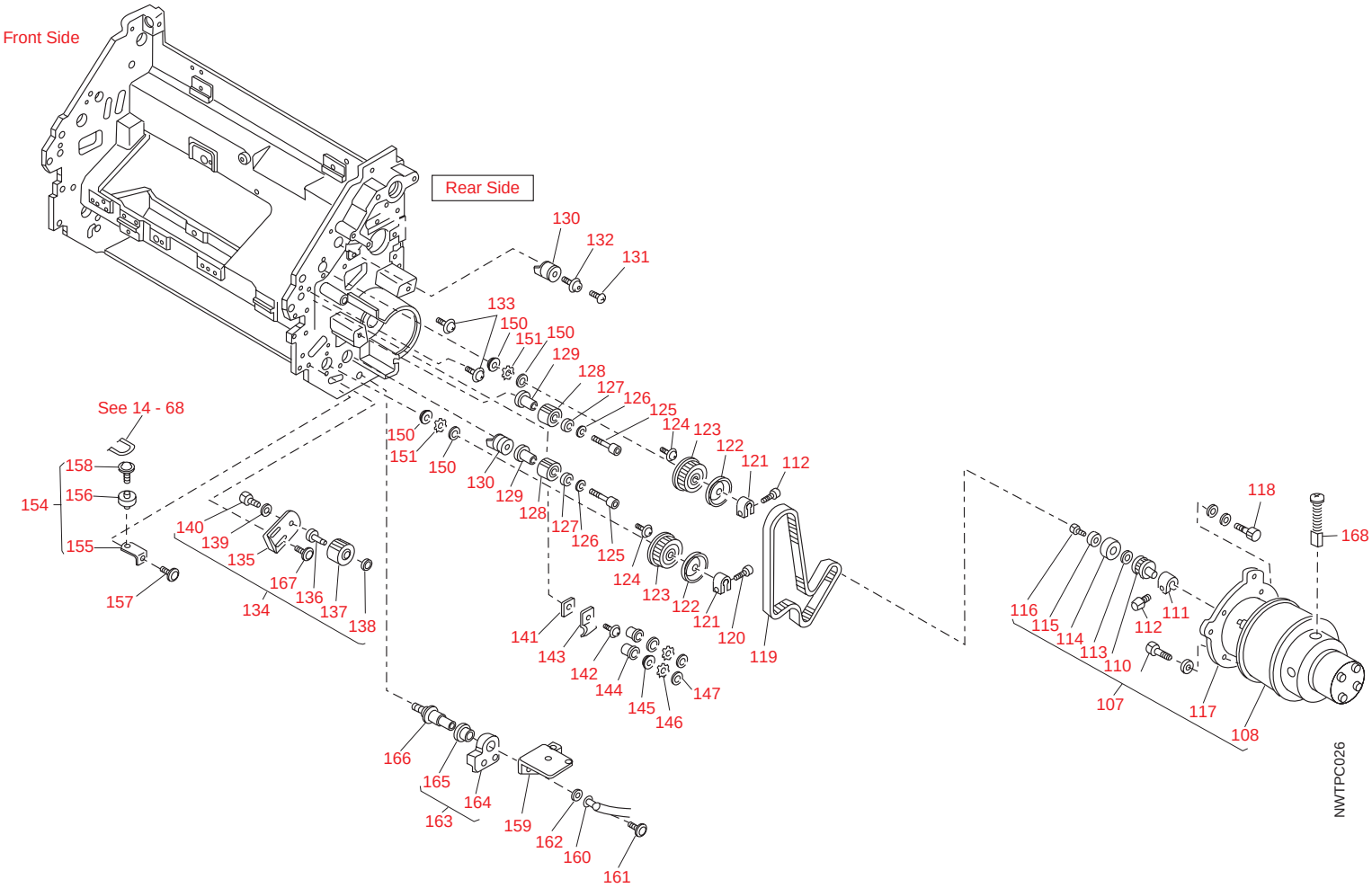
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 5 of 17)
–98	88F2745	1	Pulley, Cable Asm
–99	88F2746	1	Stand, Pulley
–100	53F1817	1	Bearing, Pulley
–101	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M6 X 16 PP
–102	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–104	88F1627	1	Pin, D3 X 14 PP
–105	88F1638	1	Gear
–106	88F1627	1	Ring, Retaining PP
–107A	30H5518	1	Shaft, BF Hinge (Also shown on Asm 14-13)
–108A	06F0405	1	Washer, Bolt D8
–109A	30H5519	1	Spacer, Disk
–110A	30H5520	1	Plate, Disk
–111A	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–112A	30H5521	1	Holder, Brake Asm
–113A	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–114A		NP	
–115A	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP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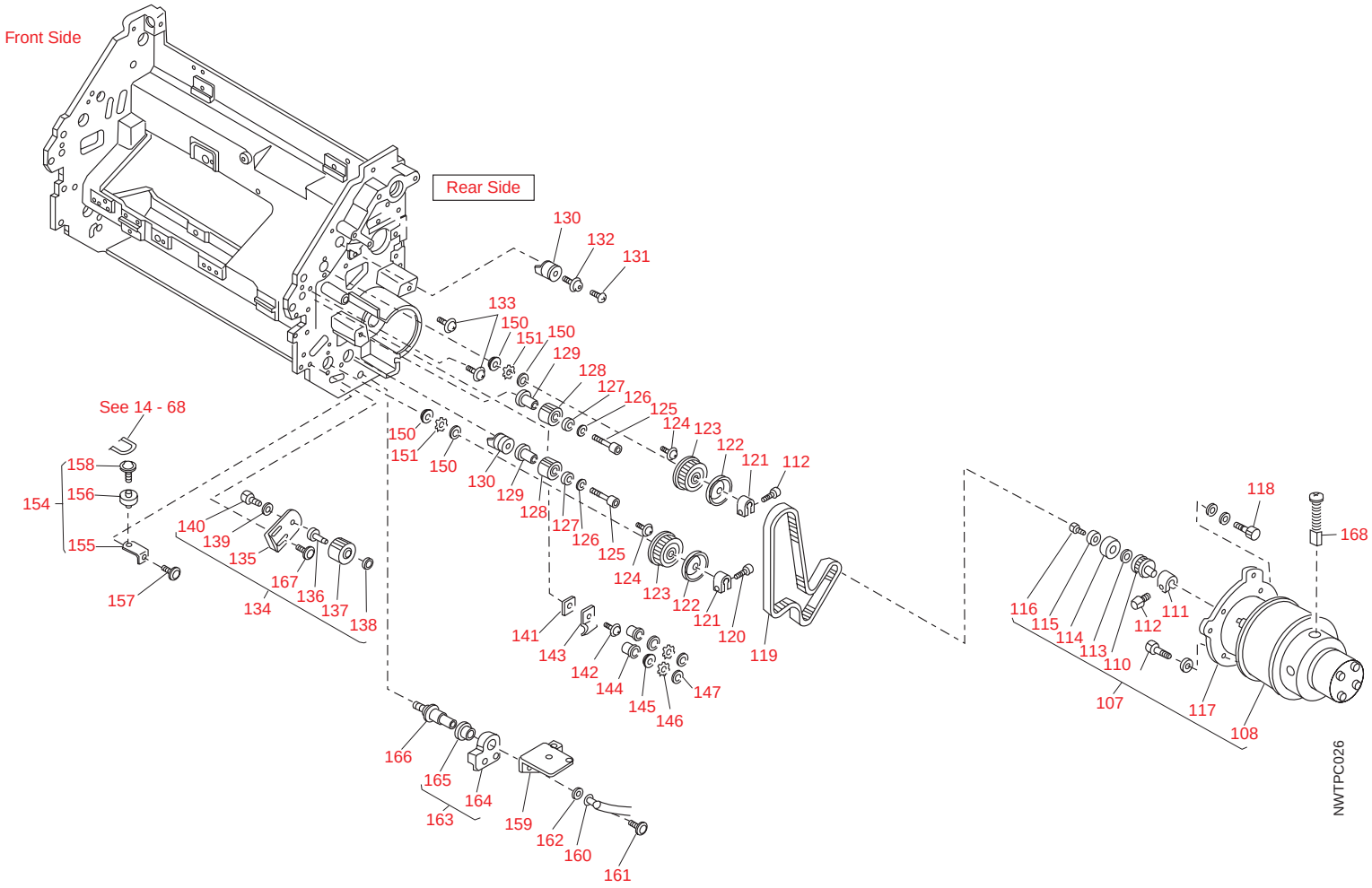
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 6 of 17)
–107	88F2740	1	Motor, Tractor (M303) Asm
–108	53F1800	1	Motor, Tractor (M303)
–109	06F0414	4	Bolt, Hexagon Socket Hd M6 X 20 PP
–110	88F2741	1	Pulley, Motor
–111	06F0292	1	Ring, Tight
–112	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–113	88F2742	1	Collar, Motor
–114	06F0054	1	Bearing, Ball
–115	88F2743	1	Collar, Ball Bearing
–116	88F1626	1	Bolt, Hexagon Socket Hd M3 X 10 PP
–117	88F2946	1	Base, Hot Roll Motor
–118	06F0414	3	Bolt, Hexagon Socket Hd M8 X 20 PP
–119	53F1818	1	Belt, Tractor Drive
–120	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 16 PP
–121	06F0292	2	Ring, Clamping
–122	88F2733	2	Flange
–123	04H0212	2	Pulley, Driven
–124	06F0413	4	Screw, Bind Hd with Star Wshr & Wshr M5 X 12 PP
–125	06F0403	2	Bolt, Hexagon Socket Hd M5 X 38 PP
–126	06F0405	2	Washer, Spring D5 PP
–127	06F0405	2	Washer, Bolt D5 PP
–128	57G5998	2	Pulley, Idler Asm
–129	88F2736	2	Shaft, Idler
–130	88F2735	2	Sleeve, Guide Shaft
–131	06F0413	3	Screw, with Star Wshr & Wshr Bind Hd M5 X 12 PP
–132	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–133	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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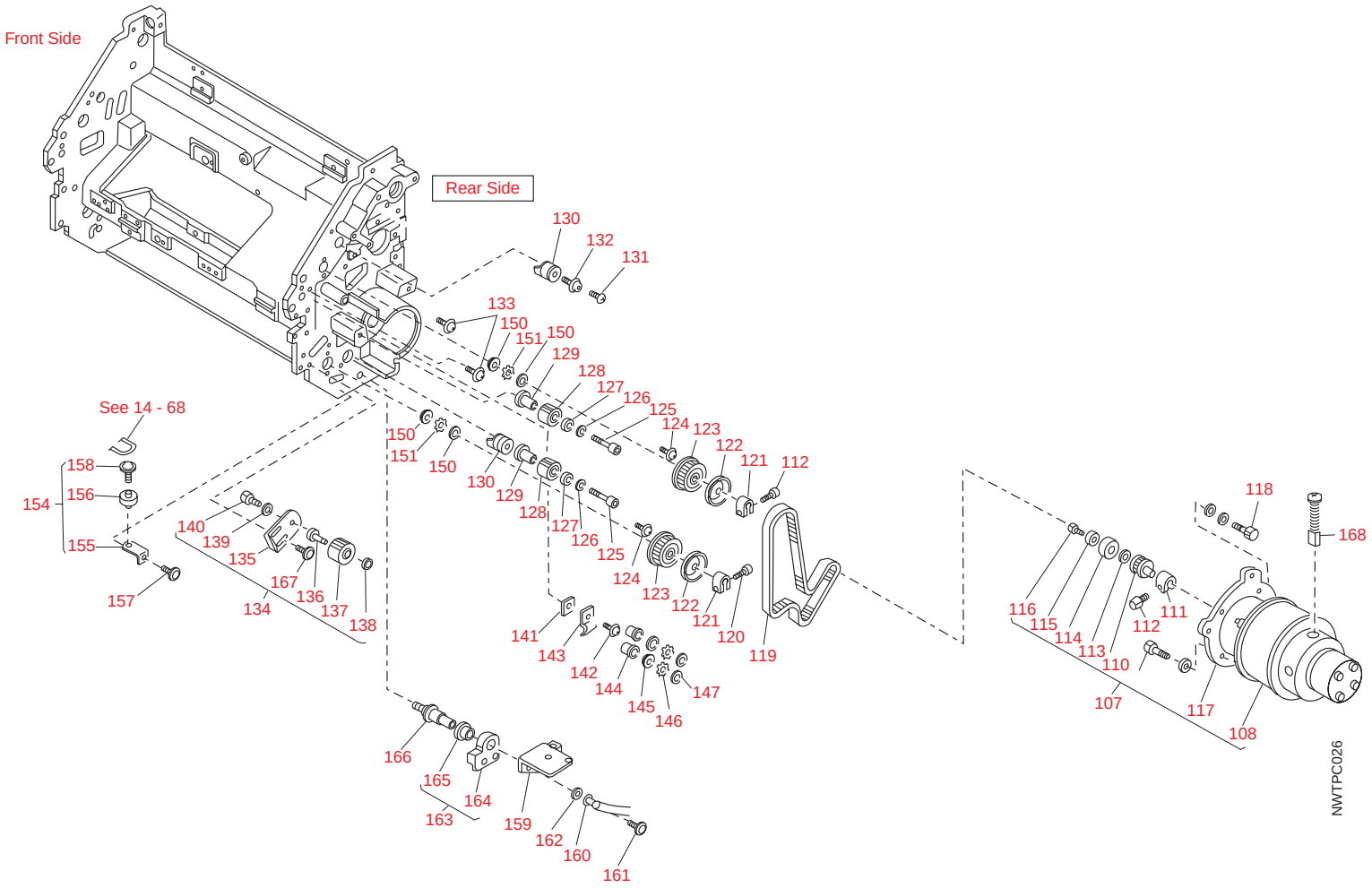
NWTPC026

Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 7 of 17)
–134	88F2737	1	Pulley, Tension Asm
–135	88F2738	1	Base, Tension Pulley
–136	88F2739	2	Shaft, Idler
–137	57G5998	1	Pulley, Idler Asm
–138	88F1627	1	Ring, Retaining PP
–139	06F0420	1	Washer, Press PP
–140	06F0403	1	Bolt, Hexagon Socket Hd M5 X 12 PP
–141	88F2770	1	Stopper, Bearing
–142	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–143	88F2771	1	Plate, Grounding
–144	53F1816	2	Bearing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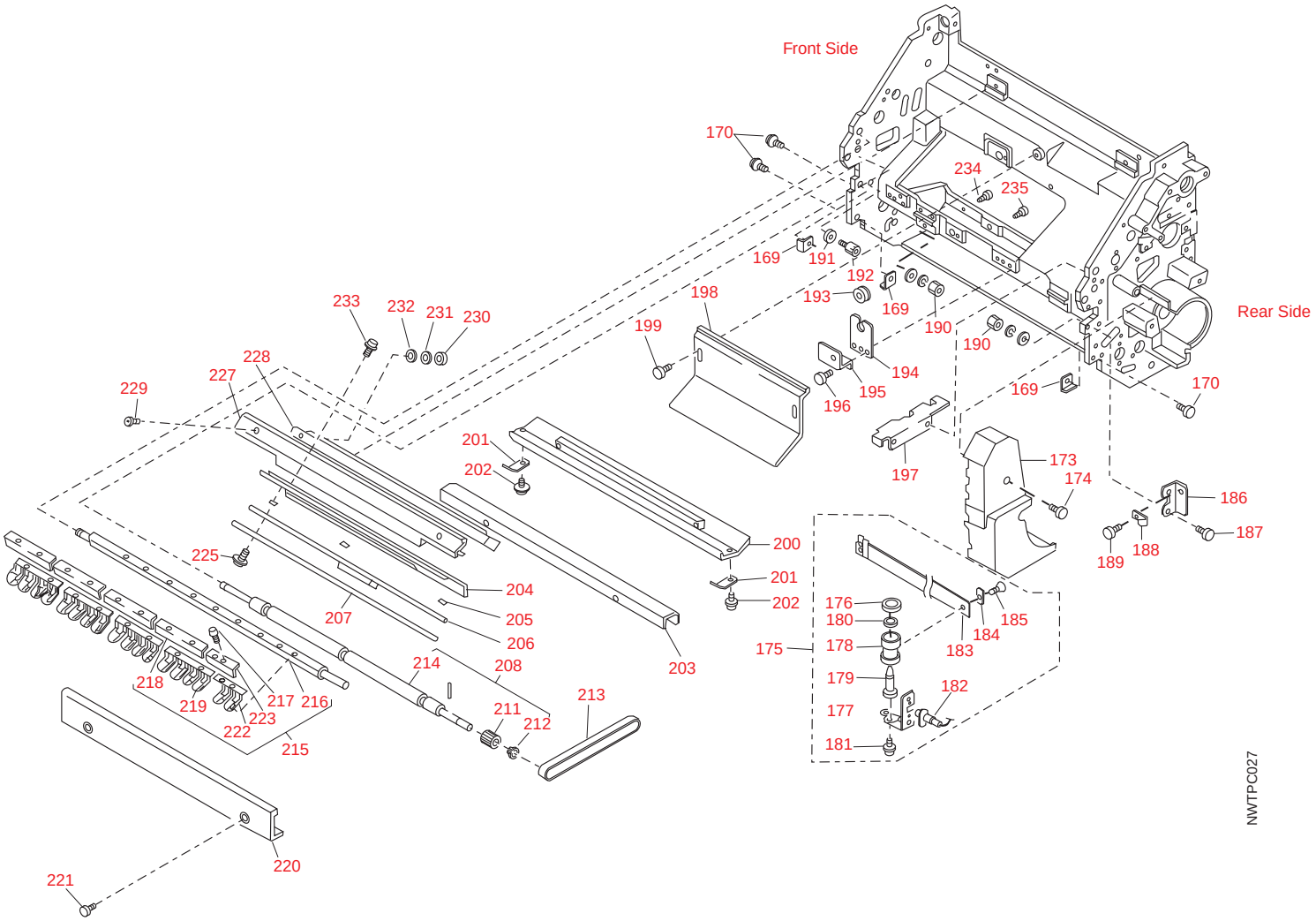
NWTPC026

Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 8 of 17)
–145	88F2774	2	Slider, Poly
–146	06F0417	2	Washer, Wave PP
–147	88F1627	3	Ring, Retaining PP
–150		NP	
–151	06F0417	2	Washer, Wave PP
–154	88F2745	1	Pulley, Cable Asm
–155	88F2746	1	Stand, Pulley
–156	53F1817	1	Bearing, Pulley
–157	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–158	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M6 X 16 PP
–159	88F2842	1	Plate, Cable Clamp
–160	88F1629	1	Cable, Ground
–161	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–162	06F0406	1	Washer, Toothed D5 PP
–163	88F2830	1	Holder, Hinge Asm
–164	88F2831	1	Holder, Hinge
–165	88F1639	1	Metal, D15 X 15 CU
–166	88F2723	1	Shaft, Transfer Station Yoke Hinge
–167	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–168	88F3365	6	Brush, Servo Motor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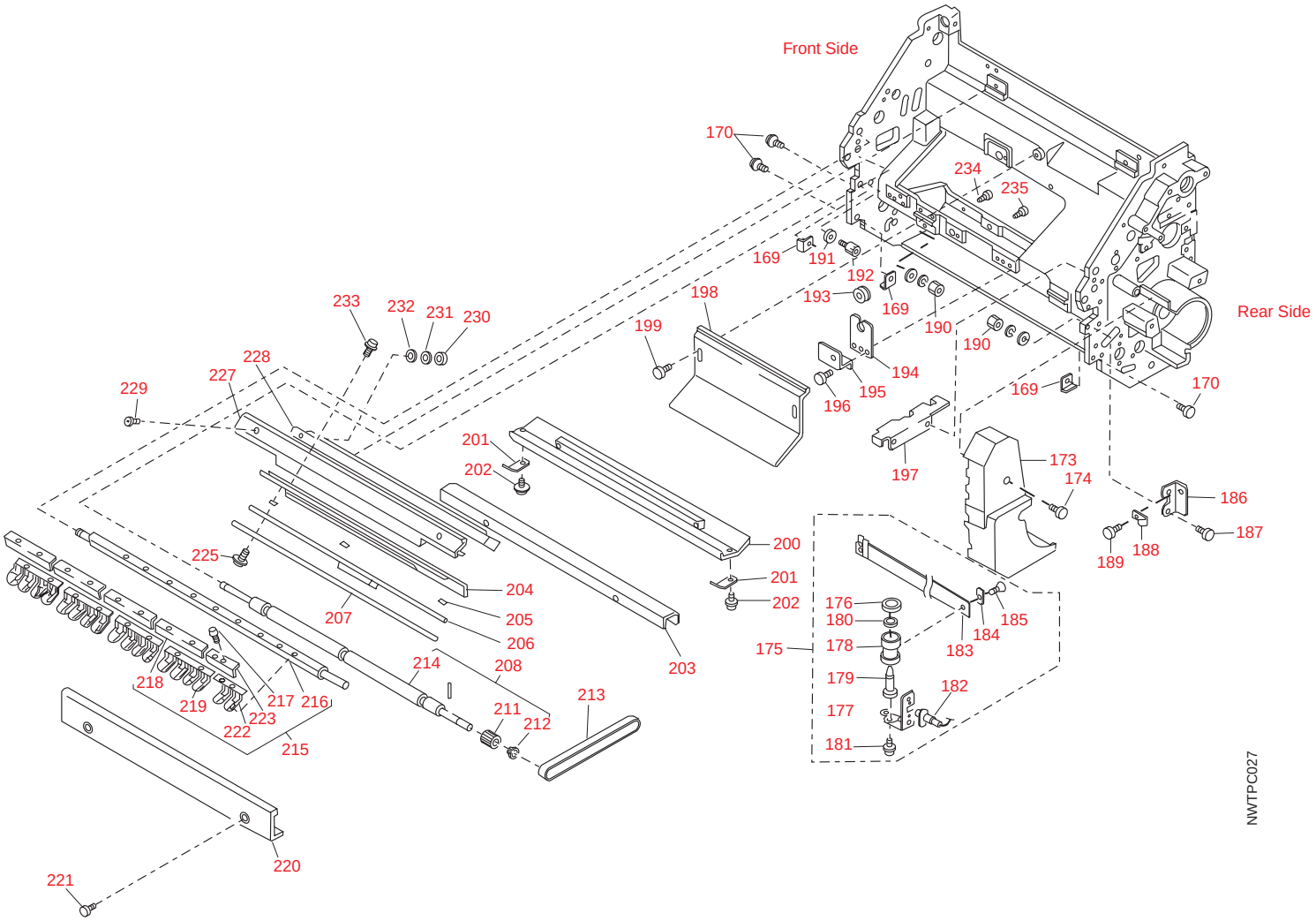
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 9 of 17)
–169	06F0695	3	Block, Support
–170	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–173	88F2836	1	Cover, Tractor Motor Drive Belt
–174	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–175	88F2802	1	Reel, Transfer Corona Shield Asm
–176	88F2800	1	Stopper, Spring
–177	88F2803	1	Holder, Transfer Corona Shield Reel
–178	88F2804	1	Reel, Transfer Corona Shield
–179	88F2805	1	Shaft, Reel
–180	88F1627	1	Ring, Retaining PP
–181	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10 PP
–182	53F1794	1	Cable, High Voltage Asm
–183	06F0116	1	Tape, Transfer Corona Shield
–184	06F0684	1	Holder, Transfer Corona Shield
–185	06F0412	1	Screw, Phillips Flat M3 X 4 PP
–186	88F2806	1	Clamp, Cable
–187	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–188	06F0410	2	Clip, Nylon PP
–189	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–190	06F0407	2	Nut, M10 PP
–191	06F0406	1	Washer, Special PP
–192	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–193	88F2720	1	Grommet
–194	88F2721	1	Guide, Tube
–195	88F2722	1	Plate, Sensor
–196	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–197	88F2839	1	Cover, Capstan Roll Belt
–198	88F2838	1	Cover, Cable
–199	06F0413	2	Screw, Bind Hd with Star Wshr & Wshr M5 X 12 PP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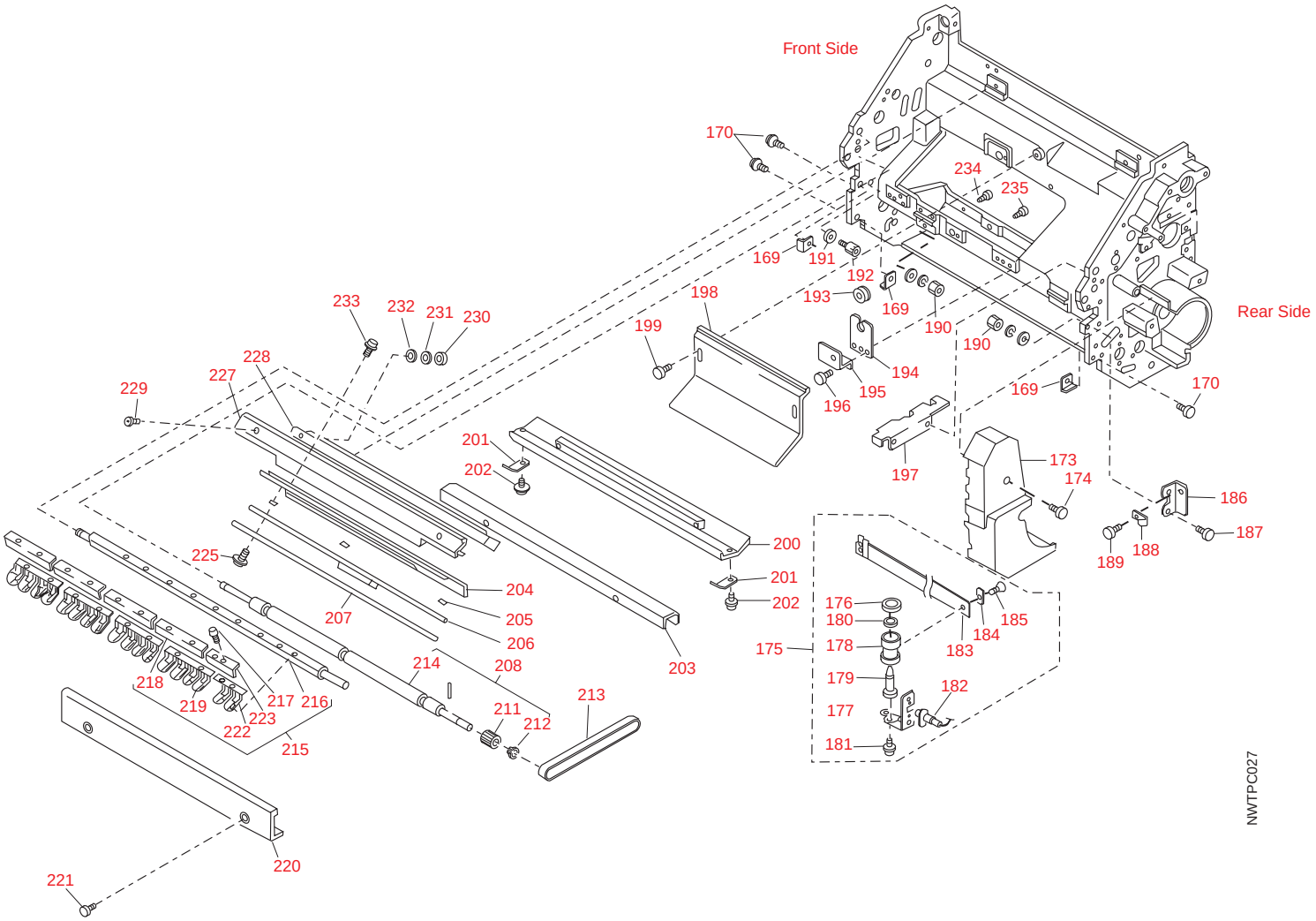
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 10 of 17)
–200		NP	
–201	88F2812	2	Spacer, Pre-measure Shaft
–202	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–203		NP	
–204		NP	
–205	88F2729	3	Spacer, Back Board
–206	53F1791	1	Board, Forms Width Sensor (PW091)
–207	88F2730	1	Cover, (PW091) (Except 8-inch forms width)
–207	04H1056	1	Cover, (PW091) (8 inch-forms width only)
–208	57G6802	1	Roll, Capstan Asm
–211	88F2765	1	Pulley
–212	88F1627	1	Ring, Retaining PP
–213	53F1819	1	Belt, Capstan Roll Drive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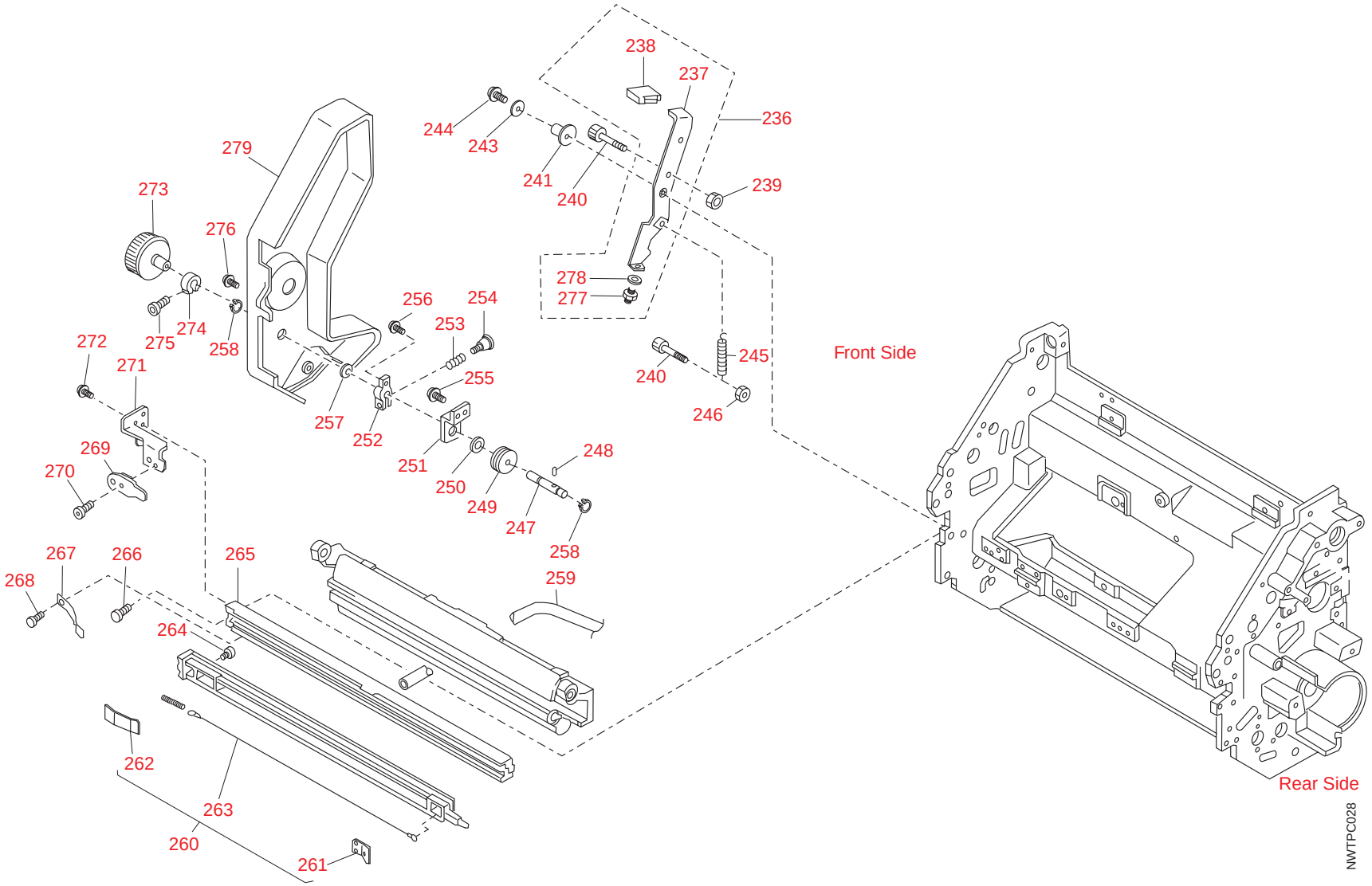
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 11 of 17)
–214	57G6499	1	Roll, Capstan Sub Asm
–215	57G6803	1	Roller, Capstan Pinch Asm
–216		NP	
–217	06F0413	10	Screw, Phillips Bind Hd M4 X 8 PP
–218	88F2768	4	Plate, Mount
–219	53F1810	4	Roller, Capstan Pinch Sub Asm
–220		NP	
–221	06F0413	2	Screw, Phillips Bind Hd M4 X 6 PP
–222	57G6500	1	Roller, Pinch Sub Asm
–223		NP	
–225	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–227	30H3176	1	Guide, Paper Asm
–228	06F0106	1	Brush, Transfer Station Discharge
–229	06F0412	2	Screw, Phillips Flat M3 X 8 PP
–230	06F0407	2	Nut, M3 PP
–231	06F0405	2	Washer, Spring D3 PP
–232	06F0405	2	Washer, Bolt D3 PP
–233	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–234	06F0413	2	Screw, Phillips Bind Hd M4 X 20 PP
–235	06F0413	2	Screw, Phillips Bind Hd M4 X 20 PP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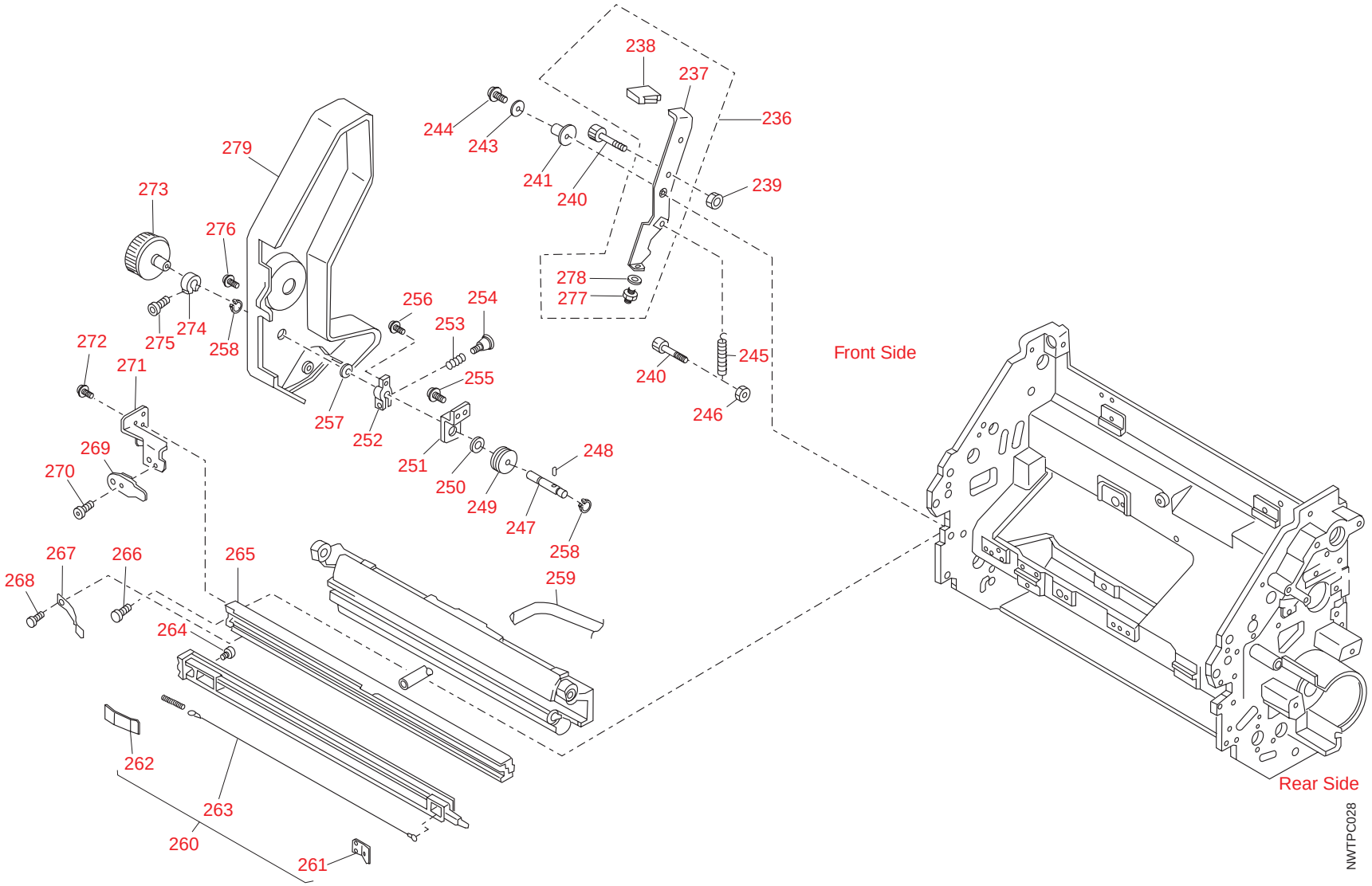
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 12 of 17)
–236	88F2823	1	Latch, Transfer Station Asm
–237	88F2824	1	Latch, Transfer Station
–238	88F3339	1	Handle, Transfer Station Release
–239	06F0407	1	Nut, M5 PP
–240	06F0403	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 35 PP
–241	88F2826	1	Sleeve, Eccentric
–243	06F0406	1	Washer, Special PP
–244	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–245	06F0369	1	Spring, Return
–246	06F0407	1	Nut, M5 PP
–247	88F2750	1	Shaft, Tractor Positioning
–248	88F1627	1	Pin, D3 X 14 PP
–249	88F2751	1	Pulley, Cable
–250	88F2754	1	Shaft, Guide
–251	88F2755	1	Bracket, Mount
–252	88F2756	1	Brake, Tractor Shift
–253	88F2757	1	Spring, Tractor Shift Knob
–254	88F2758	1	Pin, Shift Stopper
–255	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–256	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–257	88F2759	1	Washer, D8
–258	88F1627	2	Ring, Retaining PP
–259	88F2843	1	Tube, Silicone B
–260	57G6505	1	Corona, Transfer Asm
–261	88F1632	1	Cover, Terminal
–262	88F1633	1	Cover, Transfer Corona Wire Holder
–263	57G6503	1	Wire, Transfer Corona
–263	30H6586	1	Wires (8), Corona
–264	06F0413	2	Screw, Phillips Bind Hd M3 X 6 PP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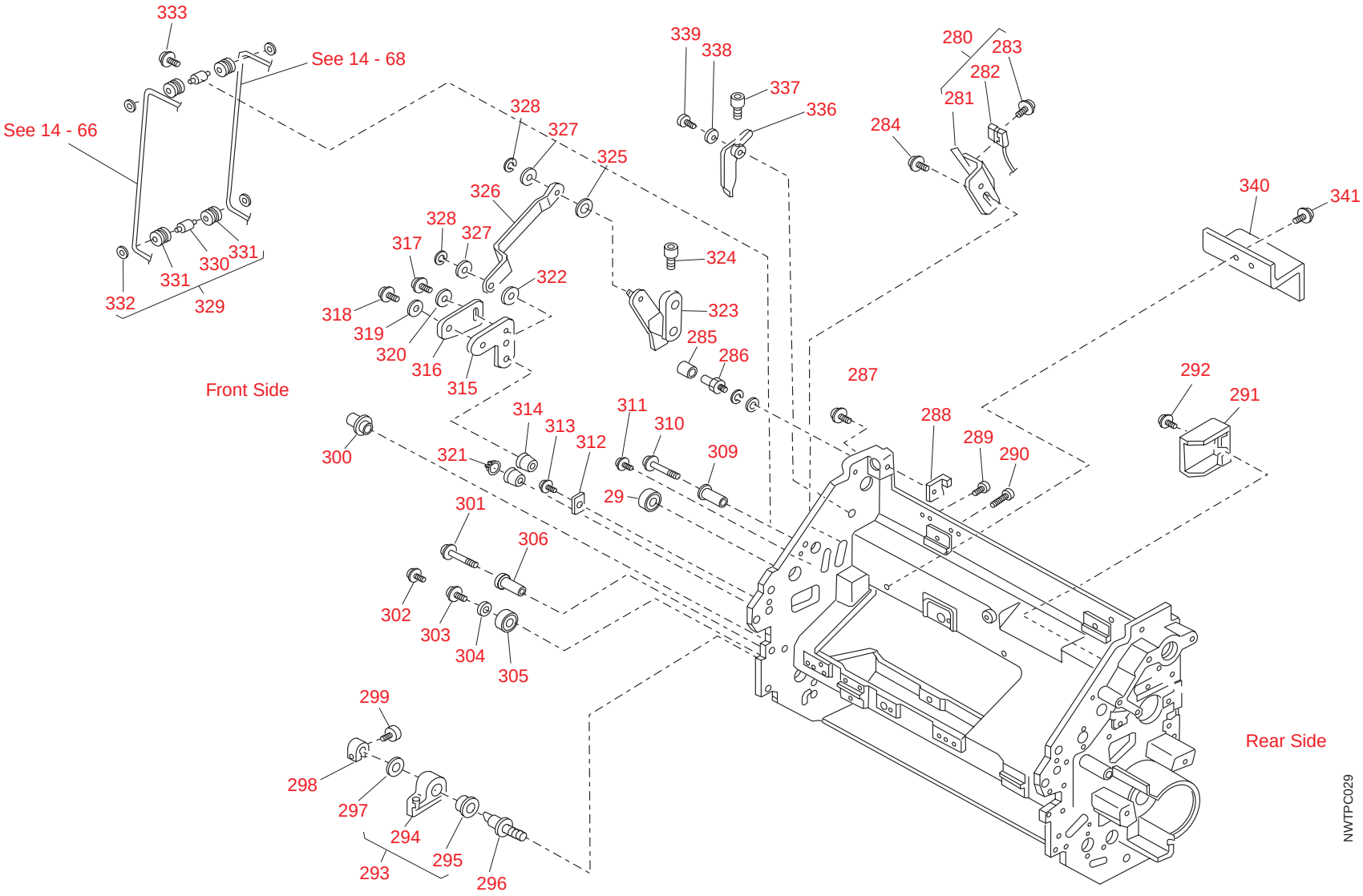
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 13 of 17)
–265		NP	
–266	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–267	88F1634	1	Spring, Reflector
–268	88F1626	1	Screw, Phillips Pan Hd M4 X 6 PP
–269	06F1054	1	Brush, Transfer Corona
–270	06F0412	1	Screw, Phillips Flat M3 X 4 PP
–271	88F2801	1	Holder, Brush PY
–272	88F3349	2	Screw, Phillips Tapping M4 X 10 PP
–273	88F2835	1	Knob, Tractor Control
–274	88F1640	1	Ring, Clamping
–275	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 20 PP
–276	06F0413	3	Screw, Phillips Bind Hd with Star Wshr & Wshr M5 X 12 PP
–277	06F0522	1	Holder, Magnet Asm
–278	06F0405	1	Washer, Bolt D4 PP
–279	88F2841	1	Cover, Transfer Station Front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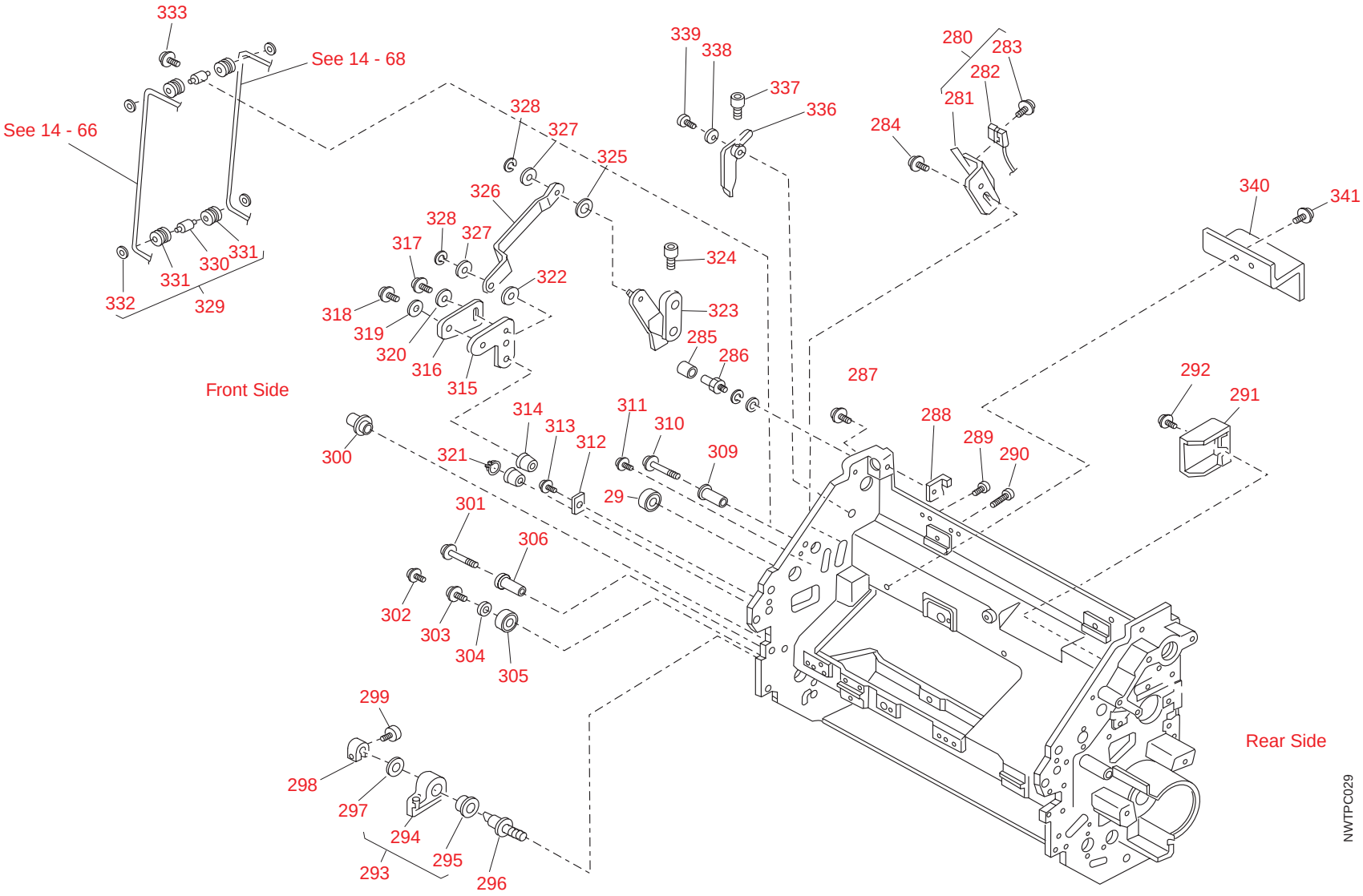
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 14 of 17)
–280		NP	
–281	88F2786	1	Holder, Switch
–282	57G6805	1	Switch, Capstan Pinch Roll Open (S301) Asm
–283	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–284	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–285	88F2781	1	Collar
–286	88F2719	1	Shaft, Stopper
–287	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–288	88F2844	1	Plate, Tension Position Arm
–289	06F0413	2	Screw, Phillips Bind Hd M4 X 10 PP
–290	06F0413	2	Screw, Phillips Bind Hd M4 X 16 PP
–291	88F2833	1	Cover, Pulley
–292	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–293	88F2828	1	Holder, Hinge Asm
–294	88F2829	1	Holder, Hinge
–295	88F1639	1	Metal, D15 X 15 CU
–296	88F2723	2	Shaft, Transfer Station Yoke Hinge
–297	88F3355	1	Washer, Thrust
–298	88F1640	1	Ring, Clamping
–299	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 20 PP
–300	88F2718	1	Latch, Transfer Station Yoke Hinge
–301	06F0411	2	Screw, Phillips Pan Hd M4 X 40 PP
–302	06F0413	2	Screw, Phillips Pan Hd M5 X 12 PP
–303	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–304	06F0417	2	Washer PP
–305	06F0054	2	Bearing, Ball
–306	88F2821	2	Sleeve, Tractor Mount
–307	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–308	06F0054	2	Bearing, Ball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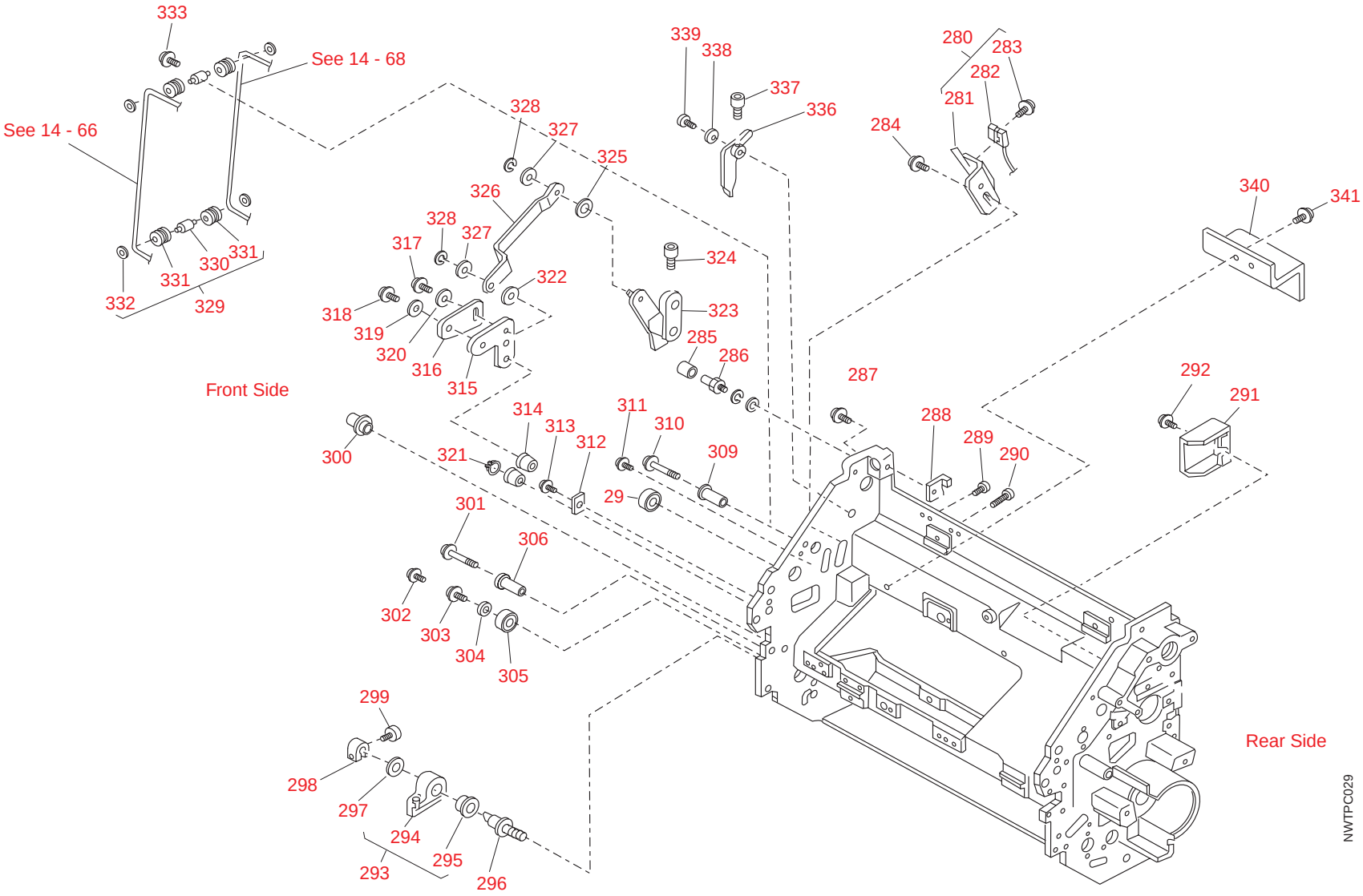
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 15 of 17)
–309	88F2821	2	Sleeve, Tractor Mount
–310	06F0411	2	Screw, Phillips Pan Hd M4 X 40 PP
–311	06F0413	2	Screw, Phillips Pan Hd M5 X 12 PP
–312	88F2770	2	Stopper, Bearing
–313	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–314	53F1816	4	Bearing
–315	88F2772	1	Plate, Link
–316	88F2773	1	Holder, Link
–317	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–318	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP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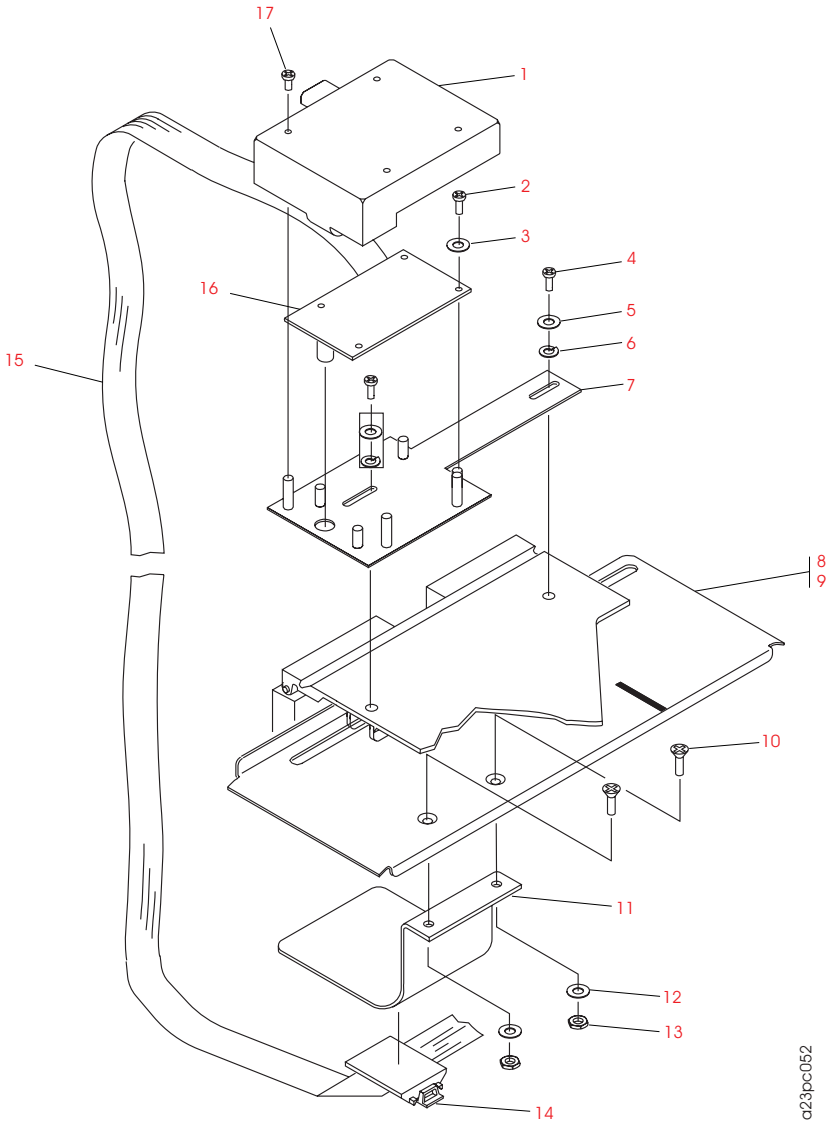
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 16 of 17)
–319	06F0417	1	Washer, VF PP
–320	88F2736	2	Shaft, Idler
–321	88F1627	2	Ring, Retaining PP
–322	88F1637	2	Collar, Link
–323	88F3378	1	Lift Plate Asm
–324	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–325	88F1637	2	Collar, Link
–326	88F2775	1	Plate, Link
–327	06F0405	2	Washer, Bolt D6 PP
–328	88F1627	1	E-Clip PP
–329	88F2748	2	Pulley, Cable Asm
–330	88F2749	2	Shaft, Pulley
–331	06F0213	4	Bearing, Plastic
–332	88F1627	4	E-Clip PP
–333	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–336	88F2795	1	Cam, Tension Arm
–337	06F0403	1	Bolt, Hexagon Socket Hd M4 X 8 PP
–338	06F0417	1	Washer PP
–339	06F0413	1	Screw, Phillips Bind Hd M4 X 12 PP
–340	88F3340	1	Handle, Yoke
–341	06F0420	2	Screw, Phillips Bind Hd M5 X 12 PP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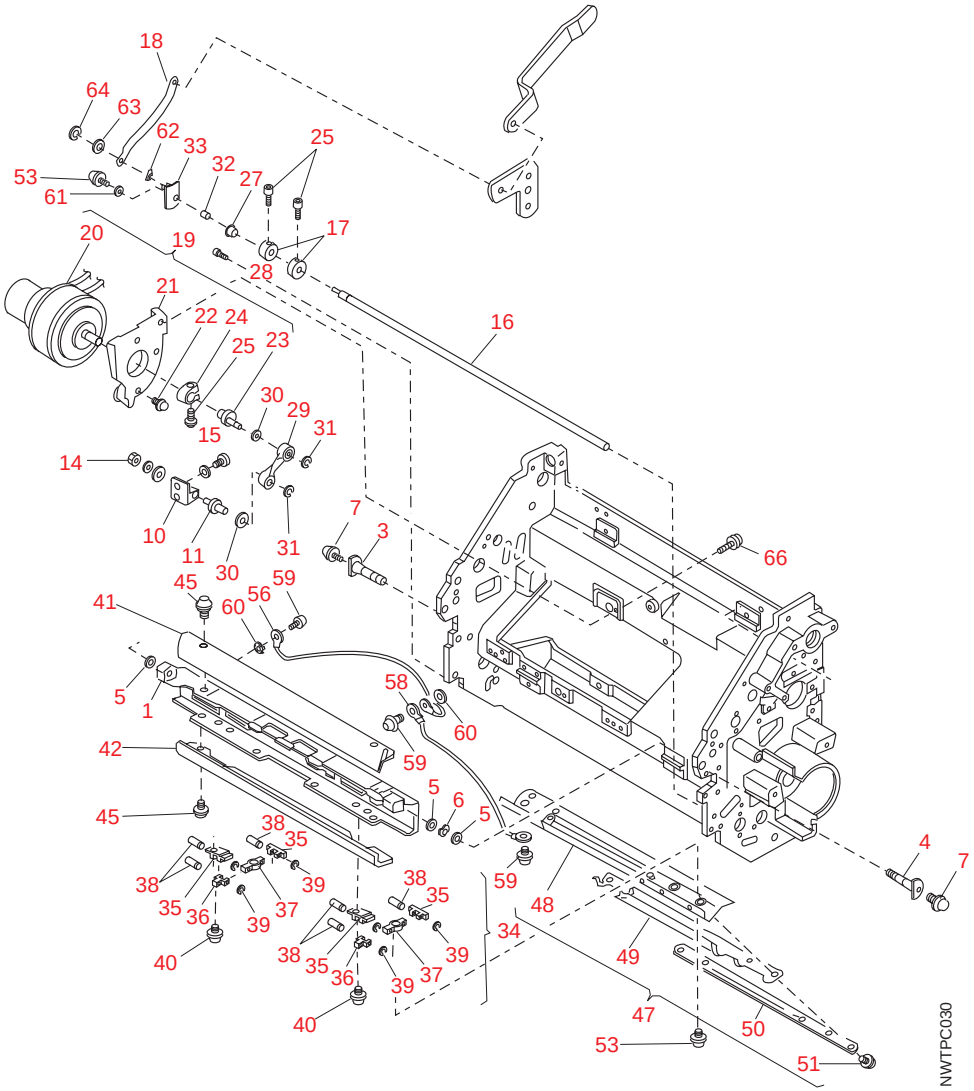
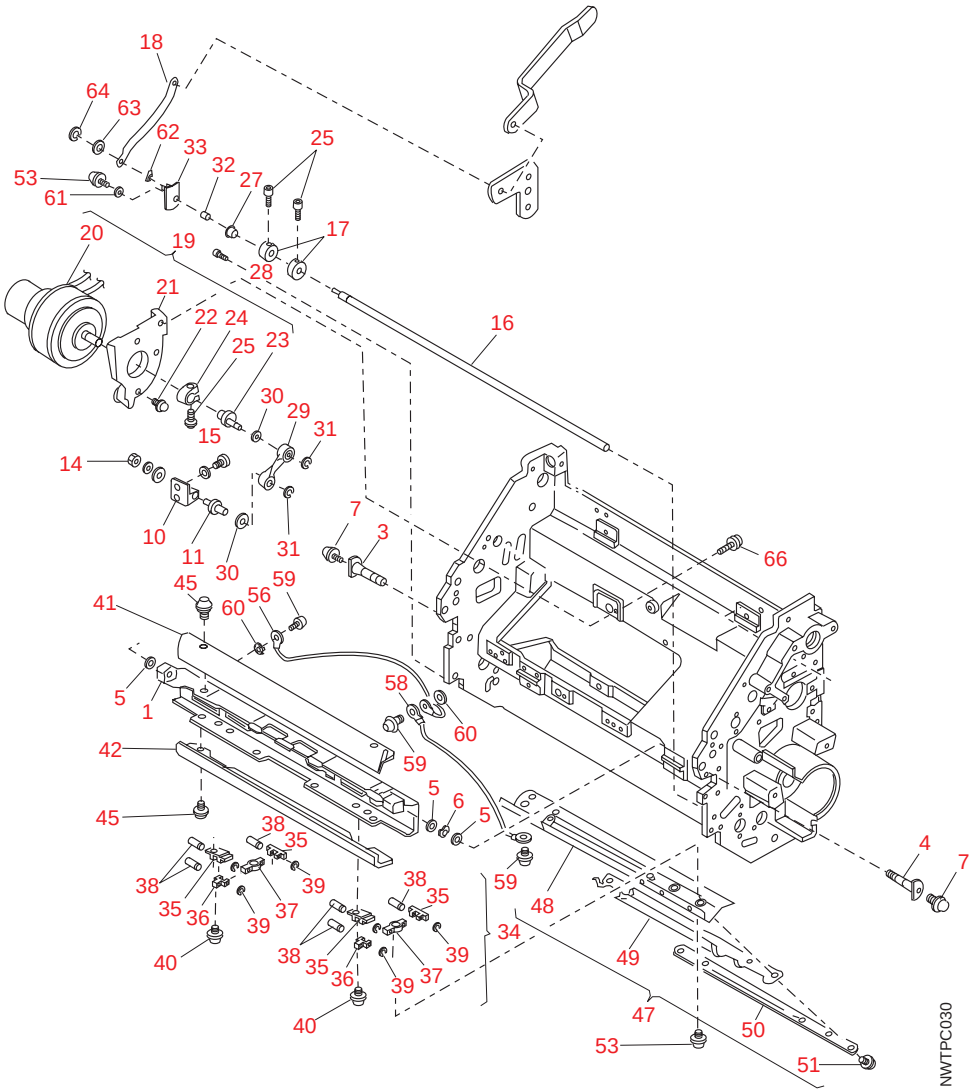
Asm–Index	Part Number	Units	Description
14–		NP	Transfer Station (Sheet 17 of 17)
–			**Side1/Side 2 Verification Hardware**
–1S		NP	Cover, Verification Sensor Card
–2S	06F0402	4	Screw, Phillips Pan Head M3x8 PP
–3S	1622302	4	Washer, Flat M3
–4S	06F0402	4	Screw, Phillips Pan Head M3x8 PP
–5S	1622302	2	Washer, Flat M3
–6S	1622316	2	Washer, Split M3
–7S		NP	Plate, Sensor Card Mounting
–8S		NP	Plate, Lower Rear Tractor Guide
–9S	06F0412	2	Screw, Phillips Flat Head M3x6
–10S	06F0412	2	Screw, Phillips Flat Head M3x10 PP
–11S		NP	Bracket
–12S	1622302	2	Washer, Flat M3
–13S	1622401	2	Nut, M3
–14S	88F3423	1	Clamp, Cable
–15S	04H0574	1	Cable, J322S2 to P324S2
–16S	04H0396	1	Card, Side 1/Side 2 Verification Sensor
–17S	06F0402	4	Screw, Phillips Pan Head M3x12 PP

Assembly 15: Transfer Station



Asm–Index	Part Number	Units	Description
15–		NP	Transfer Station (Sheet 1 of 3)
–1	88F2851	1	Frame, Retractor Asm
–3		NP	
–4		NP	
–5	88F1641	3	Washer, D10
–6	06F0417	1	Washer, Wave PP
–7	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–10	88F2854	1	Holder, Driven Shaft
–11	88F2855	1	Shaft, Retractor Driven
–14	06F0407	1	Nut, M5 PP
–15	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–16		NP	
–17	88F2857	2	Cam, Pre-measure
–18	88F2858	1	Link, Pre-measure
–19	88F2859	1	Motor, Retractor Asm (M304)
–20	53F1804	1	Motor, Retractor (M304)
–21	88F2860	1	Support, Retractor Motor Asm
–22	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–23	88F2861	1	Shaft, Retractor Drive
–24	88F3370	1	Clamp, Drive Coupler
–25	06F0403	3	Bolt, Hexagon Socket Hd M4 X 12 PP
–27	53F1991	1	Bearing
–28	06F0413	1	Screw, Phillips Bind Hd M4 X 8 PP
–29	53F1811	1	Rod, Connecting Asm
–30	88F2863	2	Slider, Poly
–31	06F0418	2	E-Clip PP
–32	88F2864	1	Spacer
–33	88F2865	1	Plate, Pre-measure Link Asm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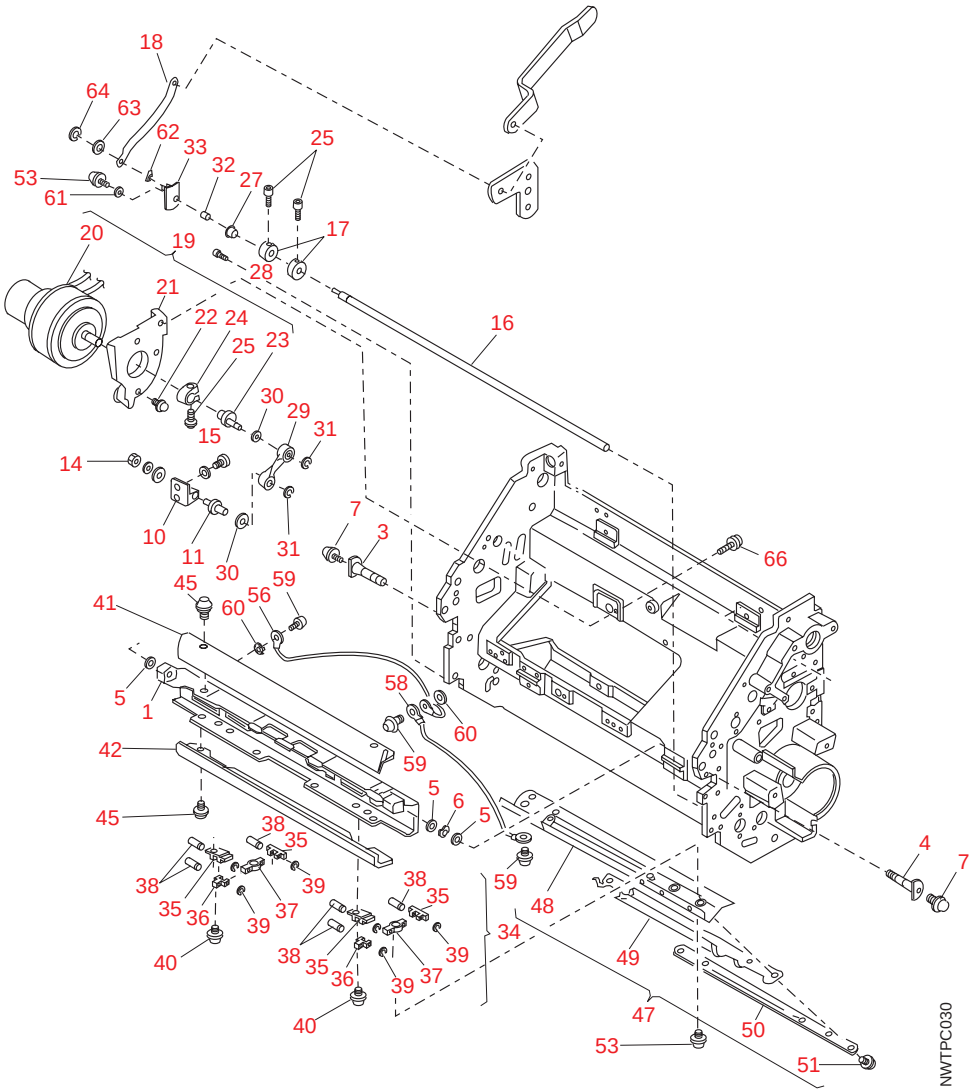
Asm–Index	Part Number	Units	Description
15–		NP	Transfer Station (Sheet 2 of 3)
–34	88F2866	2	Link, Asm
–35	88F2867	4	Holder, Link
–36	88F2868	2	Link, 2B
–37	88F2869	2	Link, 1B
–38	88F2870	6	Pin, Link
–39	06F0418	12	E-Clip PP
–40	06F0420	8	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–41	57G6501	1	Retractor, Upper
–42	57G6502	1	Retractor, Lower
–45	06F0403	7	Bolt, Hexagon Socket Hd M4 X 12 PP
–47	57G6809	1	Modifier, Path Asm
–48		NP	
–49	57G6507	1	Spring, Path Modifier
–50		NP	
–51	06F0401	5	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 10 PP
–53	06F0415	3	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–56	88F2874	1	Resistor, Asm
–58	06F0690	1	Cable, Retractor Ground
–59	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP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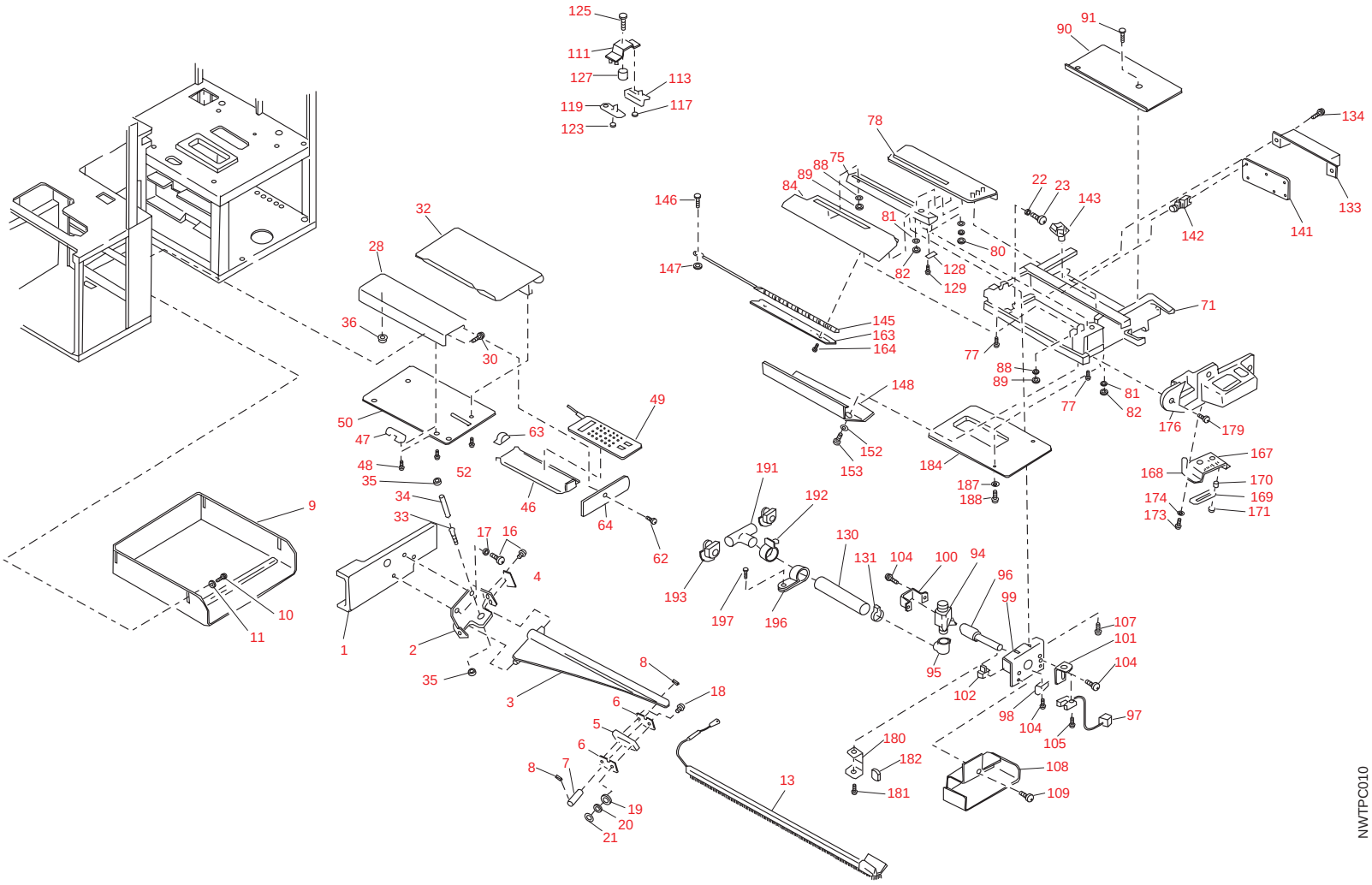
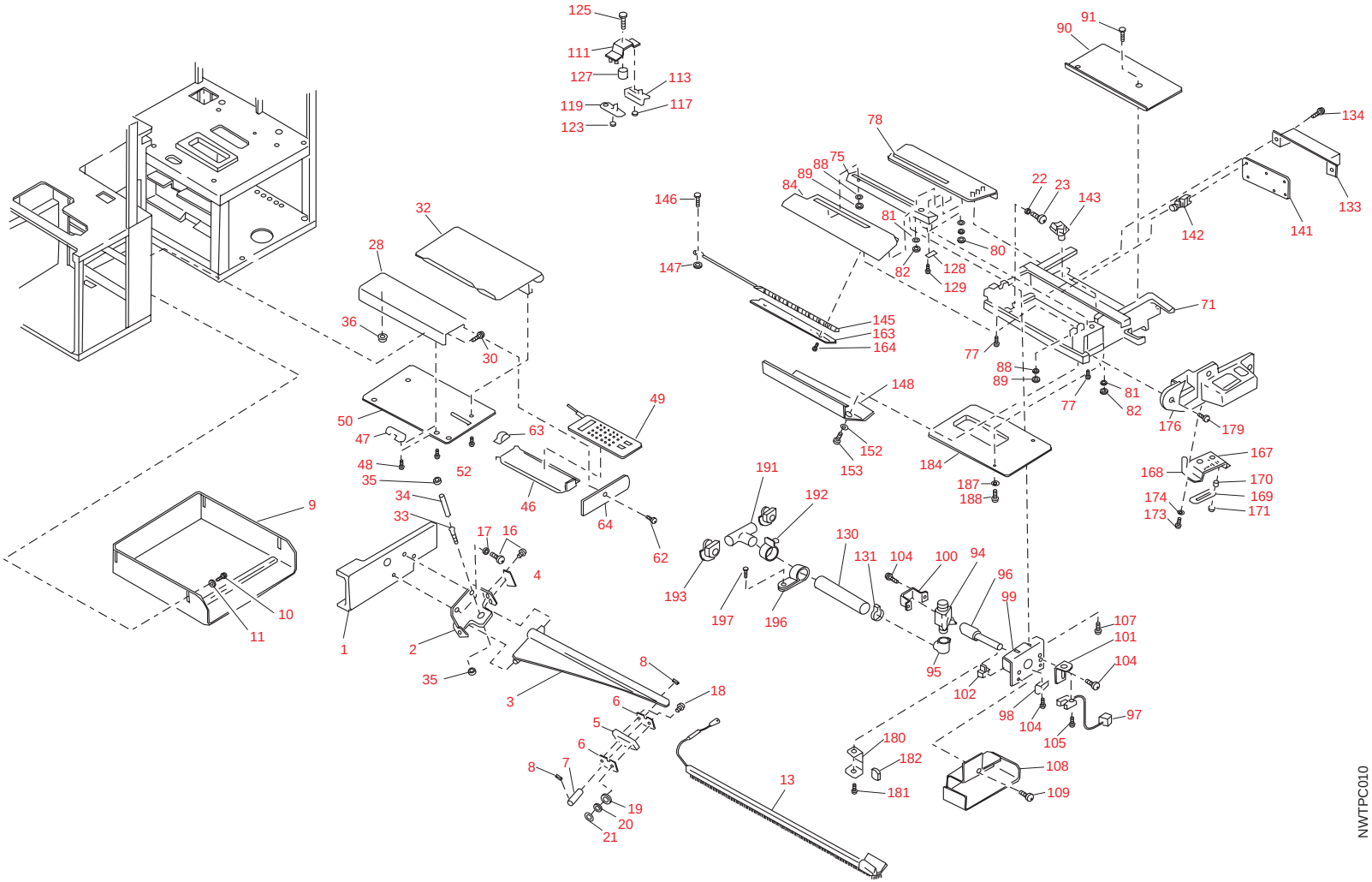
Asm–Index	Part Number	Units	Description
15–		NP	Transfer Station (Sheet 3 of 3)
–60	06F0406	3	Washer, Toothed D4 PP
–61	06F0417	1	Washer, VF PP
–62	88F1637	1	Collar, Link
–63	06F0405	1	Washer, Bolt D6 PP
–64	88F1627	1	E-Clip PP
–66	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP

Assembly 16: Input Hardware, Splicing Table



Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Splicing Table (Sheet 1 of 8)
–1		NP	
–2	88F2876	1	Holder, Brush
–3		NP	
–4	88F2878	1	Plate, Adjust
–5	06F0535	1	Spacer
–6	06F1140	2	Plate, Pressure
–7	06F0534	1	Shaft, Hinge
–8	06F0418	2	Ring-E PP
–9		NP	
–10	06F0401	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–11	06F0417	4	Washer, Press PP
–13	57G6719	1	Brush, Splicing Table Upper Chad
–16	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–17	06F0417	2	Washer, VF PP
–18	06F0413	2	Screw, Phillips Bind Hd M4 X 16 PP
–19	06F0405	2	Washer, Bolt D4 PP
–20	06F0405	2	Washer, Spring D4 PP
–21	06F0407	2	Nut, M4 PP
–22	06F0420	8	Washer, Press PP
–23	06F0415	8	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–24	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–25	06F0406	1	Washer, Toothed D5 PP
–28		NP	
–30	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–32		NP	
–33	88F2882	1	Spring
–34	88F2883	1	Guide, Spring
–35	06F0418	2	Ring, Retaining PP
–36	06F0407	2	Nut, Flange PP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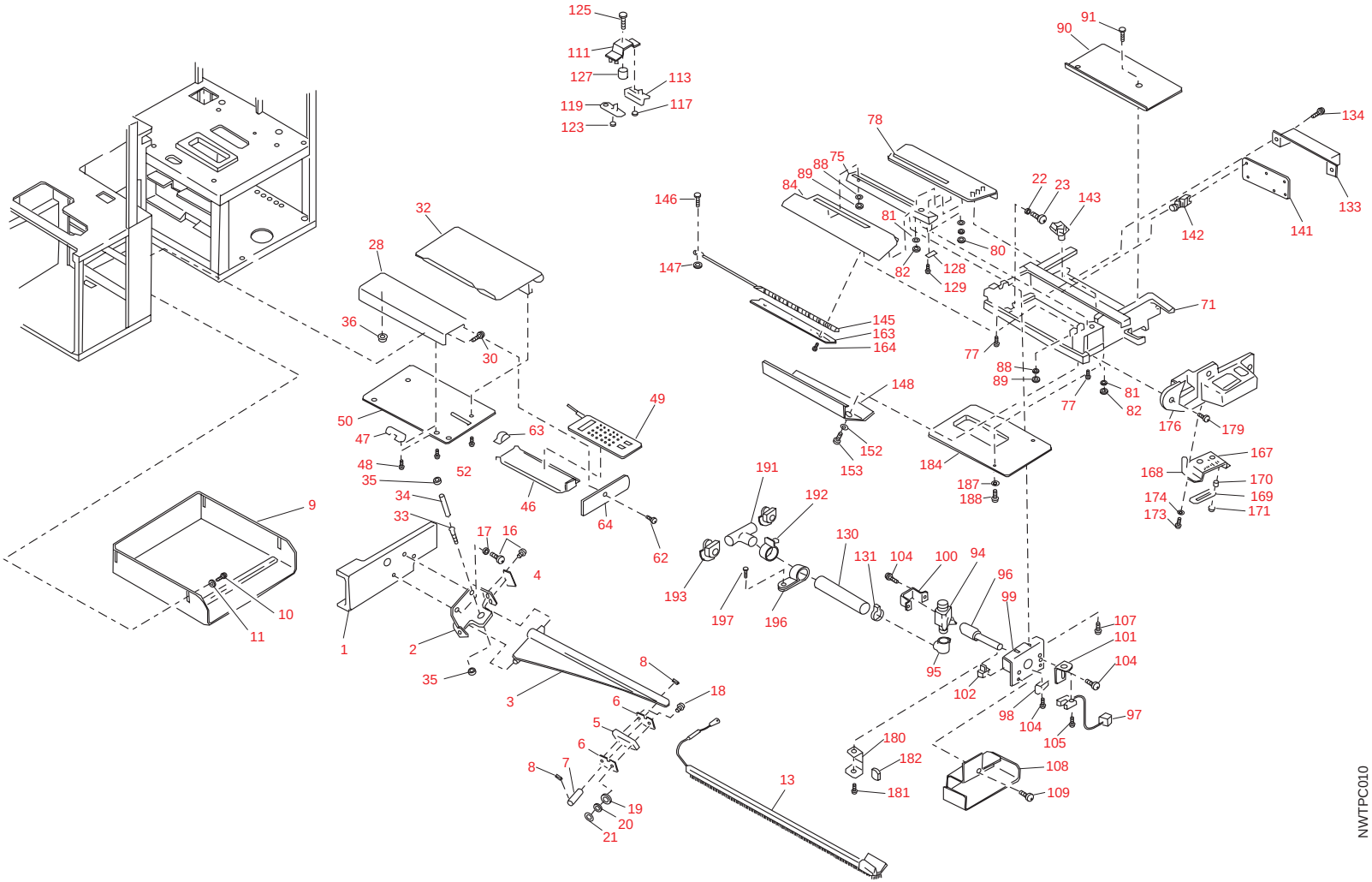
Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Splicing Table (Sheet 2 of 8)
–43	06F0411	2	Screw, Phillips with Star Wshr & Wshr M4 X 25 PP
–46	88F2884	1	Tray, Maintenance Panel
–47	88F2885	1	Guide, Maintenance Panel
–48	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–49	53F1778	1	Panel, Maintenance Asm
–50		NP	
–52	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–62	06F0413	1	Screw, Phillips Bind Hd with Star Wshr & Wshr M5 x 10 PP
–63	06F0419	1	Clamp, Cable PP
–64	88F2887	1	Cover, Maintenance Panel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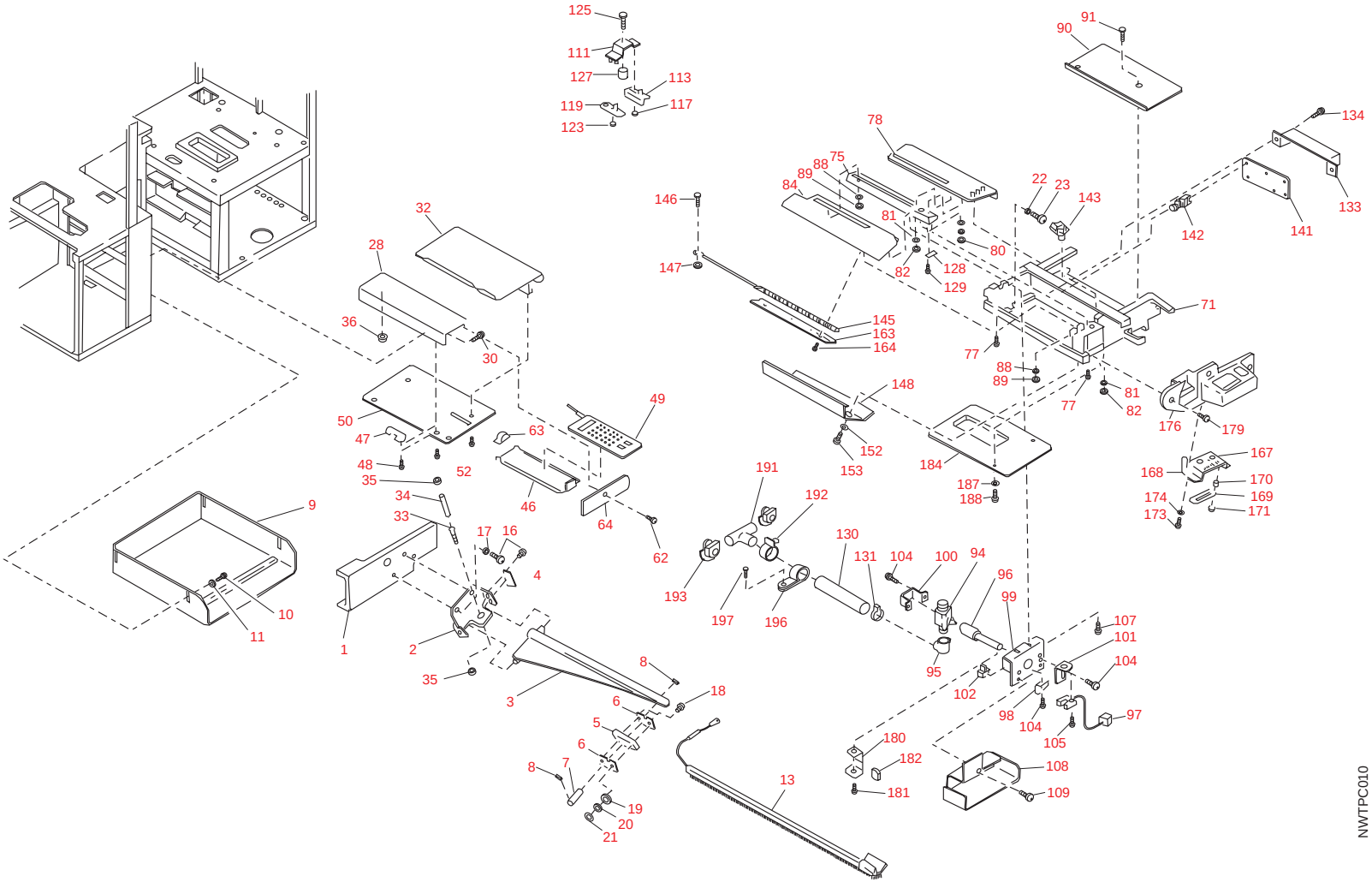
Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Splicing Table (Sheet 3 of 8)
–68	06F0413	2	Screw, Phillips Bind Hd M3 X 6 PP
–69	88F1626	2	Screw, Phillips Bind Hd M3 X 4 PP
–70	88F3356	2	Washer, Toothed 3D
–71		NP	
–75		NP	
–77	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–78		NP	
–80	06F0407	2	Nut, M4 PP
–81	06F0417	4	Washer, VF PP
–82	06F0407	4	Nut, Flange PP
–84		NP	
–88	06F0417	4	Washer, VF PP
–89	06F0407	4	Nut, Flange PP
–90		NP	
–91	06F0413	2	Screw, Phillips Bind Hd M4 X 8 PP
–94	06F1122	1	Valve, Splicing Table
–95	06F1123	1	Screw, Coupling
–96	06F1124	1	Shaft, Valve
–97	53F1793	1	Switch, Splice Lever (S101)
–98	06F1126	1	Interrupter
–99	06F1127	1	Holder, Valve Asm
–100	06F1128	1	Clamp, Valve
–101	06F1129	1	Holder, Splice Lever Switch
–102	06F1130	1	Bearing, Nylon
–104	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–105	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–107	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–108	88F2898	1	Box, Tape
–109	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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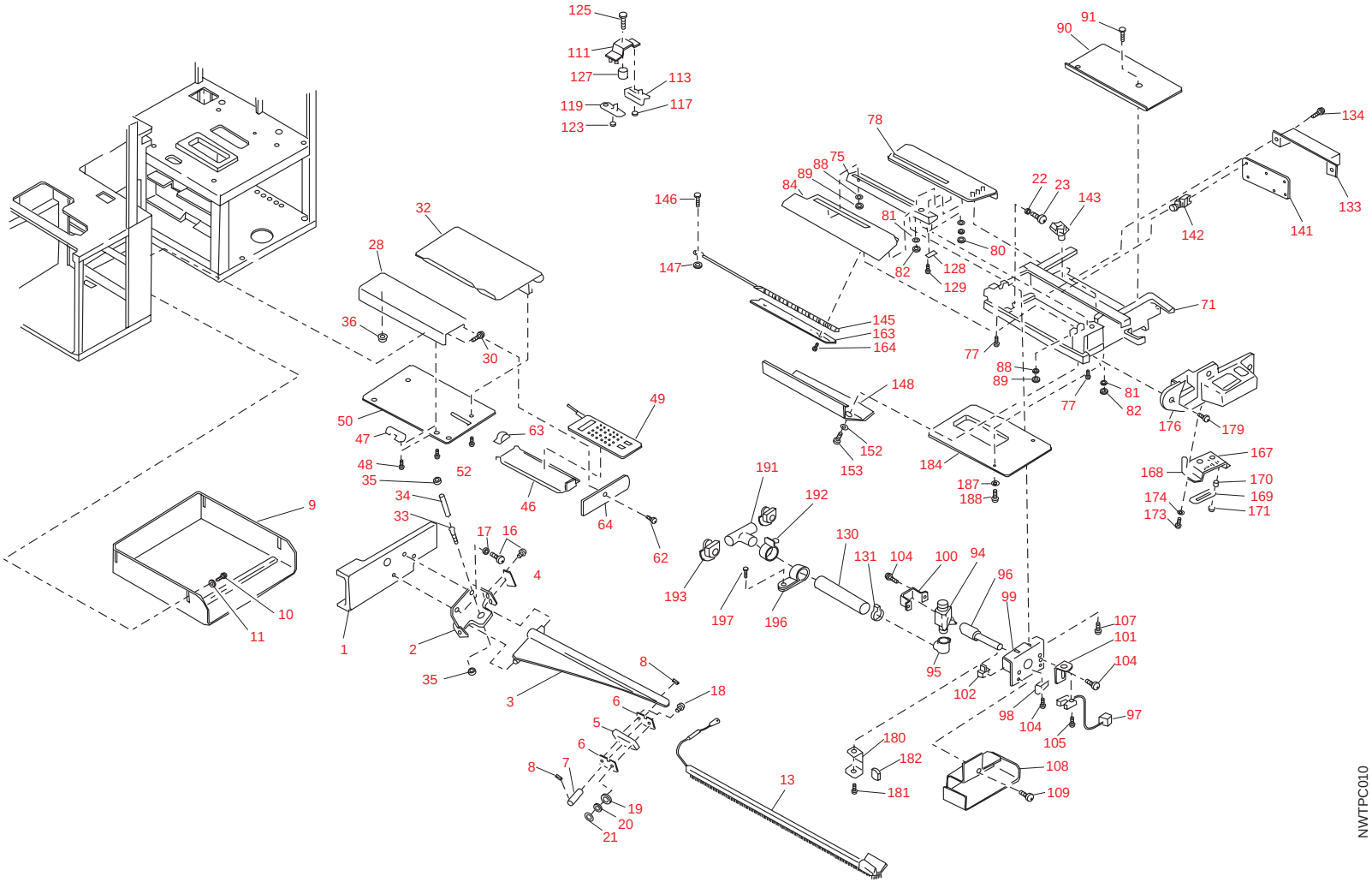
Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Splicing Table (Sheet 4 of 8)
–111	06F1116	1	Plate, Slide
–113	06F1117	1	Plate, Guide
–117	06F0407	1	Nut, Flange PP
–119	06F1118	1	Plate, Guide
–123	06F0407	2	Nut, Flange PP
–125	88F2899	1	Screw, Guide Locking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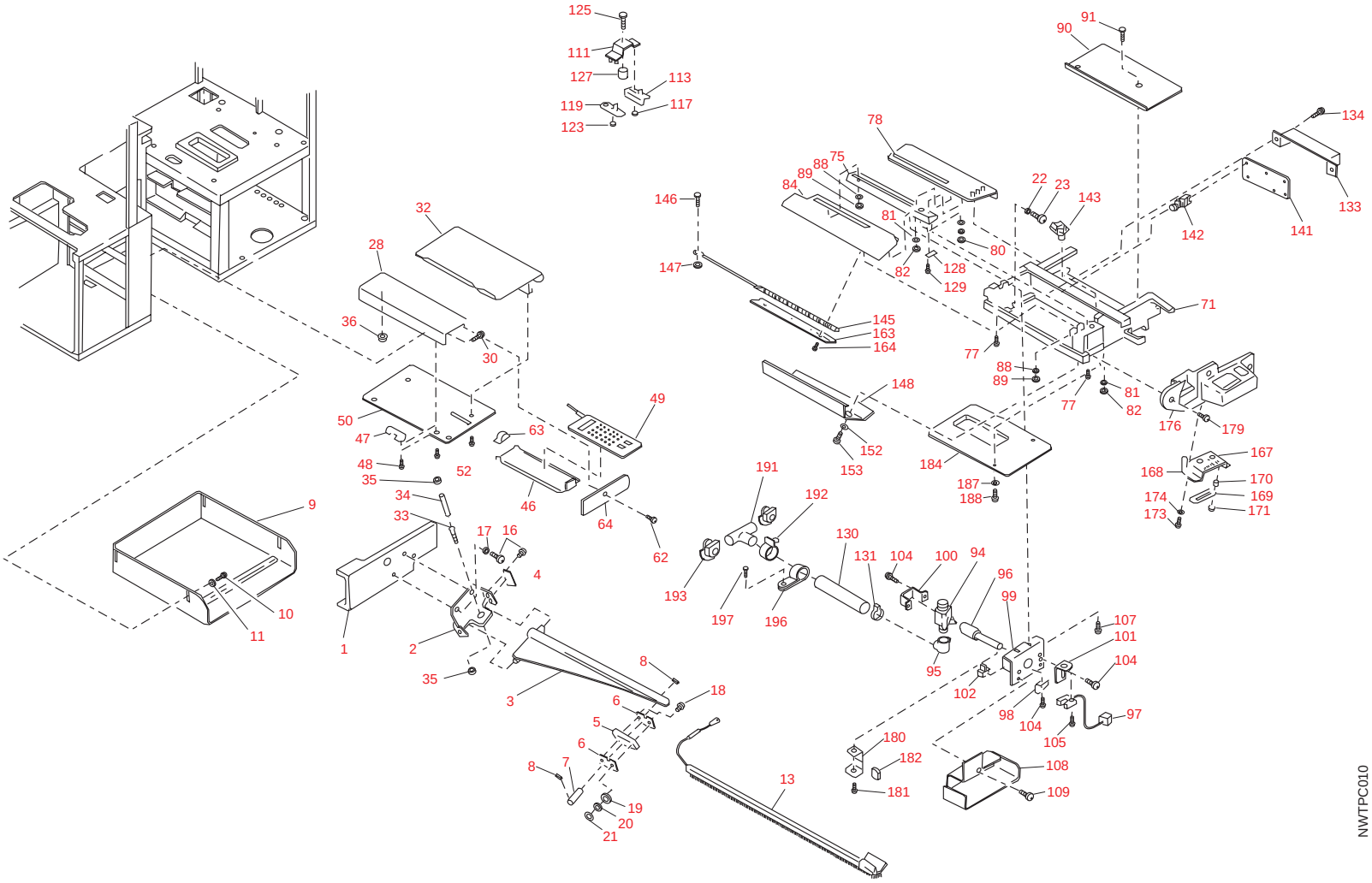
Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Splicing Table (Sheet 5 of 8)
–127	06F1120	1	Base, Slide
–128	06F1121	1	Cutter, Tape
–129	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–130	88F2900	1	Hose
–131	06F0734	1	Band, Wire
–133		NP	
–134	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–141	57G6525	1	Board, YS011
–142		NP	
–143		NP	
–145	90H1561	1	Brush, Splicing Table Discharge
–146	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–147	06F0406	1	Washer, Toothed D5 PP
–148		NP	
–152	06F0417	2	Washer, VF PP
–153	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–155	06F0413	2	Screw, Phillips Bind Hd M4 X 8 PP
–161	06F0413	2	Screw, Phillips Bind Hd M4 X 8 PP
–163		NP	
–164	06F0411	2	Screw, Phillips with Star Wshr & Wshr M4 X 25 PP
–167		NP	
–168	45G1857	1	Panel, Contrast Control
–169	45G1884	1	Panel, Printer Control (SW721)
–170	88F1644	4	Spacer
–171	06F0407	4	Nut, Flange PP
–173	06F0415	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–174	06F0417	4	Washer, VF PP
–176	88F2906	1	Cover, Printer Control Panel
–179	06F0413	4	Screw, Phillips Bind Hd M5 X 10 PP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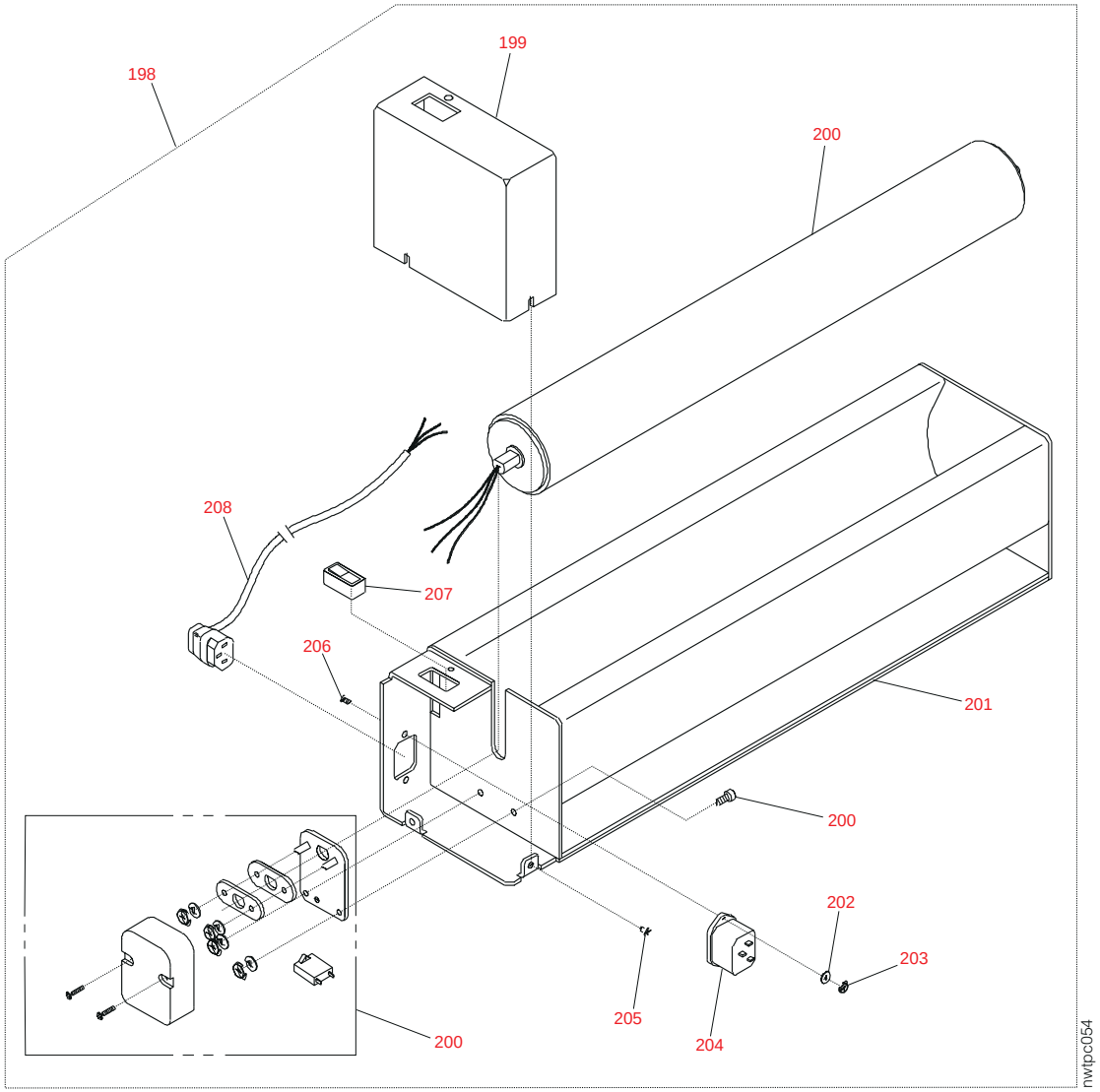
NWTPC010

Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Splicing Table (Sheet 6 of 8)
–180	06F1131	1	Lever, Splice
–181	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–182	06F1132	1	Cap, Rubber
–184		NP	
–187	06F0417	2	Washer, VF PP
–188	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–191		NP	
–192		NP	
–193		NP	
–196		NP	
–197	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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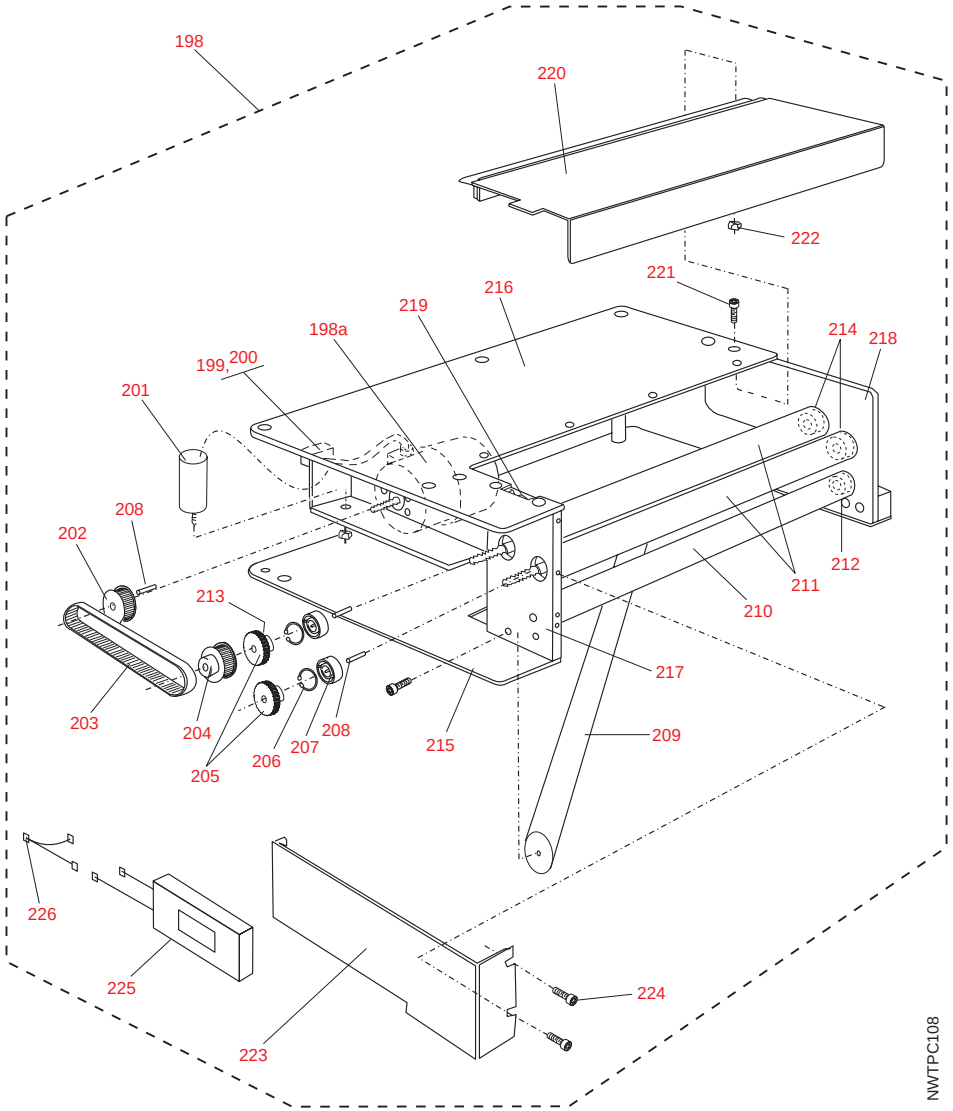
Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Single Roll Urge Unit (Duplex Printer 2) (Sheet 7 of 8)
–198	57G6487	1	Urge Unit (Duplex Printer 2)
–199	57G6489	1	Cover
–200	57G6490	1	Roll, Power Roll Asm
–201	57G6488	1	Housing, Urge
–202	1622302	2	Washer
–203	1622401	2	Nut
–204	57G6493	1	Connector
–205	45G2112	3	Screw
–206	45G2111	2	Screw
–207	57G6491	1	Switch
–208	57G6494	1	Cord, Line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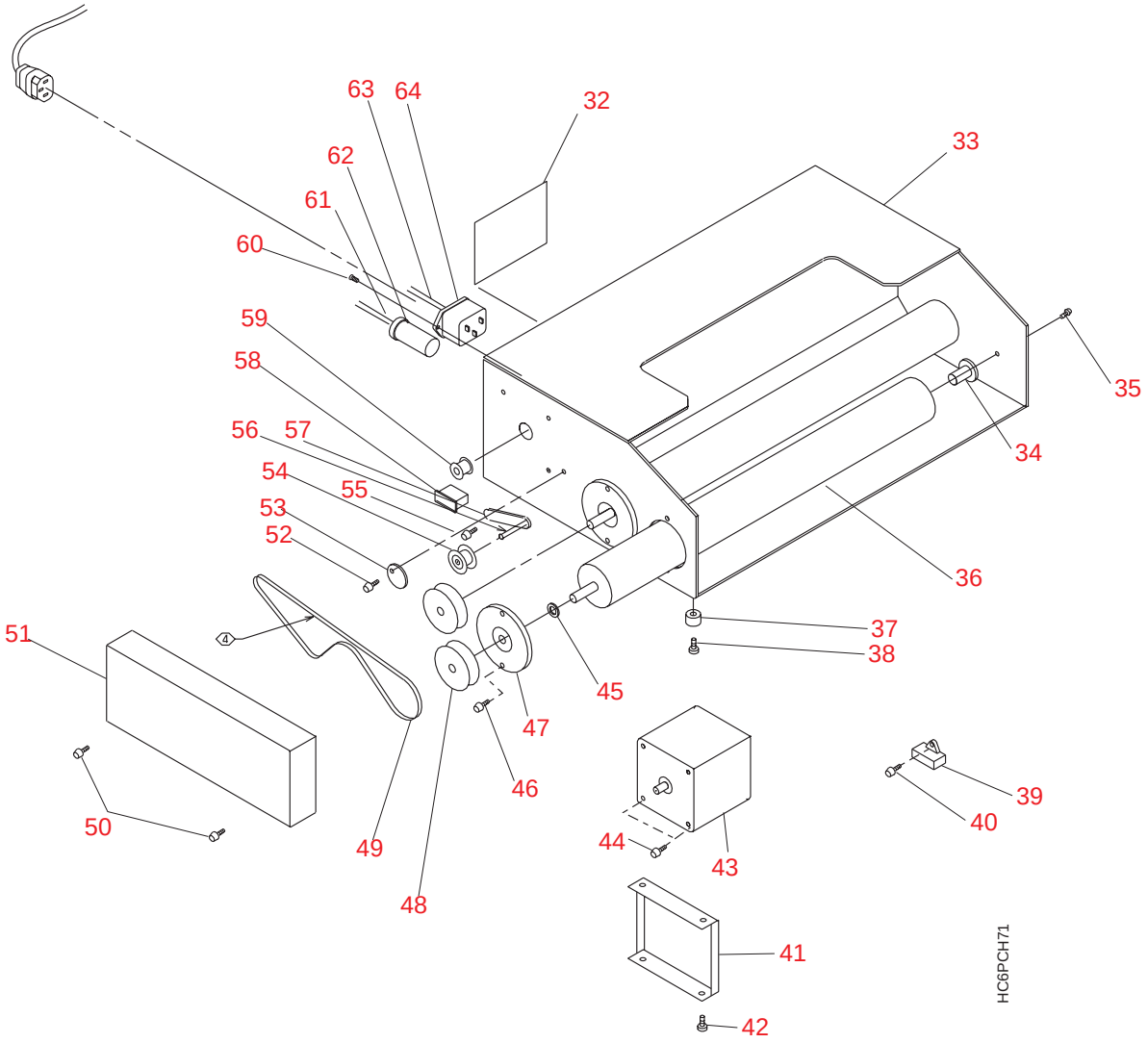
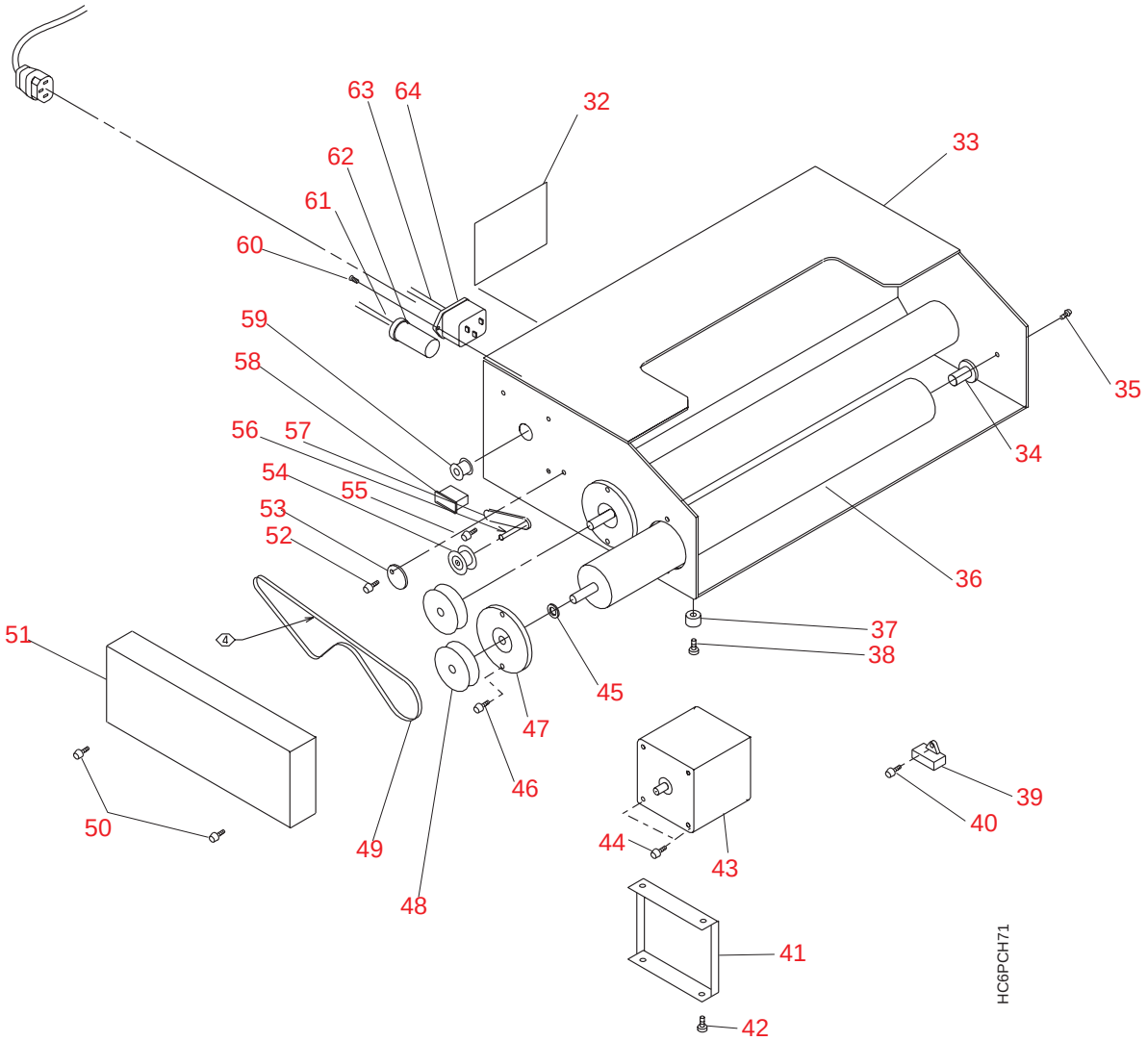
Asm–Index	Part Number	Units	Description
16–		NP	Input Hardware, Two Roll Urge Unit (Duplex Printer 2) (Sheet 8 of 8)
–198		NP	Urge Unit, two roll (Duplex Printer 2)
–198A	45F4351	1	Motor
–199	57G6489	1	Cover, plug
–200	45F4589	1	Plug
–201	45F5166	1	Capacitor, 2.5 mfd
–202	05L5440	1	Pulley
–203	30F9882	1	Belt, Urge Unit
–204	45G4592	1	Pulley
–205	45F4593	2	Gear
–206	45F4590	4	Clip, C
–207	45F3904	4	Bearing, Ball
–208	13J6714	3	Key, Shaft
–209	05L5441	1	Bar
–210	05L5442	1	Guide
–211	74H8397	2	Roll, Drive
–212	05L5443	2	Bearing, Ball
–213	71H2461	2	Screw, Set
–214	13J3742	2	Bearing, Ball
–215		NP	Plate, Lower
–216		NP	Plate, Top
–217		NP	Bracket, Front
–218		NP	Bracket, Rear
–219	05L5448	1	Mat, Rubber
–220	05L5449	1	Cover
–221	71H2467	4	Screw
–222	05L5450	4	Nut
–223		NP	Plate, End
–224		NP	Screw
–225	05L5971	1	Power Cord with Switch Assembly
–226	90H1655	1	Power Cord, Y Assembly

Assembly 17: Urge Unit - Black, Fixed Top



Asm–Index	Part Number	Units	Description
17–			Urge Unit - Black, Fixed Top (Sheet 1 of 2)
–32		NP-1	Label
–33		NP-1	Housing
–34	24L3306	2	Stud
–35	1621321	2	Screw
–36	24L3297	1	Roller
–37		NP-4	Bumper
–38	1621510	4	Screw
–39	63H7088	1	Capacitor
–40	53F1665	1	Screw
–41		NP-1	Cover
–42	1621510	2	Screw
–43	24L3308	1	Motor
–44	25627	4	Screw
–45	63H7096	2	Spacer
–46	25627	4	Screw
–47	24L3307	2	Flange
–48	24L3299	2	Pulley
–49	24L3304	1	Belt
–50	1621204	4	Screw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Asm–Index	Part Number	Units	Description
17–			Urge Unit - Black, Fixed Top (Sheet 2 of 2)
–51		NP-1	Cover
–52	1622529	1	Screw
–53		NP-1	Cam
–54	24L3302	1	Pulley
–55	1621519	1	Screw
–56		NP-1	Clip
–57	24L3305	1	Idler Arm
–58	57G6491	1	Switch
–59	24L3301	1	Pulley
–60	1621286	2	Screw
–61		NP-1	Cable
–62	24L4916	1	Fuse
–63		NP-1	Cord
–64	57G6493	1	Connector
–65		NP-2	Washer
–66	53F1664	2	Screw

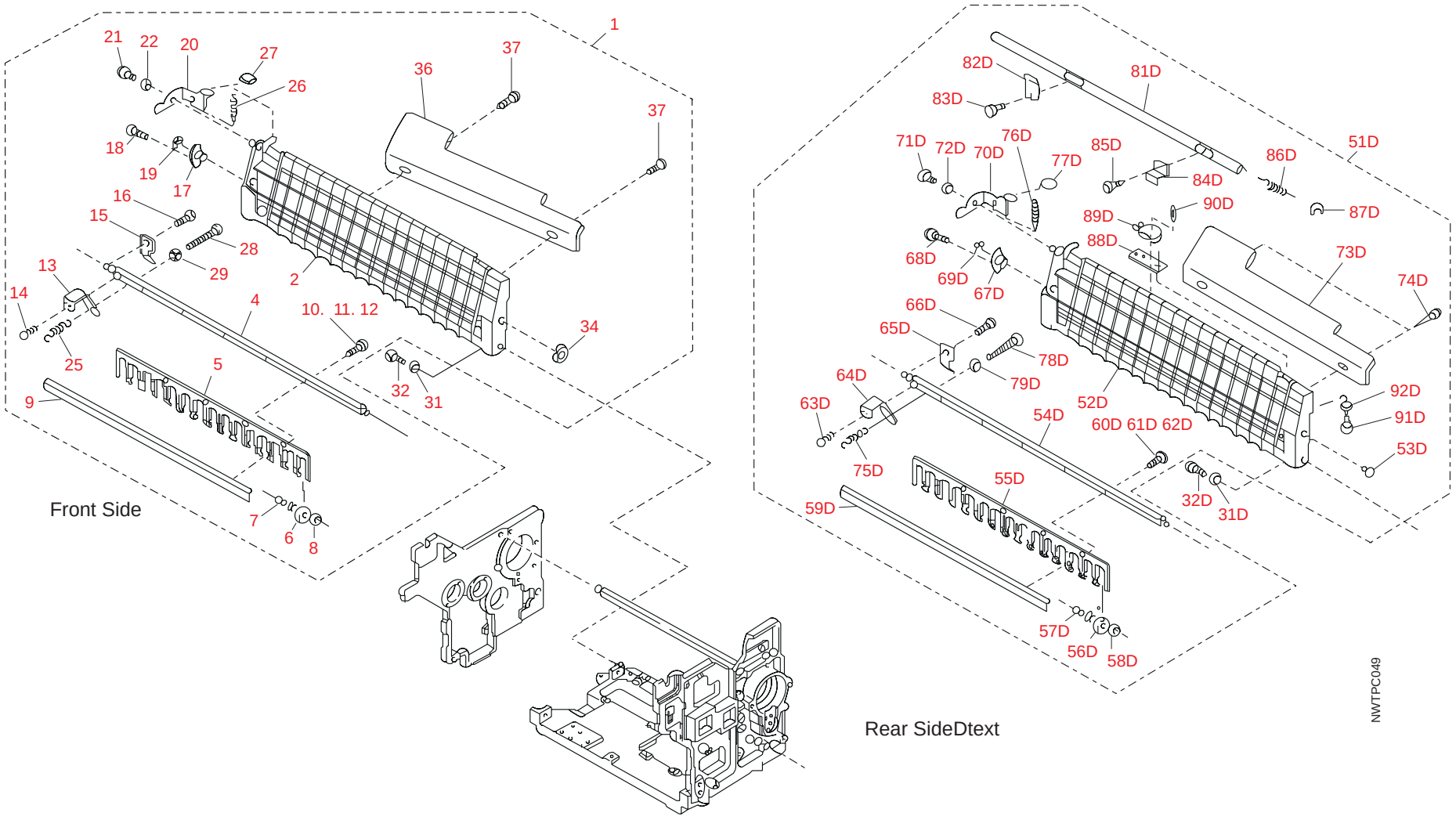
Assembly 18: No Assembly 18 for this Printer

Asm–Index	Part Number	Units	Description
18–			Not Used

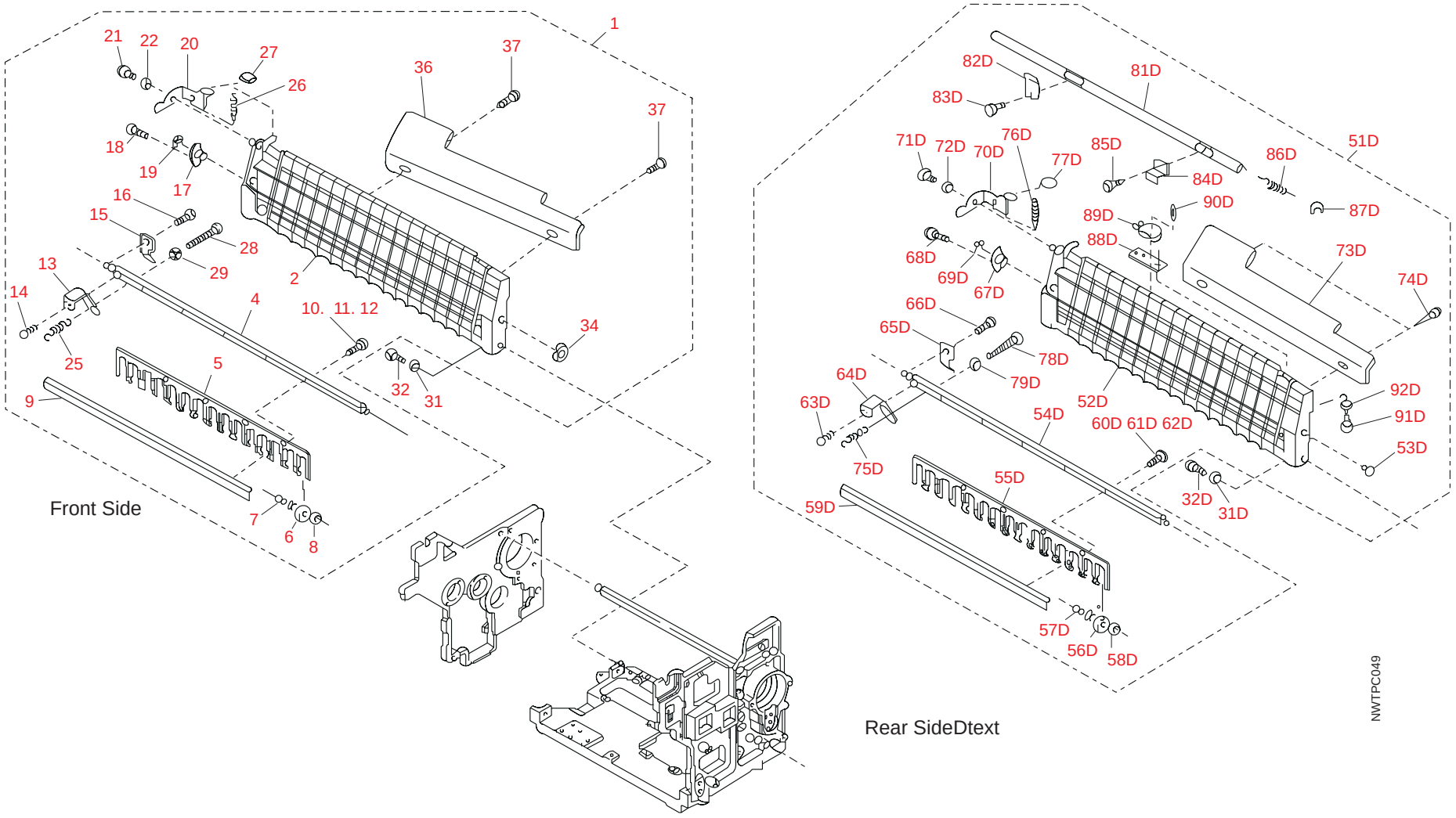
Assembly 19: No Assembly 19 for this Printer

Asm–Index	Part Number	Units	Description
19–			Not Used

Assembly 20: Fuser Hardware



Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 1 of 20)
–			**For all printers without Backup Idler Roll hardware**
–1		NP	Roll, Scuff Pressure Asm
–2		NP	
–4		NP	
–5	04H1103	1	Spring, Roller
–6	06F0153	17	Roller, Pressure
–7	06F0863	17	Pin, Pressure Roller
–8	06F0405	34	Washer, D5 PP
–9	57G6813	1	Holder, Spring
–10	88F1626	6	Screw, Phillips Pan Hd M4 X 18 PP
–11	06F0405	6	Washer, Spring D4 PP
–12	06F0405	6	Washer, D4 PP
–13		NP	
–14	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–15		NP	
–16	06F0411	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–17	06F0848	1	Bearing
–18	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–19	88F1627	1	E-Clip PP
–20	57G6816	1	Latch, Unit
–21	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–22		NP	
–25	57G6818	1	Spring, PRL
–26	57G6819	1	Spring, Extension
–27		NP	
–28	88F1626	1	Screw, Phillips Pan Hd M4 X 18 PP
–29	06F0407	1	Nut, M4 PP
–31	06F0417	1	Washer, FP PP
–32	06F0403	1	Bolt, Hexagon Socket Hd. PP
–34	53F1884	1	Bearing, Plastic
–36	04H0372	1	Cover, Fan
–37	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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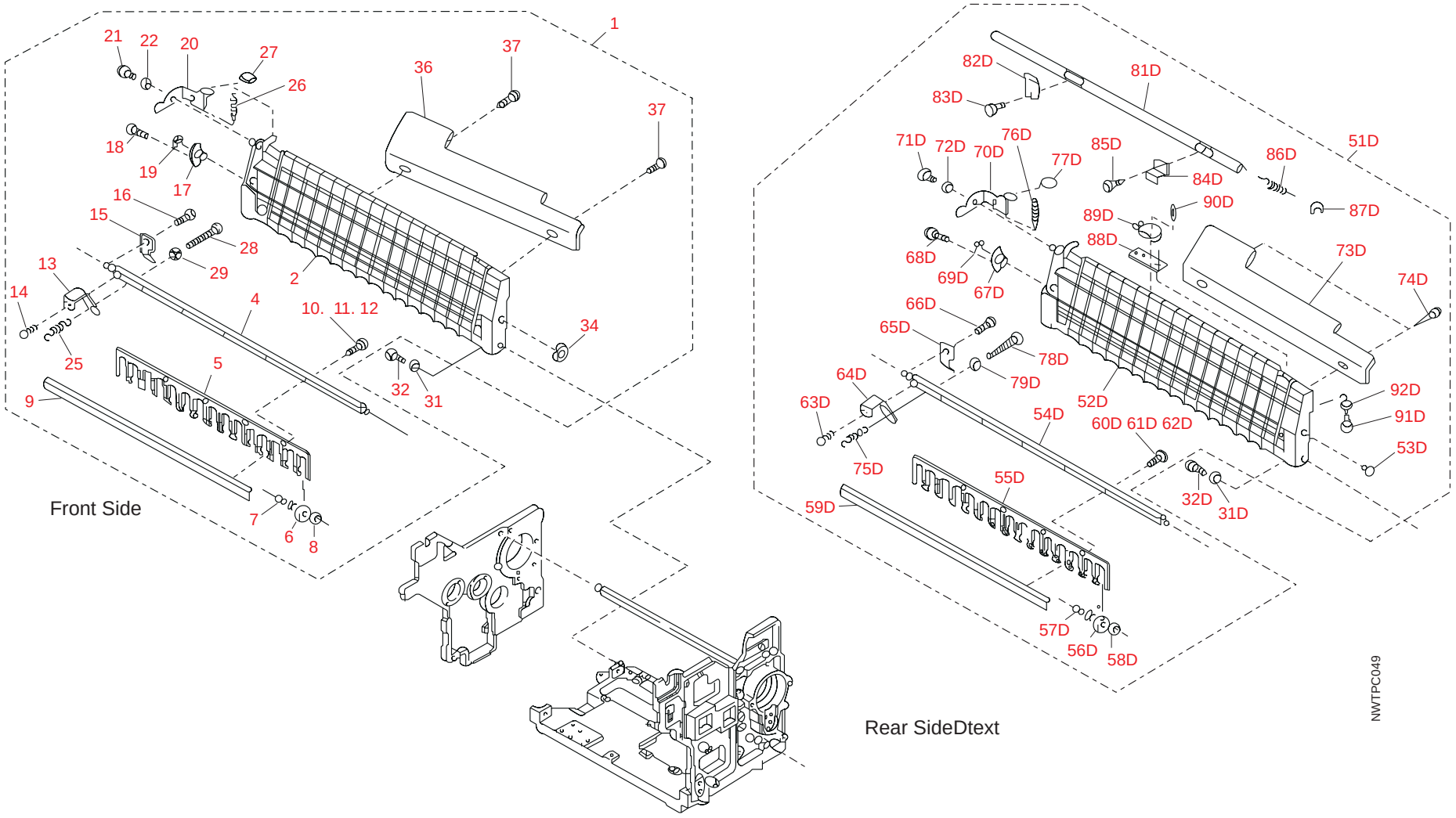
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 2 of 20)
–			**(D) For all printers with Backup Idler Roll hardware**
–51D		NP	
–52D		NP	
–53D	53F1884	1	Bearing, Plastic
–54D		NP	
–55D	04H1103	1	Spring, Roller
–56D	06F0153	17	Roller, Pressure
–57D	06F0863	17	Pin, Pressure Roller
–58D	06F0405	34	Washer, D5 PP
–59D	57G6618	1	Holder, Spring
–60D	88F1626	5	Screw, Phillips Pan Hd M4 X 18 PP
–61D	06F0405	5	Washer, Spring D4 PP
–62D	06F0405	5	Washer, D4 PP
–63D	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–64D		NP	
–65D		NP	
–66D	06F0411	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–67D	06F0848	1	Bearing
–68D	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–69D	88F1627	1	E-Clip PP
–70D	57G6816	1	Latch, Unit
–71D	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–72D		NP	
–73D	04H0372	1	Cover, Fan
–74D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–75D	57G6818	1	Spring, PRL
–76D	57G6819	1	Spring, Extension
–77D		NP	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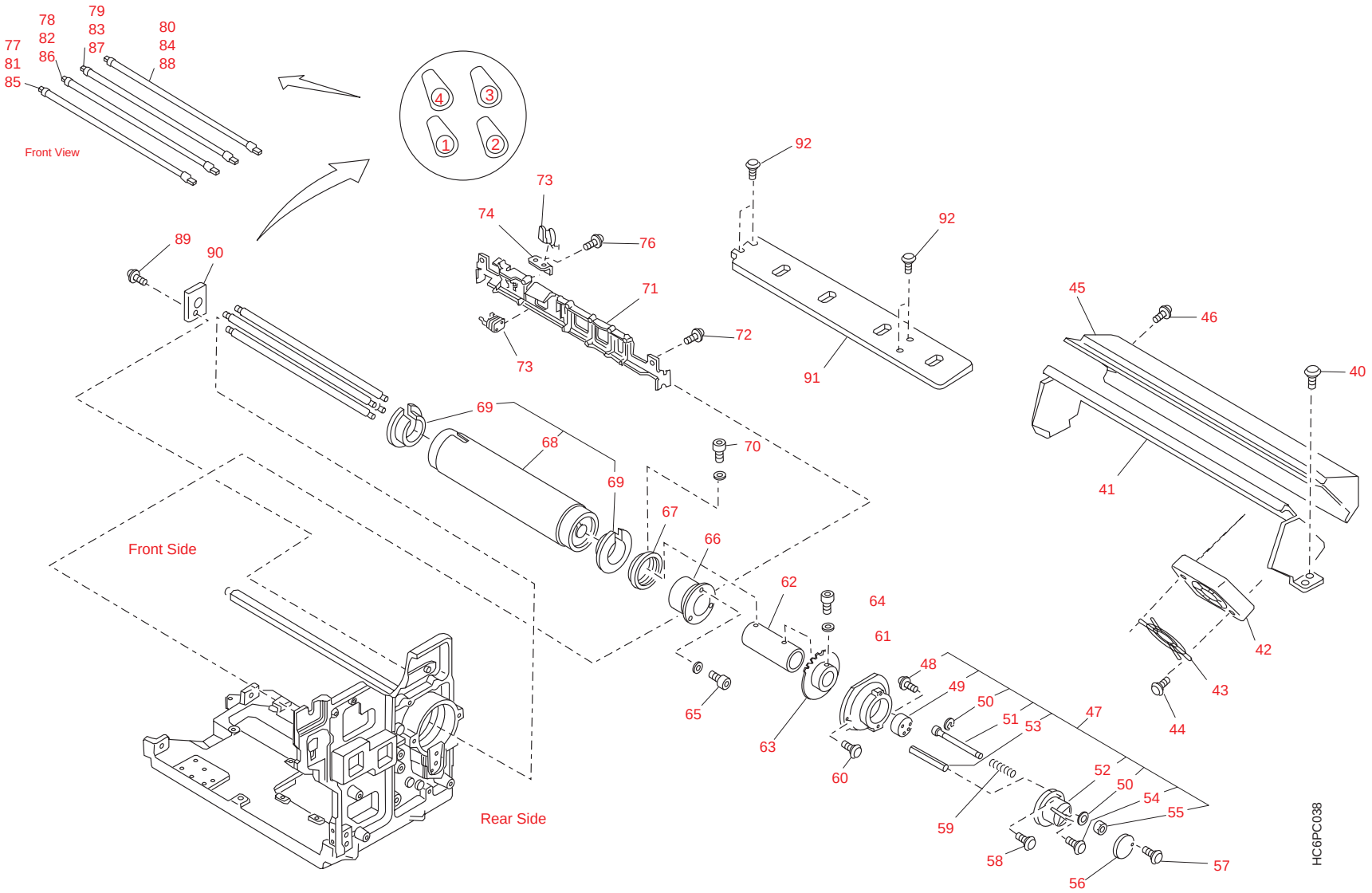
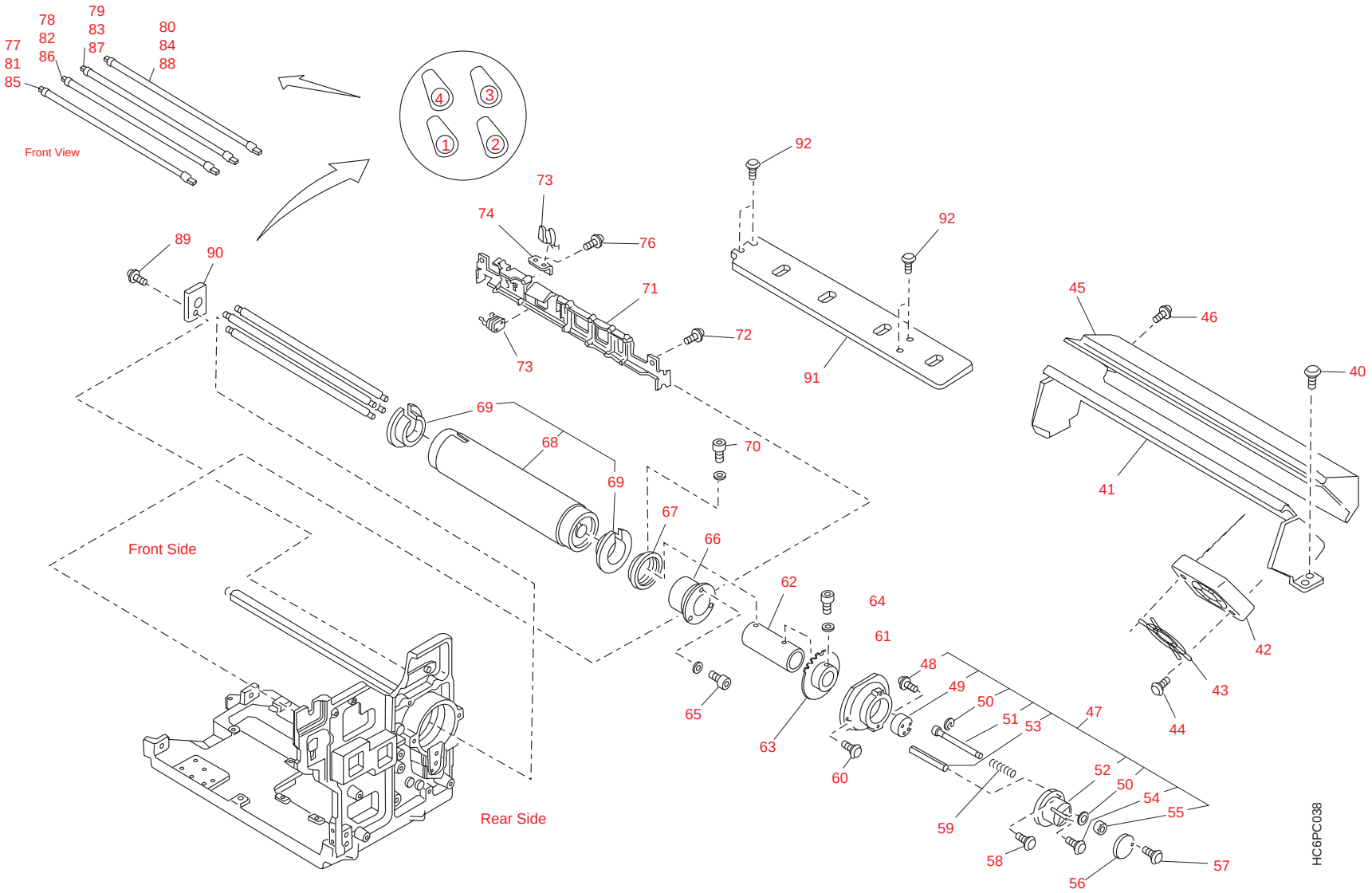
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 3 of 20)
–			**(D) For all printers with Backup Idler Roll hardware**
–78D	88F1626	1	Screw, Phillips Pan Hd M4 X 18 PP
–79D	06F0407	1	Nut, M4 PP
–81D		NP	
–82D		NP	
–83D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–84D		NP	
–85D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–86D		NP	
–87D	06F0418	1	Ring, Grip PP
–88D		NP	
–89D	04H0277	1	Switch, Fuser Wrap (S620)
–90D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–91D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–92D	06F1158	2	Washer FP


Front View
Front Side
Rear Side
HC6PC038

Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 4 of 20)
–40	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–41		NP	
–42	53F1861	3	Fan, Paper Cooling (B623, B624, B625)
–43	06F0569	3	Guard, Finger
–44	06F0413	8	Screw, Phillips Bind Hd M4 X 45 PP
–45		NP	
–46	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–47	88F2939	1	Receptacle, Hot Roll Lamp Asm
–48	06F0411	2	Screw, Phillips Pan Hd M4 X 40 PP
–49	88F2943	1	Receptacle, Hot Roll Lamp
–50	06F0418	8	E-Clip PP
–51	53F1982	4	Pin, Contact Slide Asm
–52	88F2940	1	Receptacle, Hot Roll Lamp
–53	88F2942	2	Spacer
–54	06F0411	2	Screw, Phillips with Star Wshr & Wshr M4 X 25 PP
–55	88F1627	4	Nut, M4 (brass) PP
–56	88F1646	1	Cap, Lamp Receptacle
–57	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–58	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–59	88F2944	4	Spring, Contact
–60	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP


Front View
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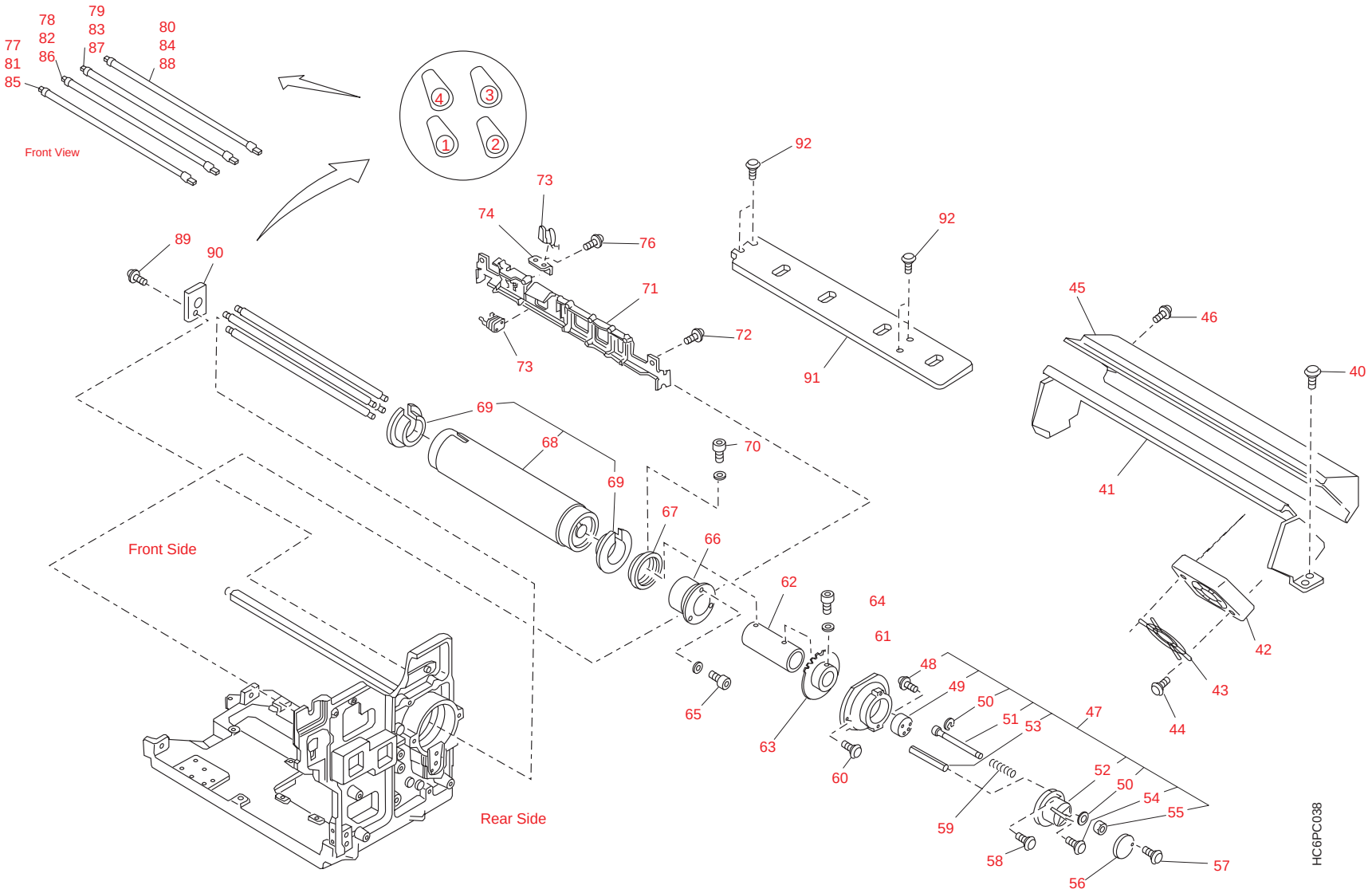
HC6PC038

Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 5 of 20)
–61	53F1971	1	Flange and Bearing Asm, Rear
–62	88F2934	1	Shaft, Hot Roll Drive
–63	53F1967	1	Gear, Hot Roll
–64	88F1626	2	Bolt, Hexagon Socket Hd M5 X 10 PP
–65	06F0413	3	Screw, Bind Hd with Star Wshr & Wshr M5 X 12 PP
–66	53F1970	1	Hub and Bearing Asm, Hot Roll, Rear
–67	06F0149	1	Collar, Hot Roll Drive
–68	30H2789	1	Roll, Hot Asm (190°) (All except 480/600 DPI)
–68	30H3098	1	Roll, Hot Asm (IR1 only)
–68	24H8386	1	Roll, Hot Asm (IR2 only)
–68	90H1757	1	Roll, Hot Asm (IR3/IR4 only)
–68	90H2642	1	Roll, Hot Asm (IS2, ID3/ID4 only)
–69	88F2947	2	Collar, Hot Roll Plastic
–70	88F1626	2	Bolt, Hexagon Socket Hd M5 X 12 (stainless) PP
–71		NP	
–72	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP (All printers without Backup Idler Roll hardware)
–73	53F1961	2	Sensor, Fuser Front and Rear Wrap Asm (S617, S618) (All printers without Backup Idler Roll hardware)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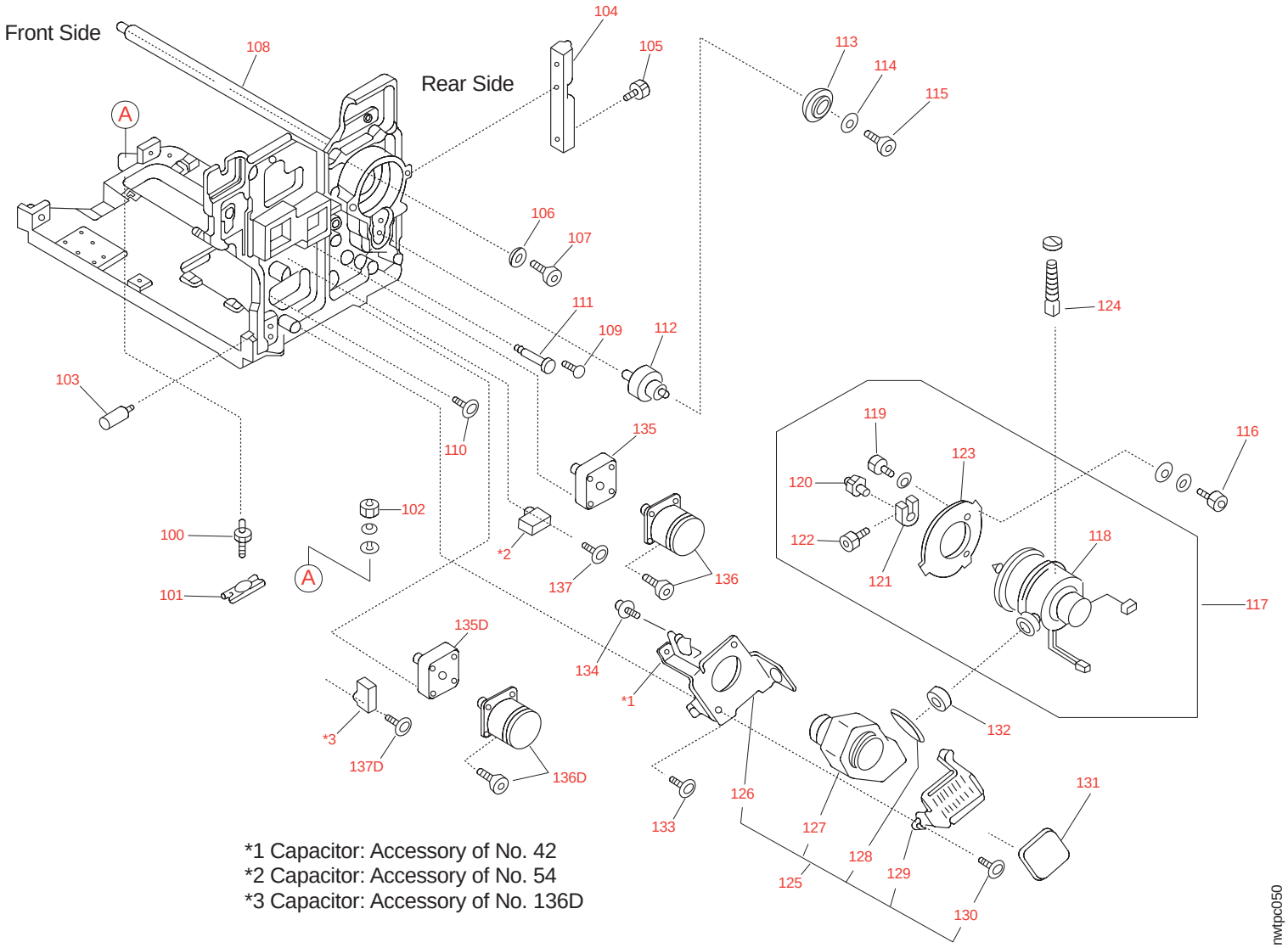
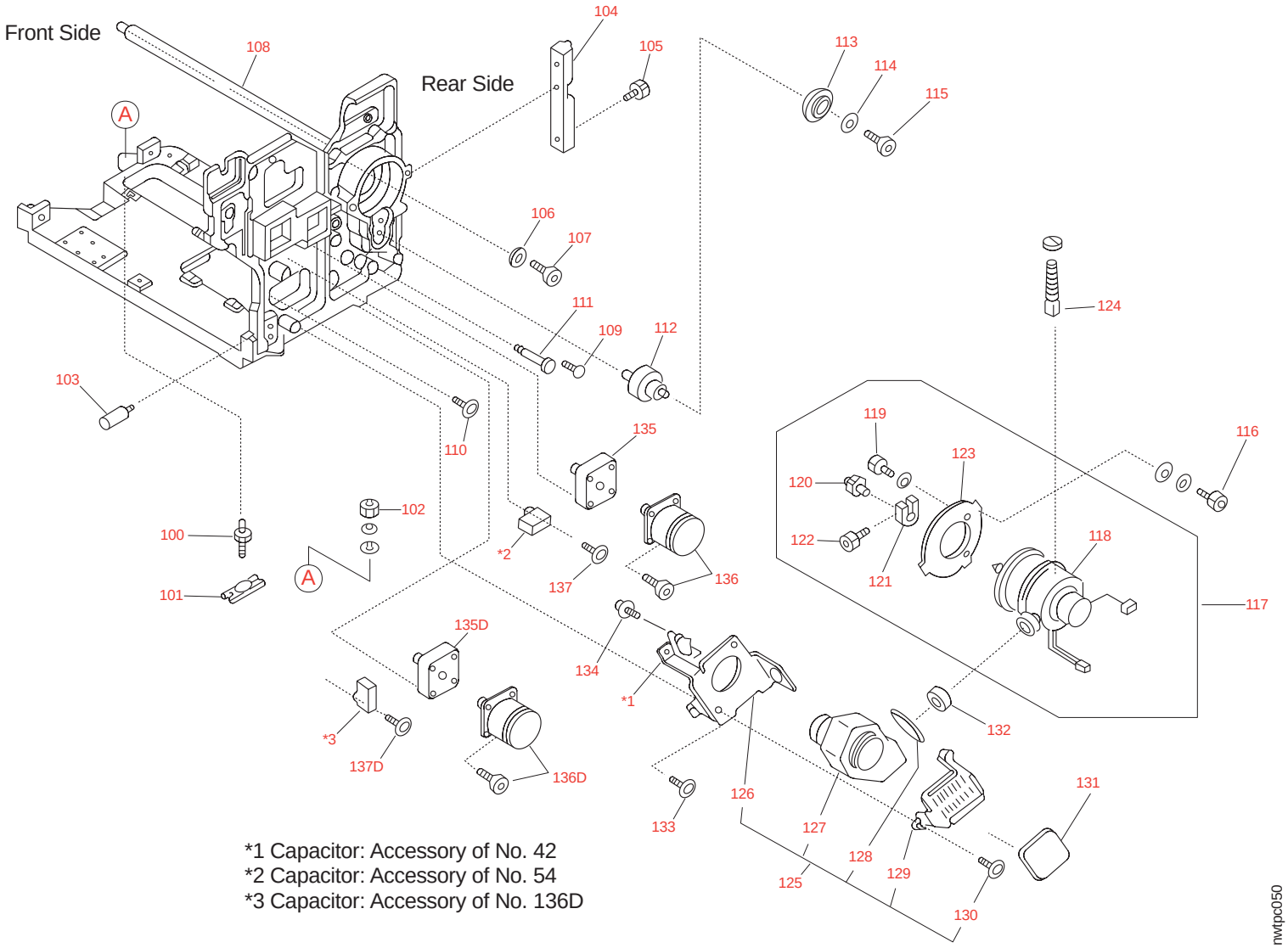
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 6 of 20)
–74	88F2998	1	Bracket, Wrap Sensor (All printers without Backup Idler Roll)
–76	06F0412	2	Screw, Phillips Flat Hd M4 X 10 PP (All printers without Backup Idler Roll)
–77	57G6455	1	Lamp L1, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–78	04H0476	1	Lamp L2, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–79	04H0477	1	Lamp L3, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–80	57G6458	1	Lamp L4, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–81	57G6536	1	Lamp L1, Hot Roll (Europe 50 Hz) 240 V (See note below)
–82	04H0480	1	Lamp L2, Hot Roll (Europe 50 Hz) 240 V (See note below)
–83	04H0481	1	Lamp L3, Hot Roll (Europe 50 Hz) 240 V (See note below)
–84	57G6539	1	Lamp L4, Hot Roll (Europe 50 Hz) 240 V (See note below)
–85	57G6541	1	Lamp L1, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–86	04H0478	1	Lamp L2, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–87	04H0479	1	Lamp L3, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–88	57G6544	1	Lamp L4, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–77	11L5179	1	Lamp B1, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–78	11L5180	1	Lamp B2, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–79	11L5181	1	Lamp B3, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–80	11L5182	1	Lamp B4, Hot Roll (US/Canada 60 Hz) 230 V (See note below)
–81	11L5187	1	Lamp B1, Hot Roll (Europe 50 Hz) 240 V (See note below)
–82	11LL188	1	Lamp B2, Hot Roll (Europe 50 Hz) 240 V (See note below)
–83	11L5189	1	Lamp B3, Hot Roll (Europe 50 Hz) 240 V (See note below)
–84	11L5190	1	Lamp B4, Hot Roll (Europe 50 Hz) 240 V (See note below)
–85	11L5183	1	Lamp B1, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–86	11L5184	1	Lamp B2, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–87	11L5185	1	Lamp B3, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–88	11L5186	1	Lamp B4, Hot Roll (Japan 50/60 Hz) 220 V (See note below)
–89	06F0420	1	Bolt, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–90	88F2936	1	Cover, Gear Side
–91	88F3383	1	Holder, Connector
–92	06F0420	2	Screw, Phillips Pan Hd M4 X 12 PP **Note:** “B” level lamps are used only with thermistor temperature control of the hot roll. “L” level lamps are used on all printers that are not using thermistor temperature control of the hot roll.



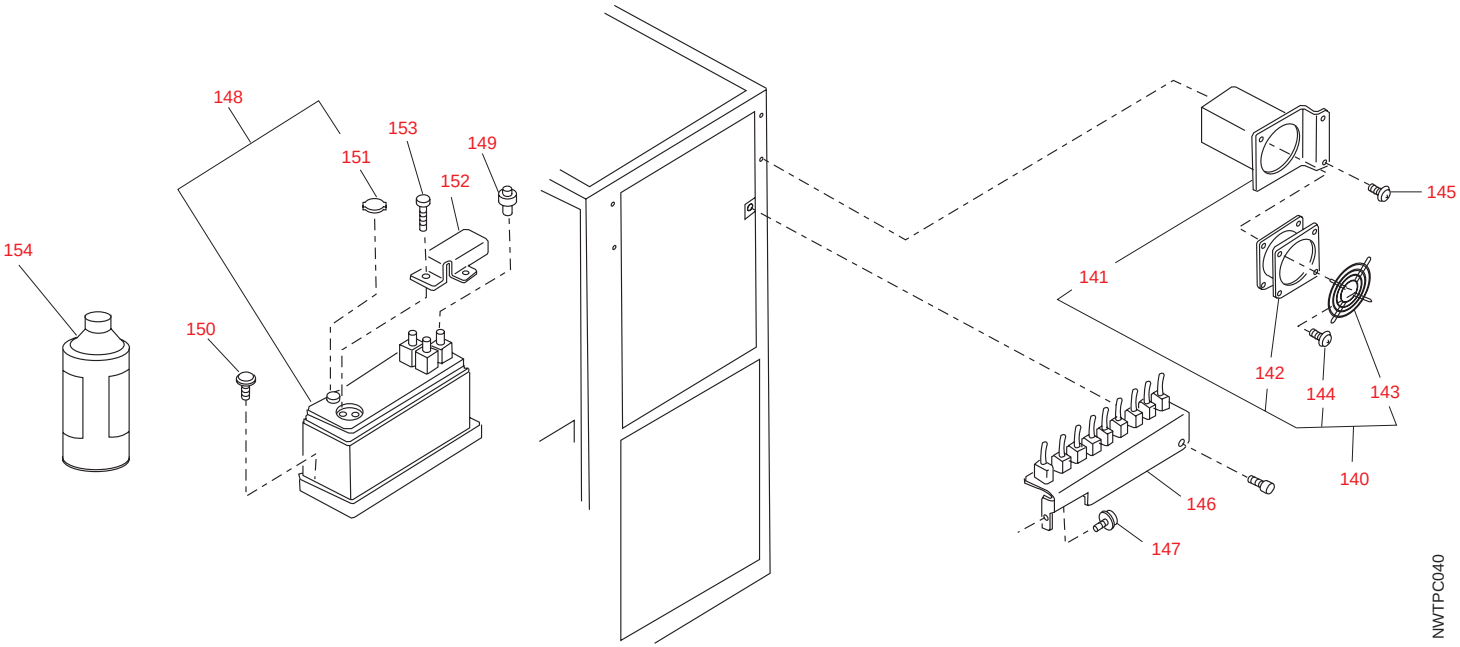
*1 Capacitor: Accessory of No. 42
*2 Capacitor: Accessory of No. 54
*3 Capacitor: Accessory of No. 136D

Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 7 of 20)
–100	88F2909	2	Screw, Jack
–101	06F0754	2	Foot, Jack
–102	06F0407	2	Nut, M10 PP
–103	88F2924	1	Cover, Standoff
–104	88F2920	1	Hinge, Oiler Gate
–105	88F1626	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 10 PP
–106	06F0417	2	Washer, Shaft Clamp PP
–107	06F0415	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–108		NP	
–109	06F0413	2	Screw, Bind Hd with Star Wshr & Wshr M5 X 12 PP
–110	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 25 PP
–111	88F2935	1	Shaft, Idler Gear
–112	88F2937	1	Housing, Gear
–113	53F1966	1	Gear, Idler
–114	06F0417	1	Washer, Press PP
–115	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–116	06F0414	3	Bolt, Hexagon Socket Hd M8 X 20 PP
–117	88F2945	1	Motor, Hot Roll (M607) Asm
–118	53F1801	1	Motor, Hot Roll (M607)
–119	06F0414	4	Bolt, Hexagon Socket Hd M6 X 20 PP
–120	53F1968	1	Gear, Drive
–121	06F0292	1	Ring, Tight
–122	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 16 PP
–123	88F2946	1	Base, Hot Roll Motor
–124	88F3365	6	Brush, Hot Roll Motor



*1 Capacitor: Accessory of No. 42
*2 Capacitor: Accessory of No. 54
*3 Capacitor: Accessory of No. 136D

Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 8 of 20)
–125	88F2965	1	Blower, Hot Roll Motor Asm (B602)
–126	88F2966	1	Base, Blower
–127	53F1965	1	Blower, Hot Roll Motor (B602) and Capacitor (C608) Asm
–128	88F2967	1	Seal, Blower
–129	88F2968	1	Holder, Blower
–130	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–131	53F1979	1	Filter, Hot Roll Motor Blower
–132	88F2969	1	Ring, Seal
–133	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M6 X 12 PP
–134	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–135	06F0147	1	Gearbox, BUR Motor
–136	53F1962	1	Motor, Backup Roll (M603) and Capacitor (C603) Asm
–137	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–135D	06F0147	1	Gearbox, Backup Idler Roll Motor (All printers with Backup Idler Roll)
–136D	04H0544	1	Motor, Backup Idler Roll (M609) and Capacitor (C613) Asm (All printers with Backup Idler Roll)
–137D	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP (All printers with Backup Idler Roll)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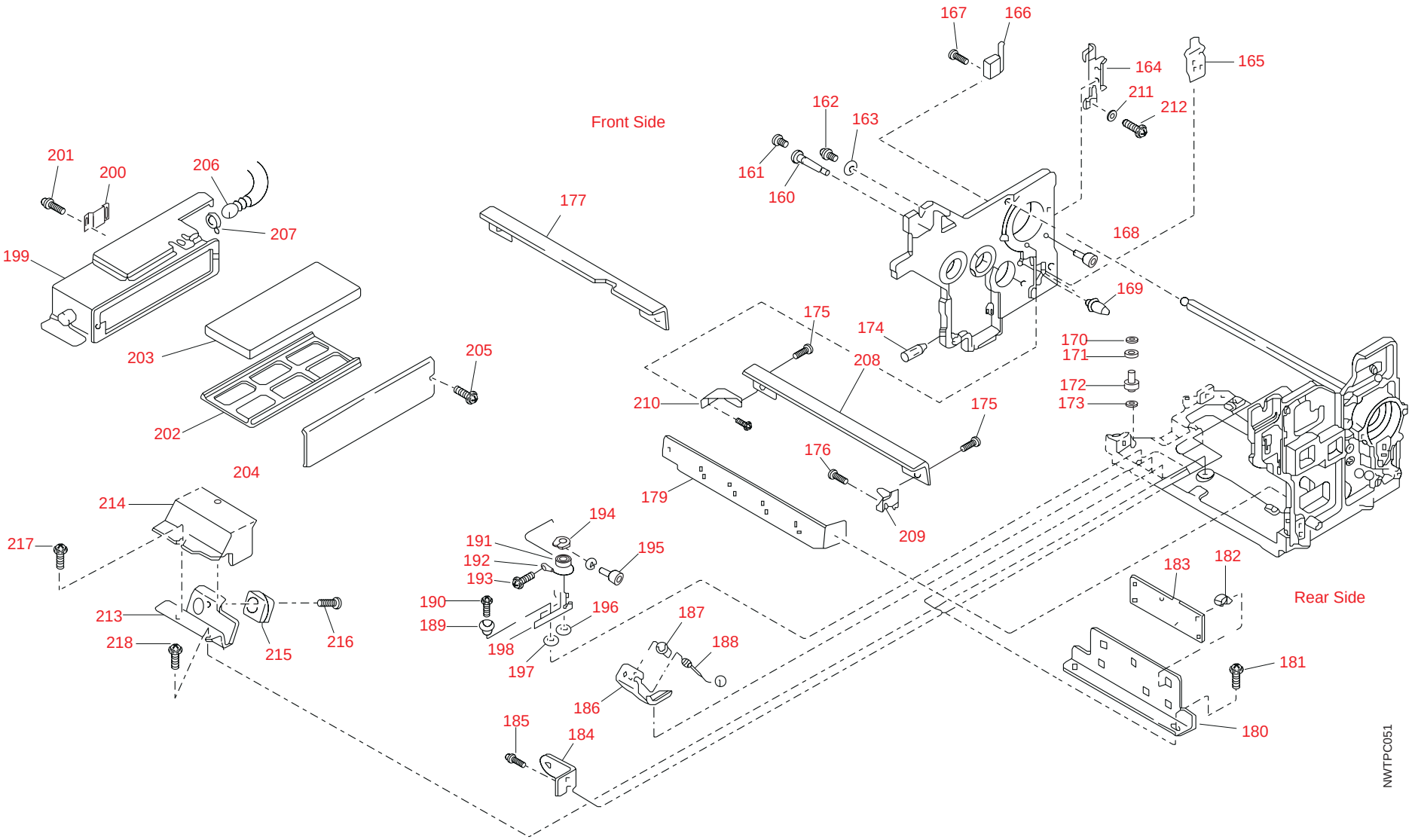
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 9 of 20)
–140		NP	
–141	88F3045	1	Base, Fan Asm
–142	06F0194	3	Fan, Upper Rear Fuser (B603, B604, B605)
–143	06F0569	1	Guard, Finger
–144	06F0413	4	Screw, Phillips Bind Hd M4 X 50 PP
–145	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–146		NP	
–147	06F0420	5	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–148	57G6825	1	Pump, Oil Asm (Three pump system)(L701, L702, L703)
–148	90H1283	1	Pump, Oil Asm (Six pump system) (L701, L702, L703, L704, L705, L706)
–149	88F3041	3	Fitting
–150	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 40 PP
–151	88F3043	1	Cap, Oil Reservoir
–152		NP	
–153	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–154	04H0289	NA	Oil, Fuser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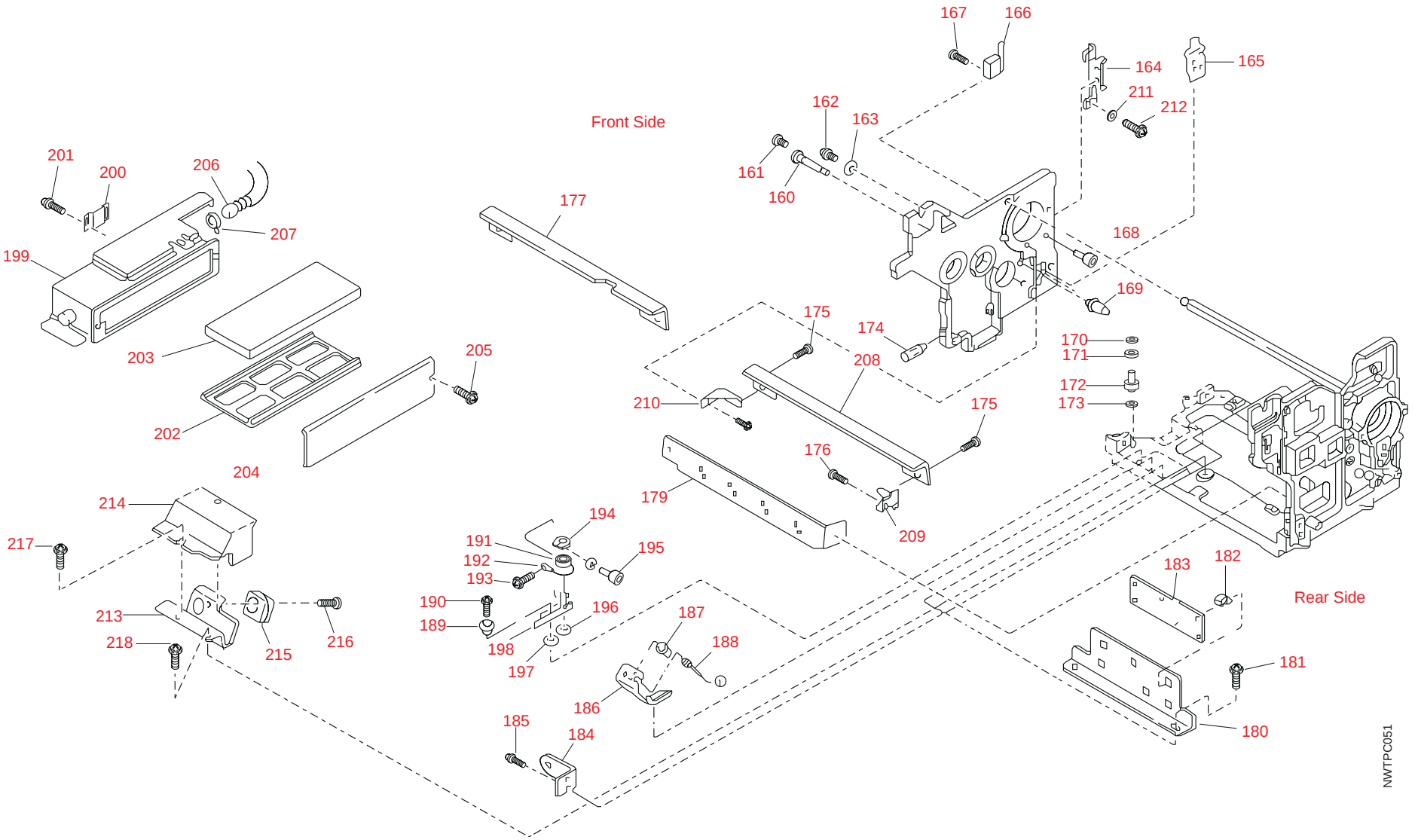
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 10 of 20)
–160	88F2914	1	Shaft, Pressure Rollers, Front
–161	06F0413	2	Screw, Bind Hd with Star Wshr & Wshr M5 X 12 PP
–162	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–163	06F0420	1	Washer PP
–164	88F2925	1	Base, Fastener
–165	88F2926	1	Cover, Switch Mounting
–166	06F0143	1	Switch, Oiler Gate Open (S605)
–167	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–168	06F0650	1	Follower, Cam
–169	88F2919	1	Pin, Latch
–170	06F0418	3	E-Clip PP
–171	06F0213	3	Bearing, Plastic
–172	88F2922	3	Shaft, Bearing
–173	06F0405	3	Washer, Spring D5 PP
–174	88F2924	2	Cover, Standoff
–175	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 16 PP
–176	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–177		NP	
–178	88F2928	1	Spring, Extension
–179		NP	
–180		NP	
–181	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–182		NP	
–183	57G6528	1	Board, Hot Roll Control (HR091)
–184	88F2911	2	Bracket, Paper Guide
–185	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–186	88F3025	1	Bracket, Vacuum Switch
–187	06F0174	1	Switch, Vacuum (S606)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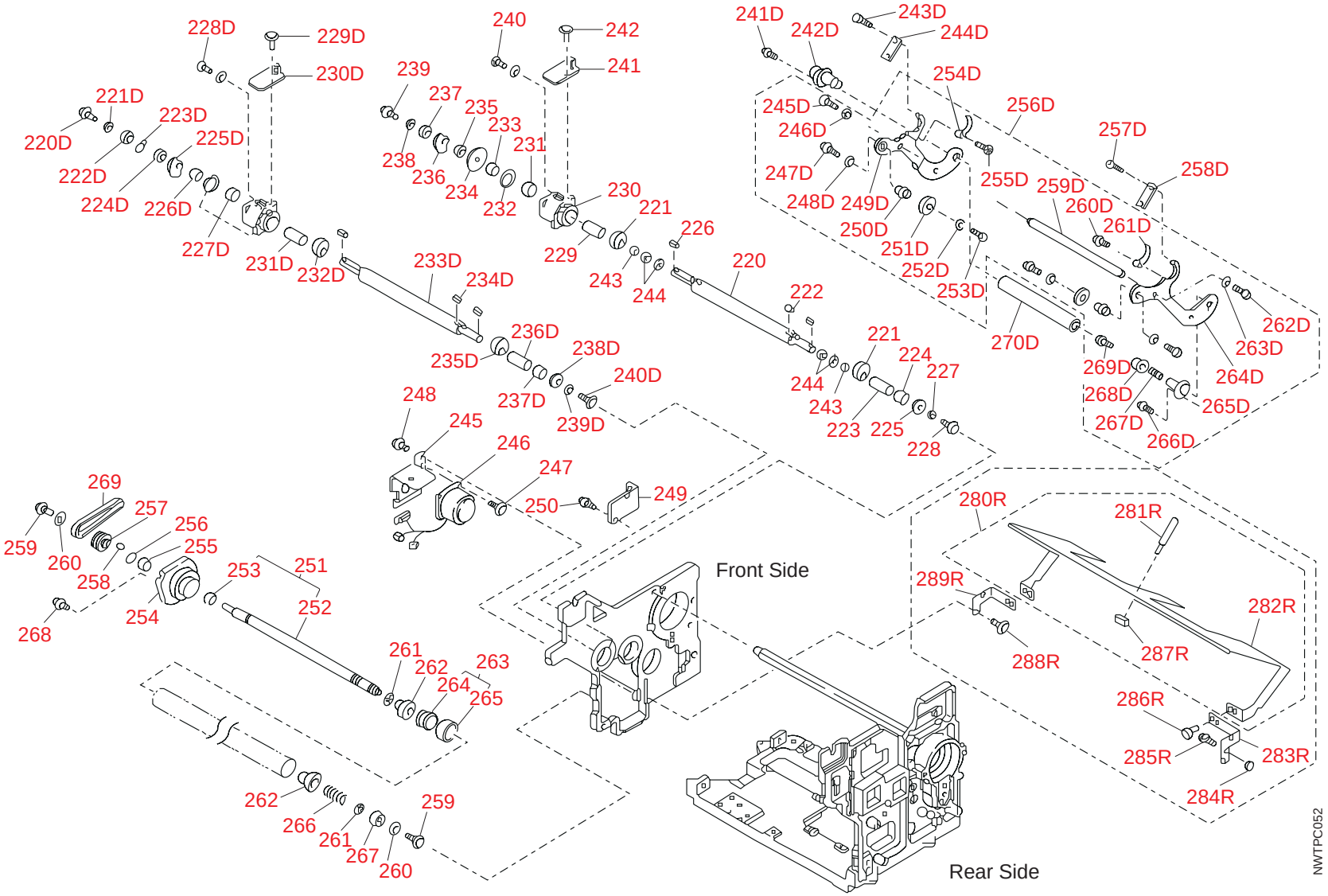
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 11 of 20)
–188	53F1891	1	LED, Vacuum (D602)
–189	88F3020	1	Collar, Release Lever Support
–190	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–191	88F3021	1	Pulley, Cam
–192	88F3022	1	Cable, Scuff Roll Release
–193	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–194	06F0292	1	Ring, Clamp
–195	06F0403	1	Bolt, Hexagon Socket Hd M4 X 12 PP
–196	88F2774	1	Slider, Poly
–197	88F2863	1	Slider, Poly
–198	88F3019	1	Lever, Scuff Roll Release
–199	88F2980	1	Seal, Manifold Distribution Filter
–200	88F2981	1	Plate, Adjust
–201	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–202	88F2982	1	Holder, Filter Asm
–203	53F1980	1	Filter, Manifold Distribution
–204	88F2983	1	Cover, Manifold Distribution
–205	06F0745	2	Screw, Clamp
–206	88F2984	1	Hose, Vacuum
–207	06F0870	2	Clamp, Wire
–208		NP	
–209		NP	
–210		NP	
–211	88F2956	1	Spacer
–212	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–213		NP	
–214		NP	
–215	53F1861	1	Fan, Paper Cooling (B626)
–216	06F0413	2	Screw, Phillips Bind Hd M4 X 45 PP
–217	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–218	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP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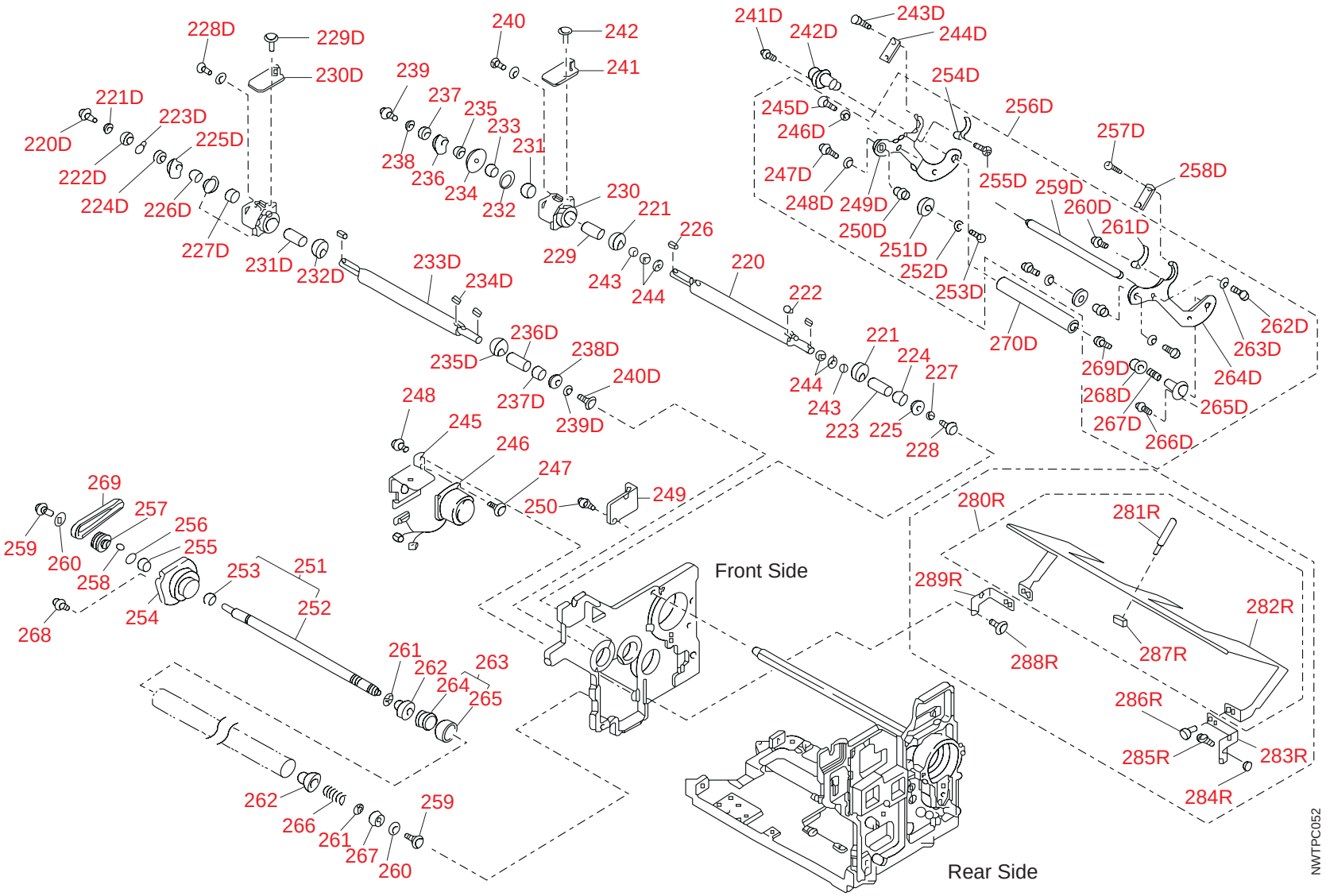
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 12 of 20)
–220		NP	
–221	88F2955	2	Cam, Lift (All except 324 PPM)
–221	11L5161	2	Cam, Lift (324 PPM)
–222	06F0408	2	Key, 4 X 4 X 10 PP
–223	88F2956	1	Spacer
–224	06F0144	1	Bearing, Ball
–225	06F0150	1	Gear, Lift
–226	06F0408	1	Key, 4 X 4 X 10 PP
–227	06F0406	1	Washer, Special PP
–228	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–229	88F2957	1	Spacer
–230	88F2958	1	Encoder, Housing Asm
–231	06F0144	1	Bearing, Ball
–232	06F0409	1	Ring, Retaining PP
–233	88F2959	1	Spacer
–234	88F2960	2	Encoder, Disk
–235	88F2961	1	Spacer
–236	88F2962	1	Plate, Sensor
–237	88F1647	1	Spacer
–238	06F0417	1	Washer, Shaft Clamp PP
–239	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–240	88F1626	2	Screw, Phillips Pan Hd M4 X 40 PP
–241	53F1887	1	Board, BUR Position Encoder Asm (EN131)
–242	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–243	24L4434	2	Collar
–244	45G1902	4	Bearing, Ball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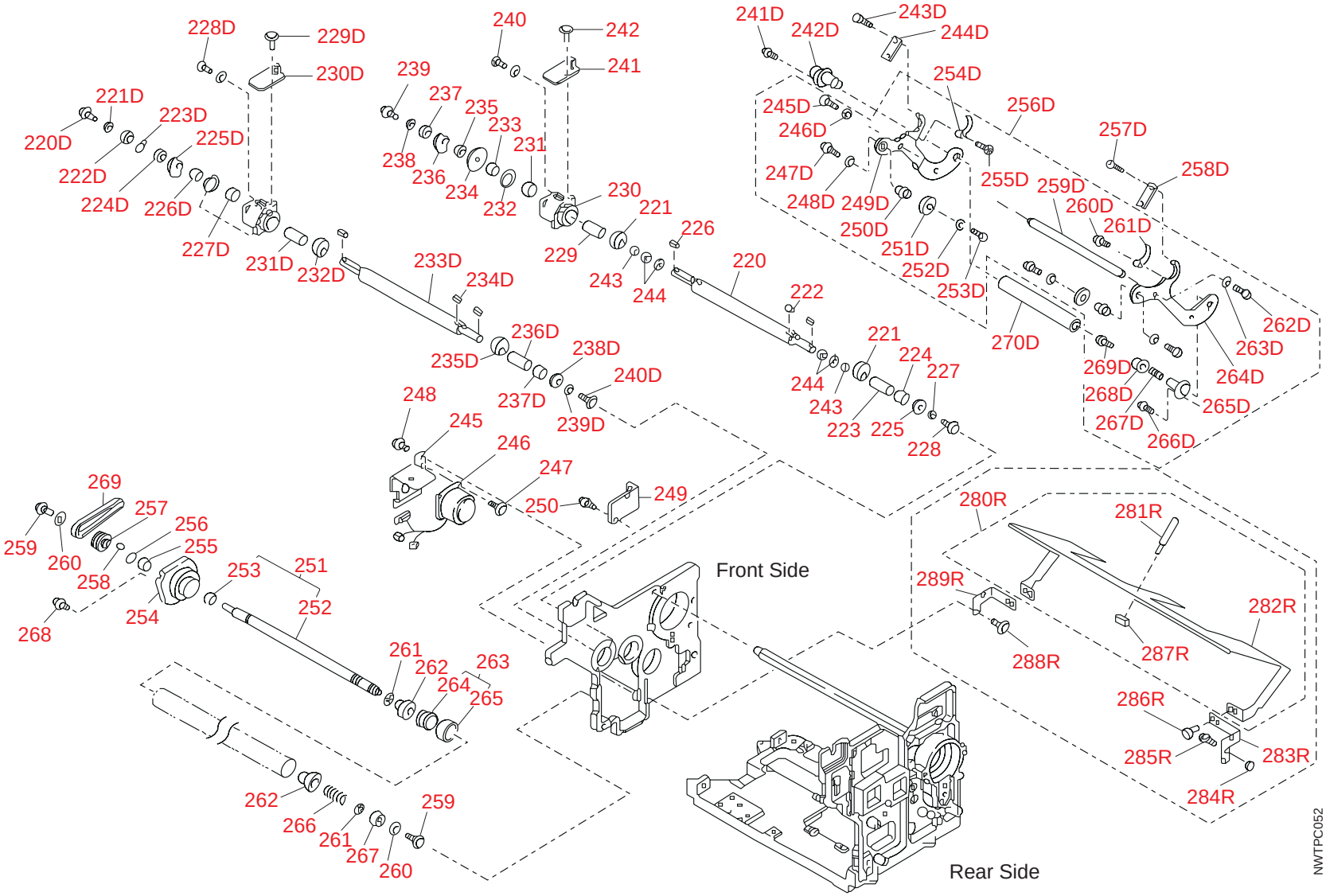
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 13 of 20)
–245	88F2979	1	Base, Scuff Roll Motor
–246	53F1972	1	Motor, Scuff Roll (M604) and Capacitor (C604) Asm
–247	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–248	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–249		NP	
–250	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–251	57G6830	1	Shaft, Scuff Roll Asm
–252		NP	
–253	88F2974	1	Collar
–254	45G1901	1	Flange, Scuff Roll Shaft Asm
–255	57G6833	1	Bearing, Ball
–256	06F0409	1	Ring, Retaining PP
–257	88F2975	1	Pulley, Scuff Roll (All except 310 PPM and 324 PPM)
–257	04H0776	1	Pulley, Scuff Roll (310 PPM and 324 PPM only)
–258	06F0408	1	Key, 3 X 3 X 10 PP
–259	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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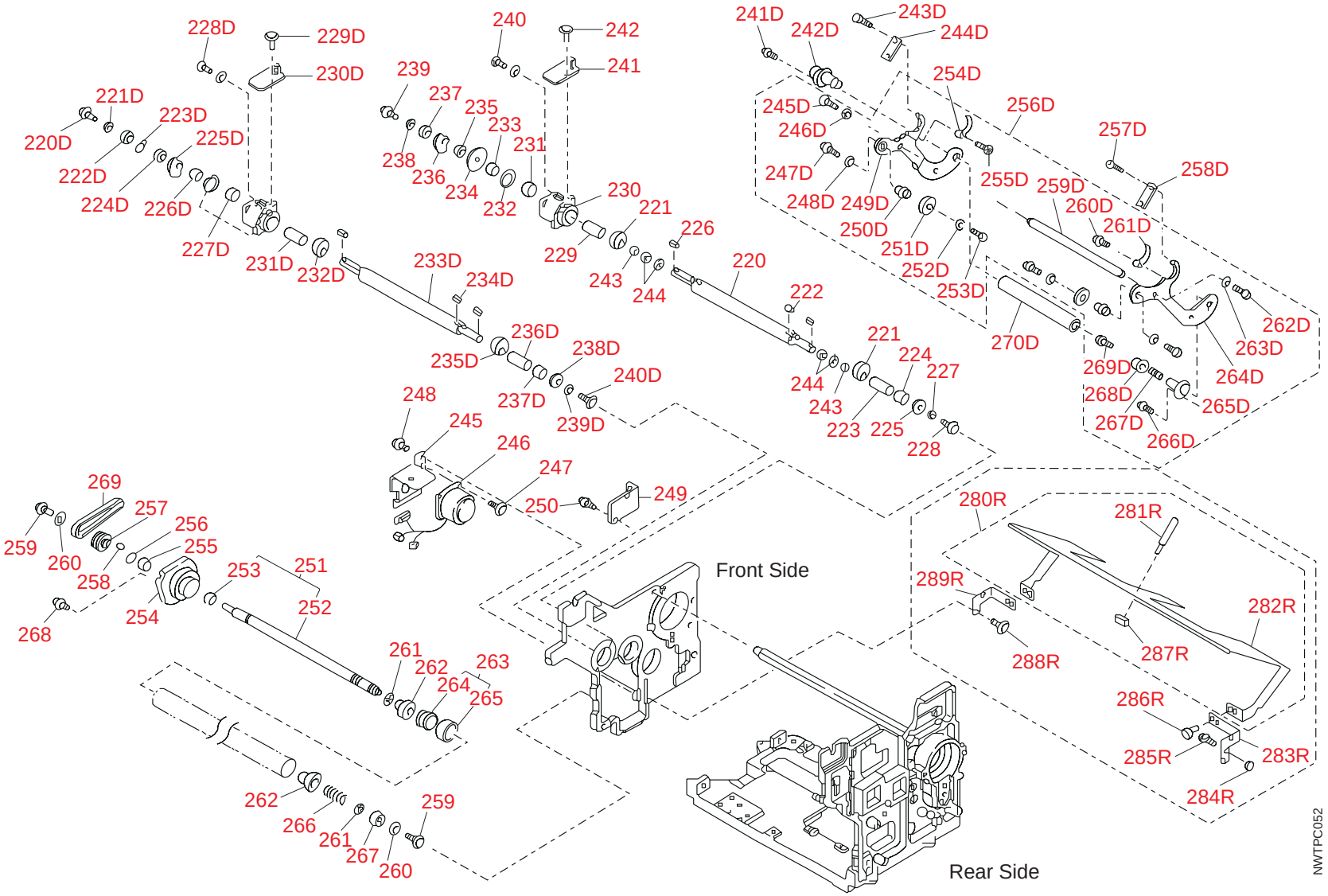
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 14 of 20)
–			
–260	06F0417	2	Washer, VF PP
–261	06F0418	2	Ring, Retaining PP
–262	06F0156	18	Hub, Scuff Roll
–263	88F2976	17	Wheel, Scuff Roll Asm
–264	06F0155	17	Wheel, Scuff Roll
–265	06F0154	17	Rubber, Scuff Roll Tire
–265	30H6749	17	Rubber, Scuff Roll Kit (Contains 17 Scuff Rolls)
–266	88F2977	1	Spring, Scuff Roll Tension
–267	06F0158	1	Bearing, Ball
–268	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–269	53F1974	1	Belt, V, Scuff Roll Drive (All except 310 PPM and 324 PPM)
–269	04H0777	1	Belt, V, Scuff Roll Drive (310 PPM and 324 PPM only)
–270		NP	
–271	88F2917	2	Bracket, Hot Roll Cover (Except 480/600 DPI)
–272	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–273		NP	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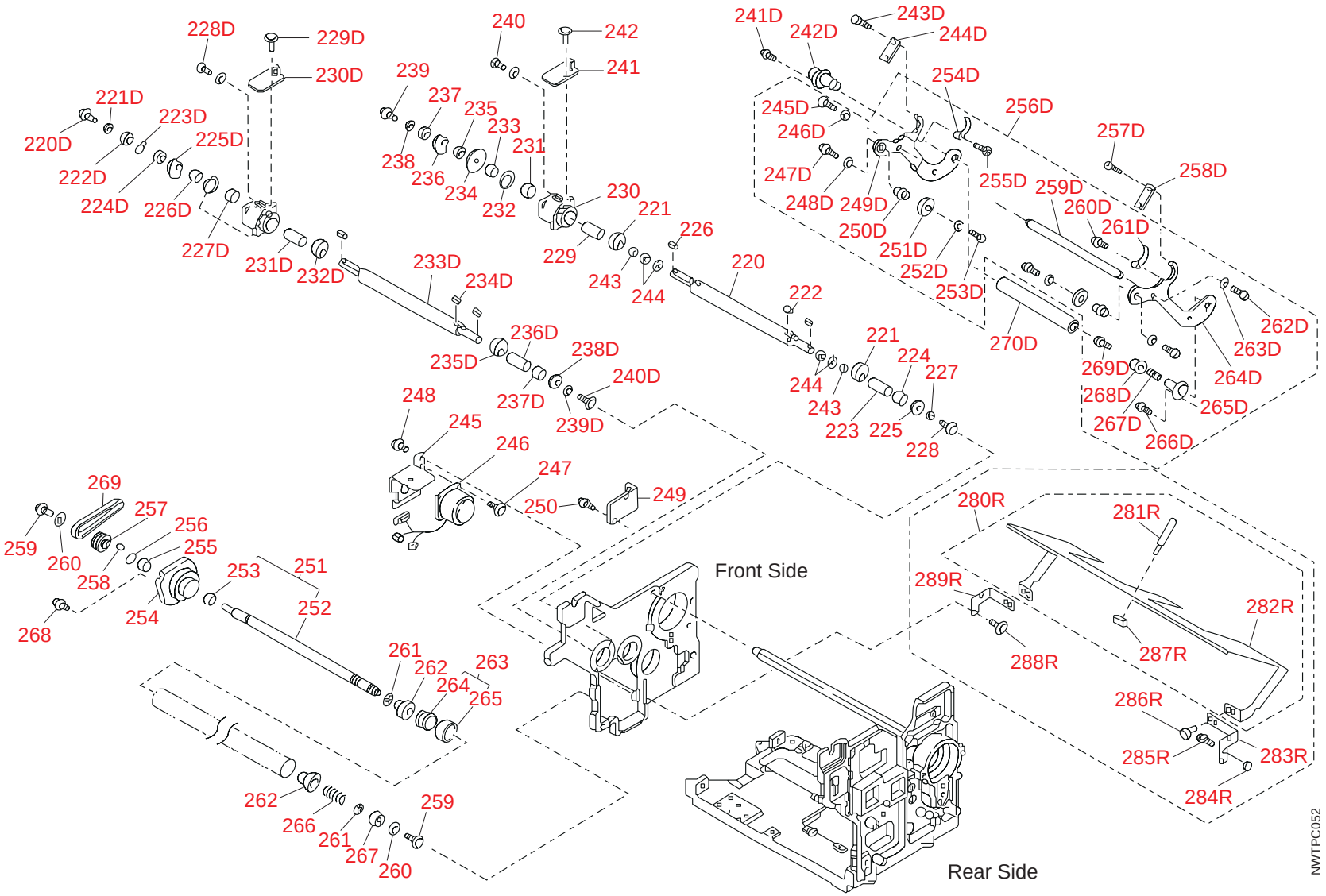
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 15 of 20)
–			**(D) For Printers With A Backup Idler Roll**
–220D	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–221D	06F0417	1	Washer PP
–222D	88F1647	1	Spacer
–223D	04H1109	1	Sensor, Plate
–224D	88F2961	1	Spacer
–225D	04H1108	1	Plate, Sensor
–226D	88F2959	1	Spacer
–227D	04H1060	1	Housing, Encoder Asm
–228D	88F1626	2	Screw, Phillips Pan Hd M4 X 40 PP
–228D	06F0411	2	Screw, Phillips Pan Hd M4 X 16 PP (When Lift Plate Assembly is installed)
–229D	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–230D	53F1887	1	Board, BUR Position Encoder Asm (EN131)
–231D	04H0725	1	Spacer
–232D	04H1106	1	Cam, Lift
–233D	04H0505	1	Shaft, Lift
–234D	04H1107	3	Key, 4 X 4 X 10 PP
–235D	04H1106	1	Cam, Lift
–236D	04H0726	1	Spacer
–237D	06F0144	1	Bearing, Ball
–238D	06F0150	1	Gear, Lift
–239D	07F0406	2	Washer, Special
–240D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP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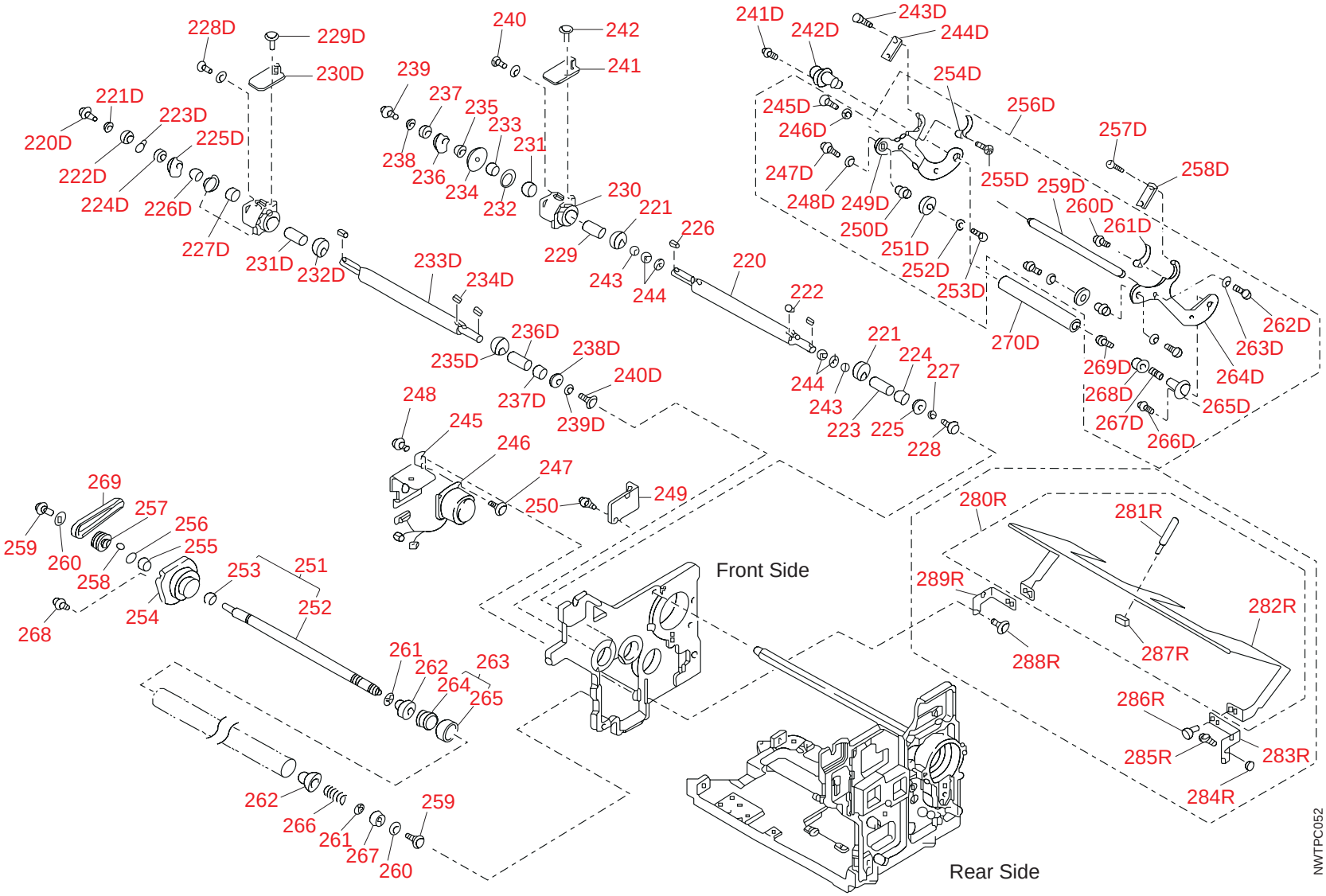
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 16 of 20)
–			**(D) For printers with a Backup Idler Roll**
–241D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–242D	04H1105	1	BIR Shaft Front
–243D	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–244D	04H1104	1	Clamper, Bearing
–245D	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–246D	06F0417	1	Washer PP
–247D	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–248D	06F0417	2	Washer PP
–249D	30H2799	1	BR 2 Arm Front
–250D	88F3127	2	SC Arm Shaft
–251D	45G1905	2	Bearing, Ball
–252D	06F0417	2	Washer PP
–253D	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–254D	53F1808	1	Holder, Ball Bearing
–255D	06F0412	2	Screw. Flat Head M3 X 10 PP
–256D	04H0503	1	BR Arm Asm
–257D	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–258D	04H1104	1	Clamper, Bearing
–259D		NP	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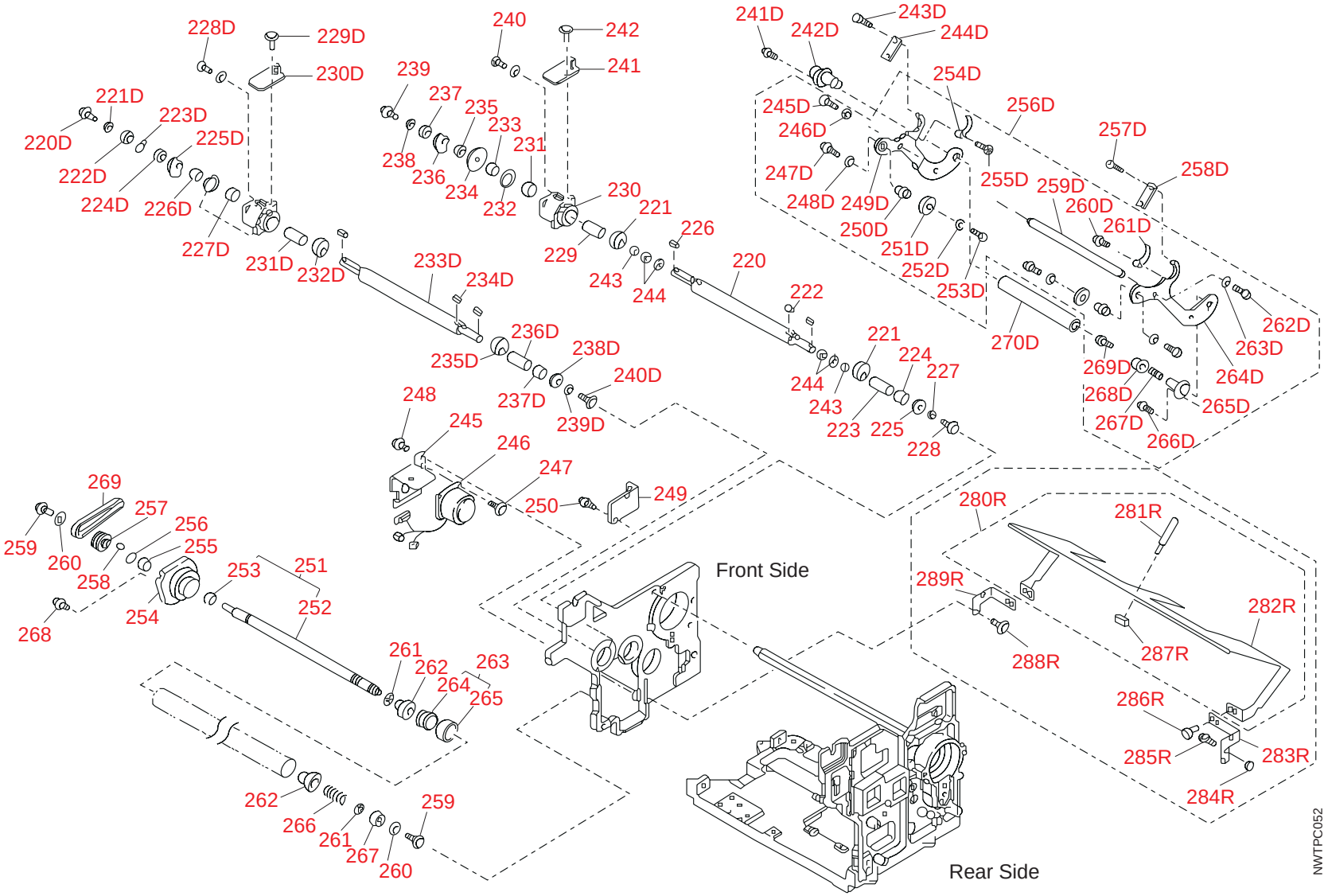
NWTPC052

Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 17 of 20)
–			**(D) For printers with a Backup Idler Roll**
–260D	06F0412	2	Screw, Flat Head M3 X 10 PP
–261D	53F1808	1	Holder, Ball Bearing
–262D	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–263D	06F0417	1	Washer PP
–264D	30H2800	1	BR 2 Arm Rear
–265D	90H2707	1	BIR Shaft Rear
–266D	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–267D	88F3128	1	Spring, Pressure
–268D	24L4435	1	BR Collar
–269D	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–270D	04H0504	1	Roll, Idler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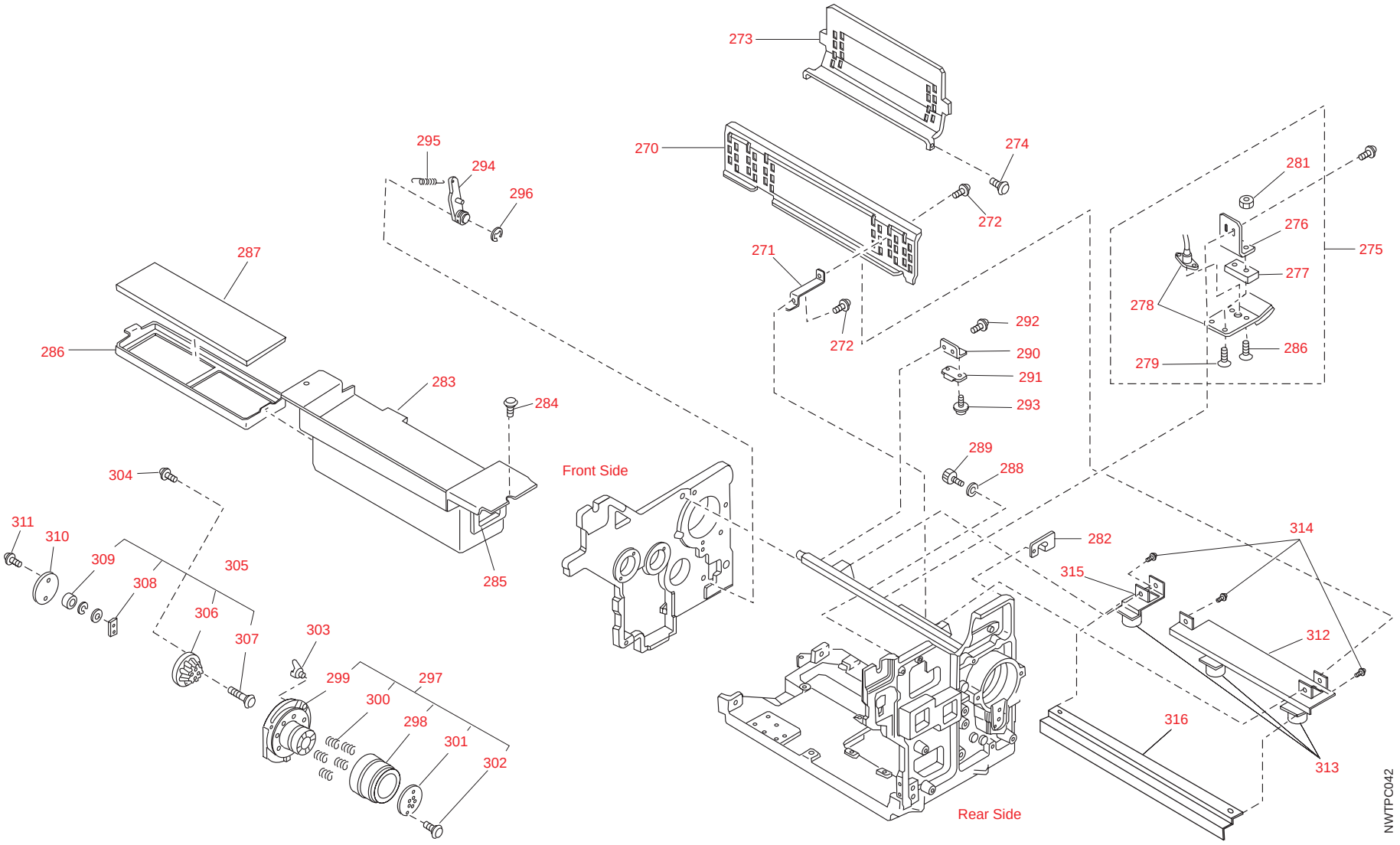
NWTPC052

Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 18 of 20)
–			**(R) For printers with Lift Plate hardware**
–			
–280R	90H1638	1	Lift Plate Asm, Preheat Platen
–281R	24H8385	23	Pin, Preheat Platen
–282R		NP	
–283R		NP	
–284R	06F0407	1	Nut, M4 Lock PP
–285R	06F0411	1	Bolt, Phillips Pan Hd with Star Wsr & Wshr M4 X 25 PP
–286R	06F0420	4	Bolt, Phillips Pan Hd with Star Wsh & Wshr M5 X 12 PP
–287R	06F0407	23	Nut, M4 Lock PP
–288R	30H6888	3	Bolt, Phillips Pan Hd with Star Wsr & Wshr M4 X 10 PP
–289R		NP	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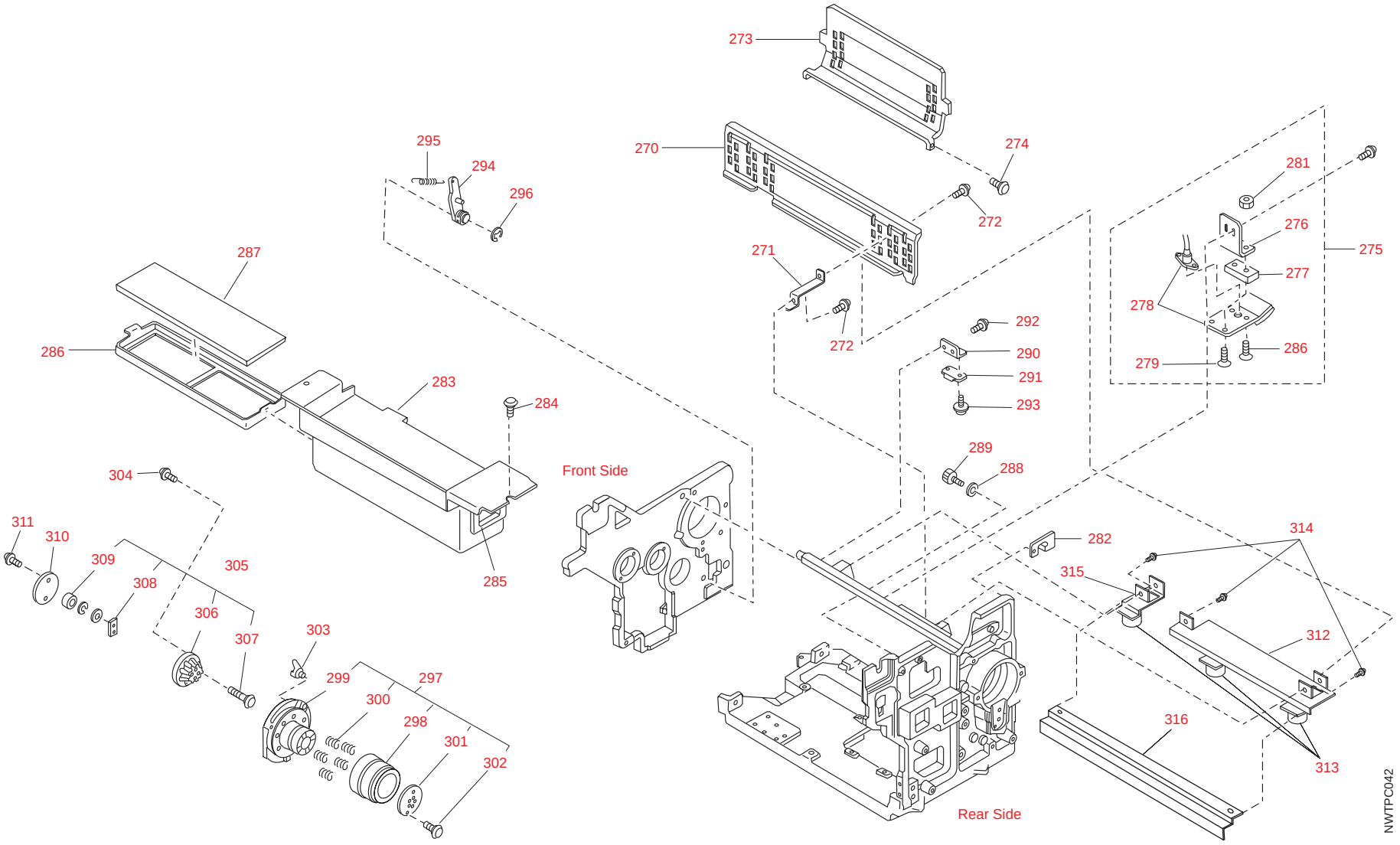
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 19 of 20)
–274	06F0404	2	Screw, Shoulder PP
–275	88F3027	1	Sensor, Hot Roll Over Temperature Asm (S613)
–276	88F3028	1	Bracket, Sensor
–277	88F3029	1	Spacer, Sensor
–278	53F1890	1	Sensor, Hot Roll Over Temperature Thermal (S613) (For printers without thermistor temperature control)
–278	11L6131	1	Sensor, Hot Roll Over Temperature (S613) (For printers with thermistor temperature control only)
–279	88F1626	2	Screw, Phillips Flat Hd M3 X 16 PP
–280	06F0412	2	Screw, Phillips Flat Hd M3 X 6 PP
–281	06F0407	4	Nut, M3 PP
–282	88F2921	1	Bracket
–283	88F3046	1	Bracket, Fuser Oil Filter
–284	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–285	57G6835	1	Seal, Duct
–286		NP	
–287	57G6510	1	Filter, Fuser
–288	06F0417	1	Washer, Shaft Clamp PP
–289	06F0415	1	Screw, Hexagon Socket Hd M5 x 16 PP
–290	88F3026	1	Bracket, Sensor
–291	53F1960	1	Sensor, Hot Roll Temperature Control (L601)
–292	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–293	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–294	88F2994	1	Lever, Scuff Roll Release
–295	88F3013	1	Spring, Extension
–296	06F0409	1	E-Clip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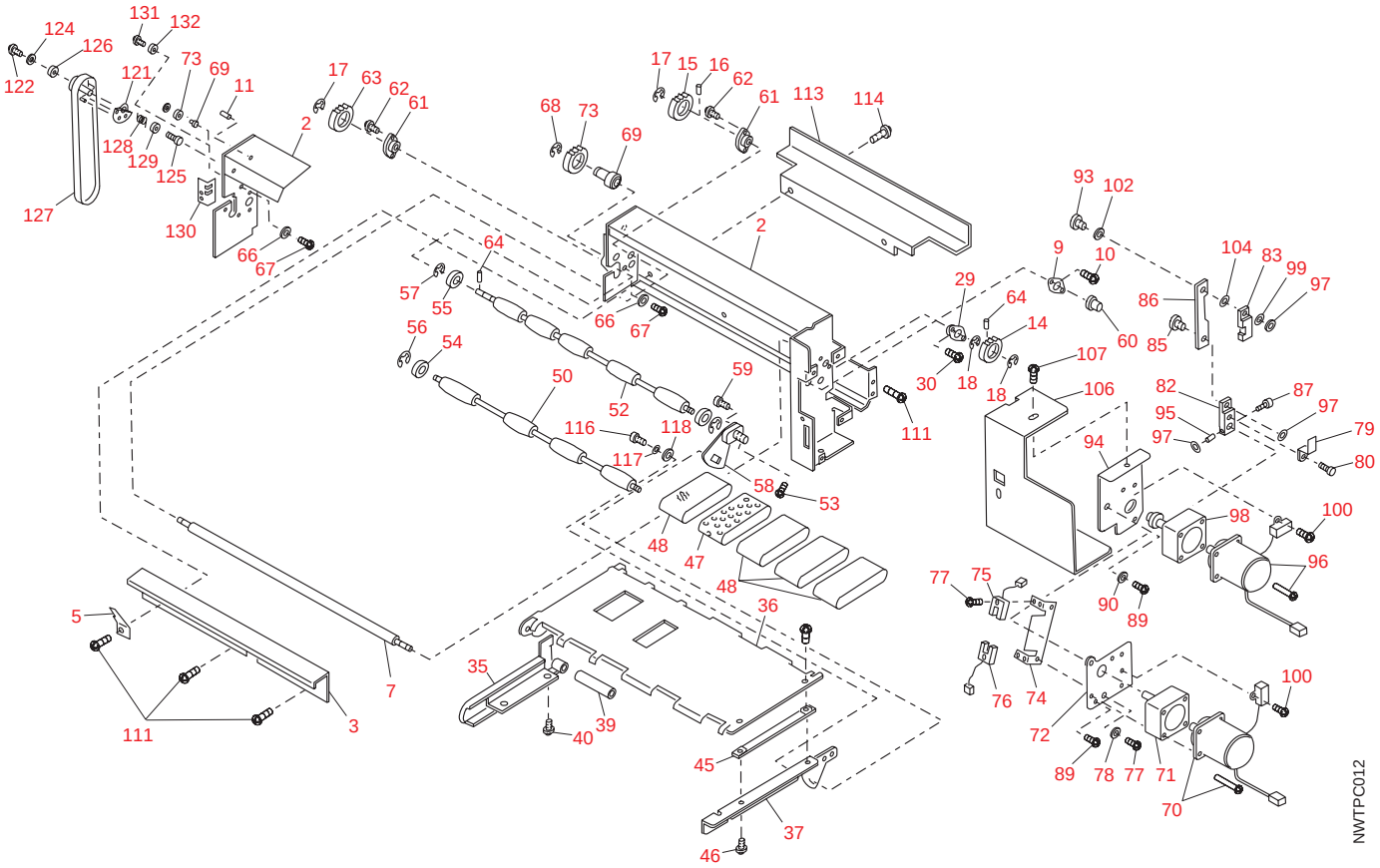
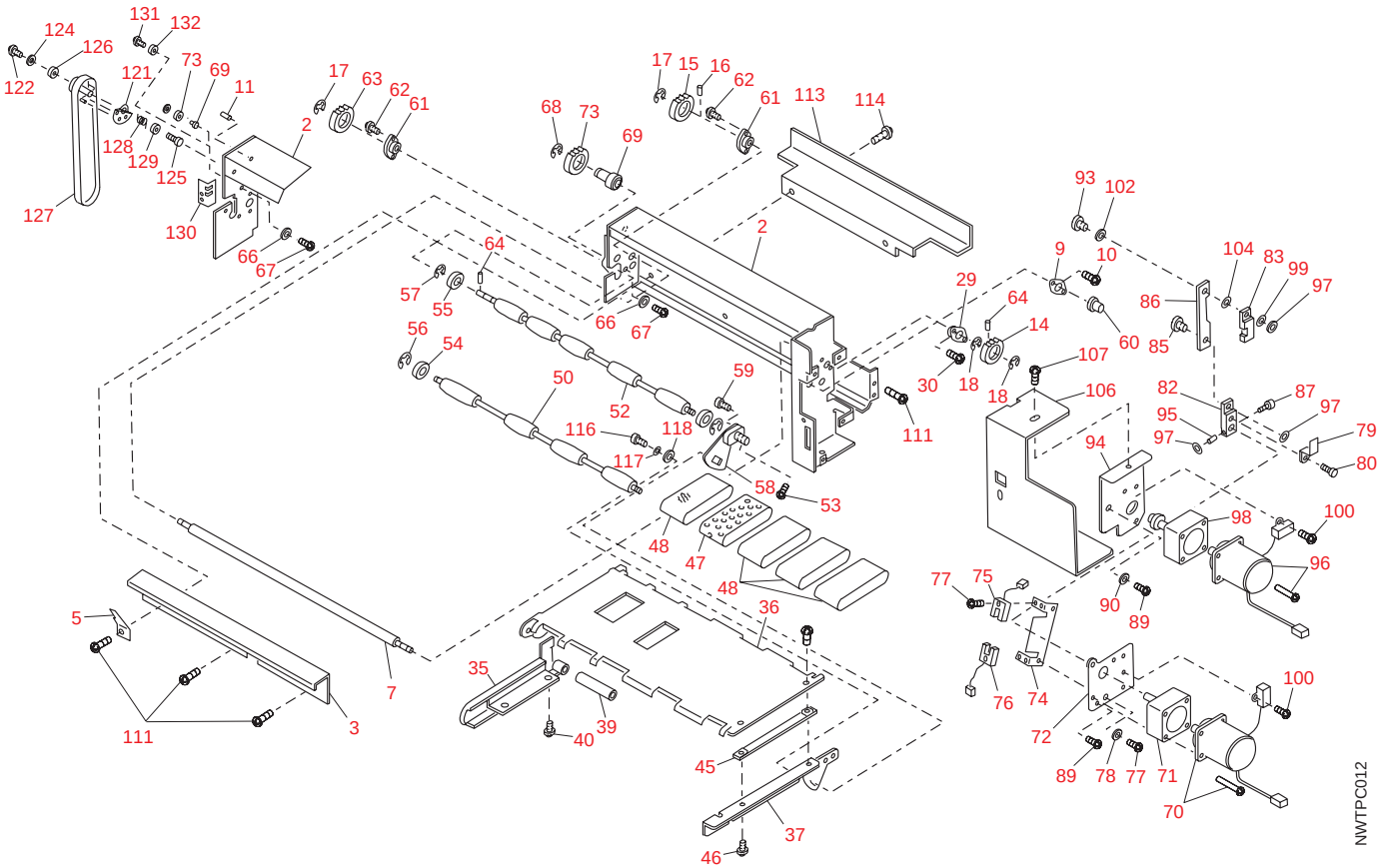
Asm–Index	Part Number	Units	Description
20–		NP	Fuser Hardware (Sheet 20 of 20)
–297	88F2948	1	Hub, Hot Roll, Front Asm (For “L” lamps only)
–297	11L5177	1	Hub, Hot Roll, Front Asm (For “B” lamps only)
–298	06F1069	1	Bearing, Asm
–299	88F3424	1	Shaft, Flange
–300	88F2949	6	Spring
–301	88F2950	1	Plate, Lamp Guide (For “L” lamps only)
–301	11L5178	1	Plate, Lamp Guide (For “B” lamps only)
–302	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–303	06F0404	3	Bolt, Wing M5 X 15 PP
–304	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–305	88F2963	1	Cap, End, Hot Roll Lamp Asm
–306	88F2951	1	Cap, End, Hot Roll Lamp
–307	53F1983	4	Pin, Contact
–308	88F2952	1	Plate, Terminal
–309	88F1627	4	Nut, M4 (brass) PP
–310	88F1646	1	Cover, Lamp Contact
–311	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–312		NP	
–313	24H8225	3	Thermistor (Not present on all printers)
–314	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP (Not present on all printers)
–315		NP	
–316		NP	

Assembly 21: Autoload/Bridge Hardware



Asm–Index	Part Number	Units	Description
21–		NP	Autoload/Bridge Hardware (Sheet 1 of 4)
–2		NP	
–3		NP	
–5	88F3052	1	Plate, Ground
–7		NP	
–9	06F0848	2	Bearing, Plain
–10	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–11	88F3054	1	Cover, Bridge
–14	88F1638	1	Gear
–15	88F1649	1	Gear, Bridge Feed Belt
–16	88F1627	2	Pin, D3 X 14 PP
–17	06F0418	1	E-Clip PP
–18	06F0418	2	E-Clip PP
–29	06F0848	1	Bearing, Plain
–30	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–35		NP	
–36		NP	
–37	88F3066	1	Stay, Bridge
–39		NP	
–40	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–45	88F3070	1	Plate, Nut
–46	06F0413	4	Screw, Bind Hd M4 X 8 Phillips PP
–47	57G6509	1	Belt, Bridge Feed, (Vacuum)
–48	53F1885	4	Belt, Bridge Feed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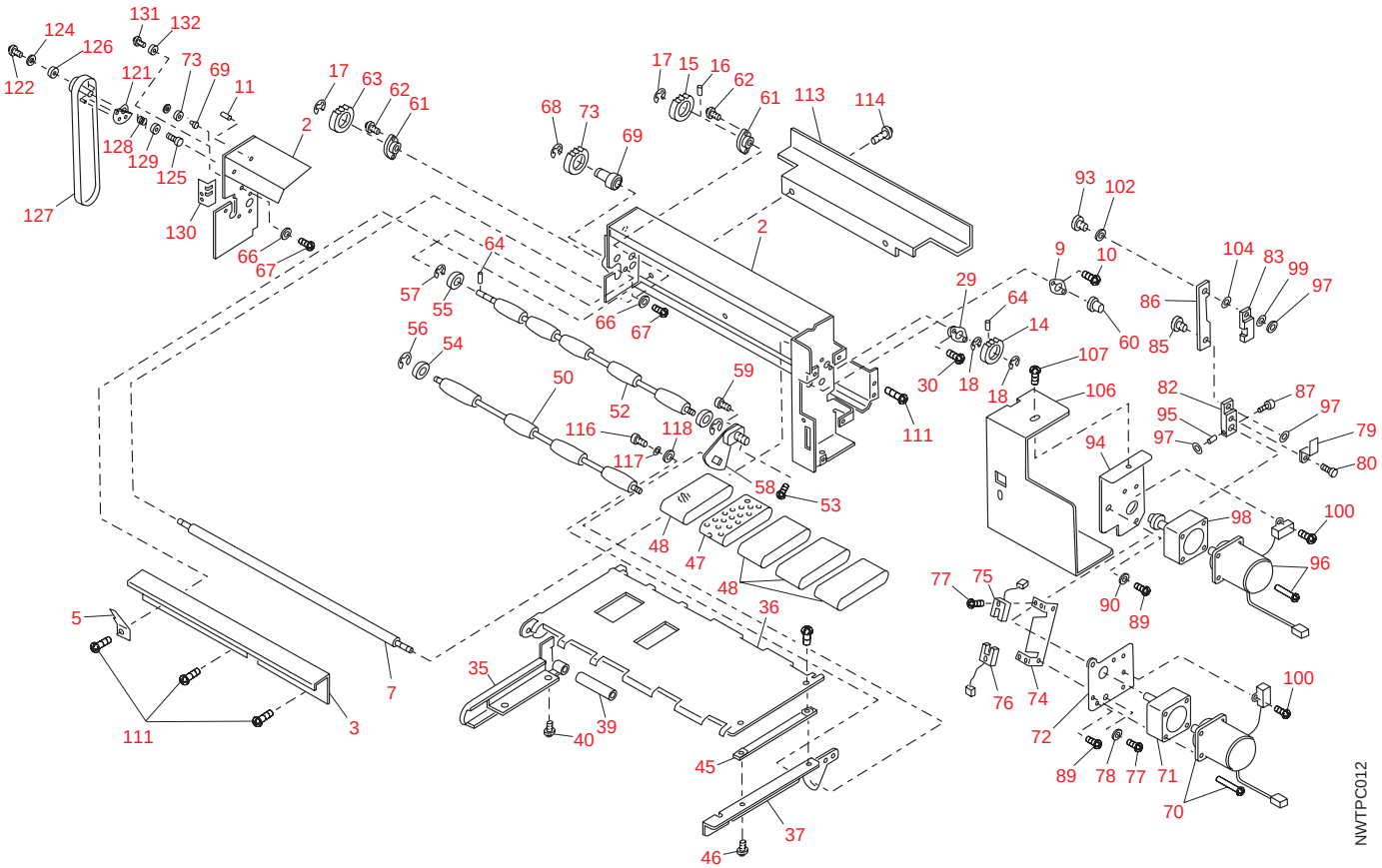
Asm–Index	Part Number	Units	Description
21–		NP	Autoload/Bridge Hardware (Sheet 2 of 4)
–50		NP	
–52		NP	
–53	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–54	53F1882	3	Bearing, Ball
–55	53F1883	1	Bearing, Ball
–56	06F0418	3	E-Clip PP
–57	06F0418	1	E-Clip PP
–58	88F3073	1	Shaft, Pivot Asm
–59	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–60	88F3075	1	Collar, Pivot Shaft
–61	06F0848	2	Bearing, Plain
–62	06F0420	5	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–63	88F1649	1	Gear, Bridge Feed Belt
–64	88F1627	1	Pin, D3 X 14 PP
–66	06F0417	1	Washer, VF PP
–67	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–68	06F0418	1	E-Clip PP
–69	88F3077	1	Shaft, Idler Gear (Europe 50 Hz)
–70	53F1877	1	Motor, Bridge Lift (M606) and Capacitor (C606) Asm
–71	53F1879	1	Gearbox, Bridge Lift Motor
–72	88F3078	1	Holder, Motor
–73	88F3079	1	Gear, Idler (Europe 50 Hz)
–74	88F3080	1	Base, Sensor
–75	53F1793	1	Switch, Bridge Up (S608)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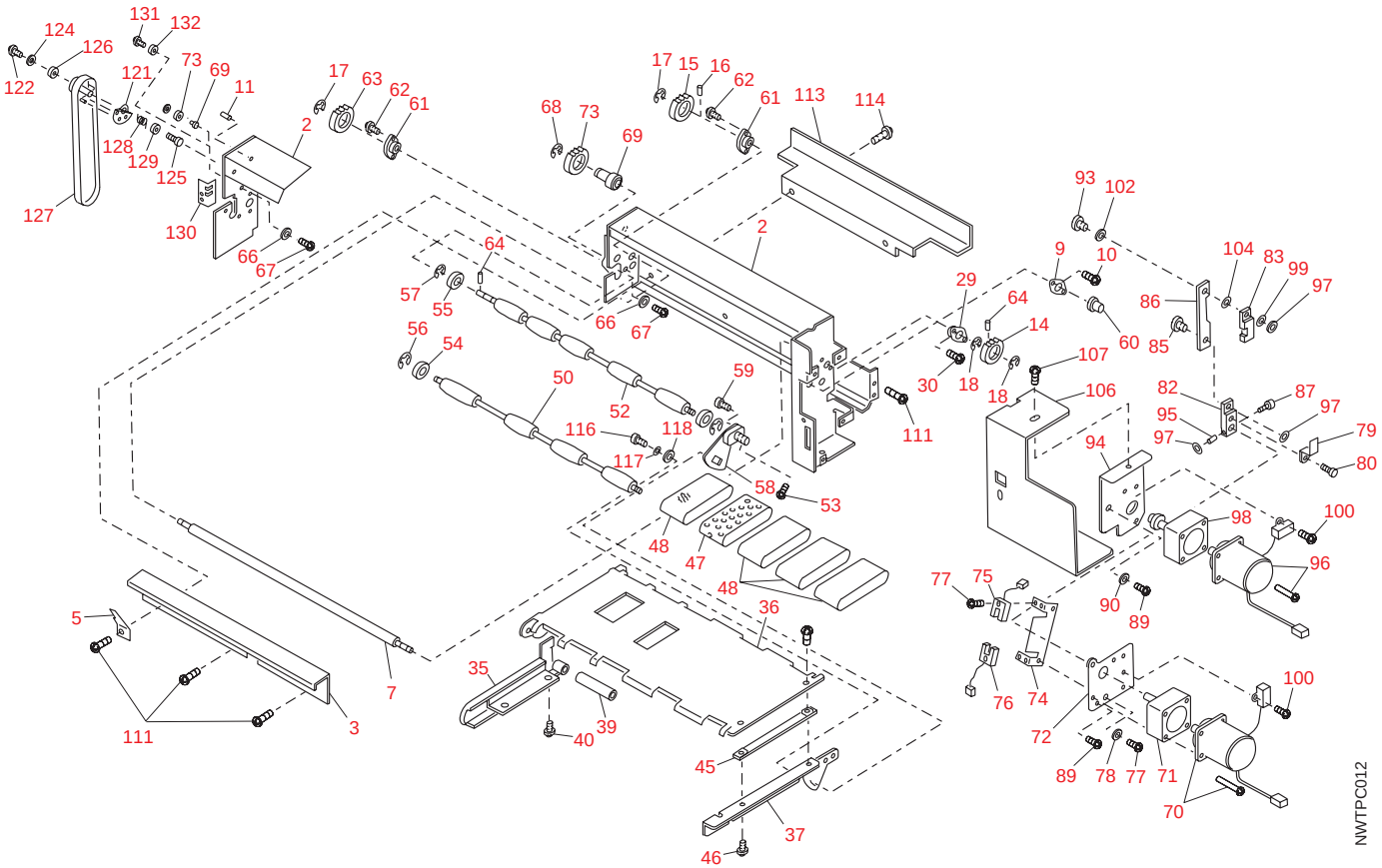
Asm–Index	Part Number	Units	Description
21–		NP	Autoload/Bridge Hardware (Sheet 3 of 4)
–76	53F1875	1	Switch, Bridge Down (S609)
–77	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–78	06F1158	2	Washer, FP
–79	88F3081	1	Plate, Sensor
–80	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–82	88F3083	1	Link, (A1)
–83	88F3084	1	Link, (C2)
–85	88F3086	1	Pin, (A)
–86	88F3087	1	Link, (B)
–87	88F1626	1	Bolt, Hexagon Socket Hd M5 X 16 PP
–89	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–90	06F0417	5	Washer PP
–93	88F3090	1	Pin
–94	88F3091	1	Holder, Motor
–95	88F1626	1	Screw, Set Hexagon Socket Hd M4 X 8 PP
–96	53F1878	1	Motor, Bridge Feed (M605) and Capacitor (C605) Asm
–97	06F0407	3	Nut, M4 Lock PP
–98	53F1880	1	Gearbox, Bridge Feed Motor
–99	06F0405	1	Washer, Spring D4 PP
–102	88F3358	2	Washer, Link
–104	88F3093	1	Spacer, Link
–106		NP	
–107	06F0413	3	Screw, Phillips Bind Hd M4 X 8 PP
–111	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP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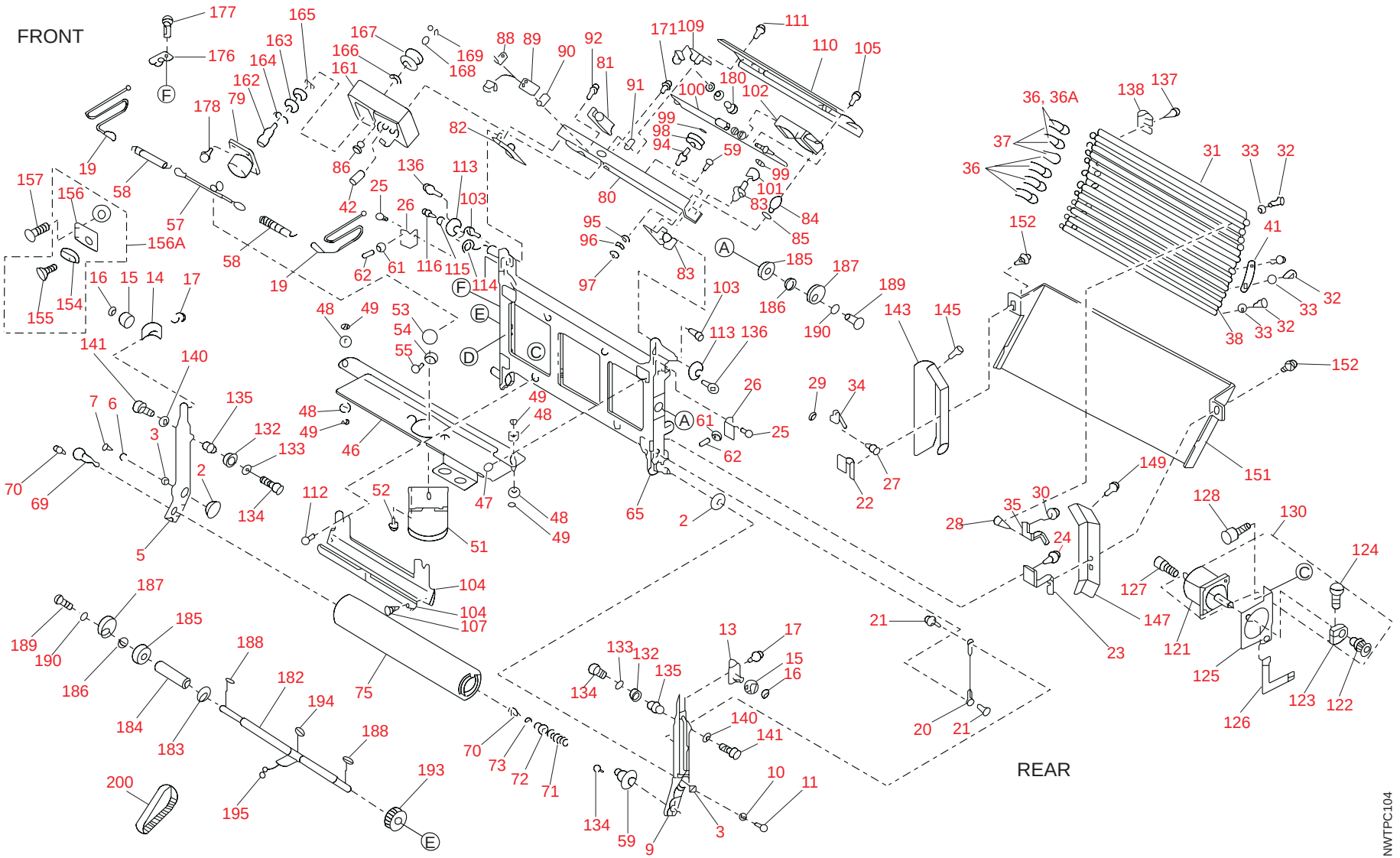
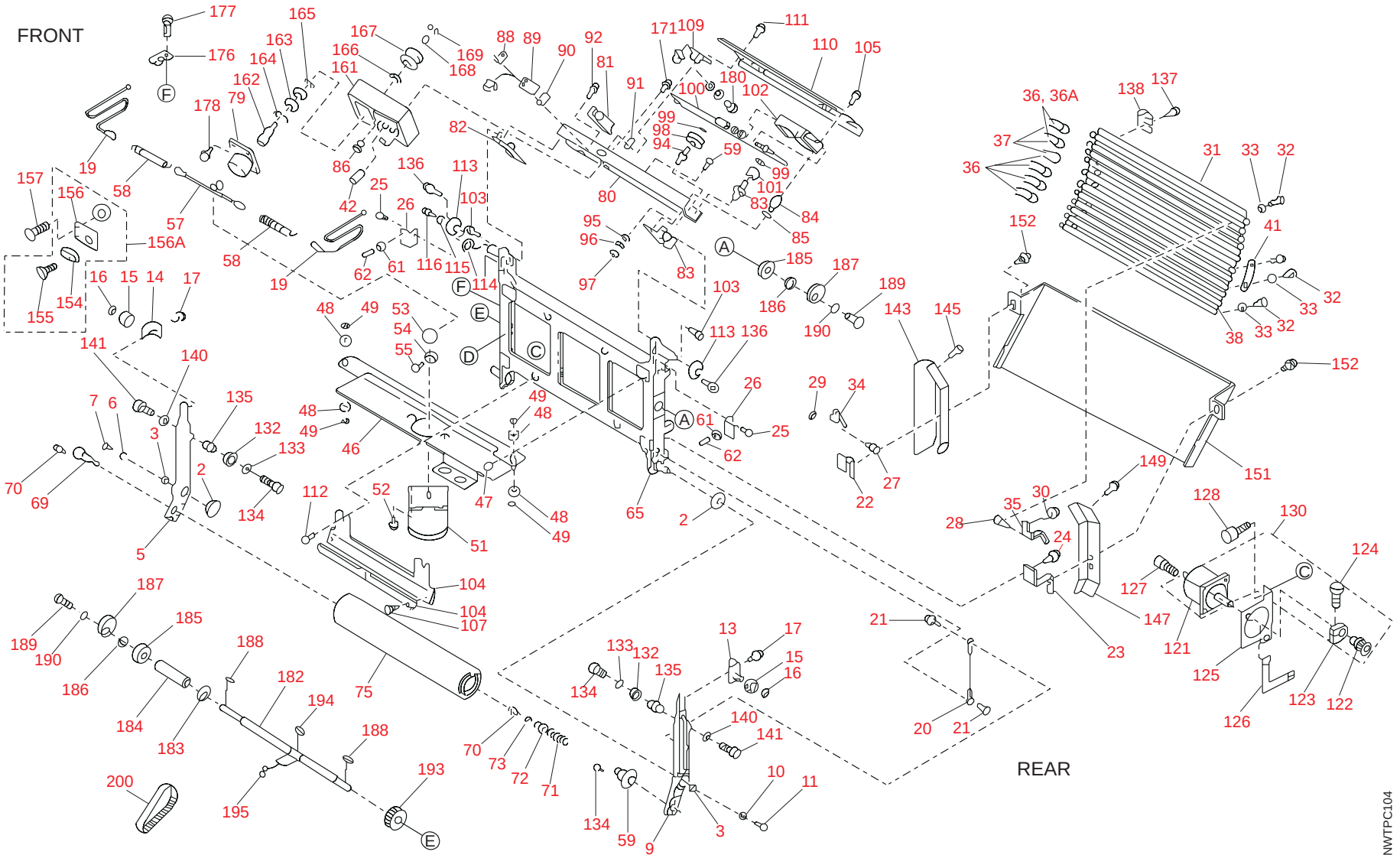
Asm–Index	Part Number	Units	Description
21–		NP	Autoload/Bridge Hardware (Sheet 4 of 4)
–113		NP	
–114	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–116	88F1626	1	Bolt, Hexagon Socket Hd M6 X 16 PP
–117	06F0405	1	Washer, Spring D6 PP
–118	06F0406	1	Washer, FP PP
–121	88F3096	1	Plate, Latch Asm (Europe 50 Hz)
–122	06F0411	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–124	06F0417	1	Washer, VF
–125	88F3097	1	Shaft, Hinge (Europe 50 Hz)
–126	88F3098	1	Cover, Arm Seal (Europe 50 Hz)
–127	88F3099	1	Cover, Arm (Europe 50 Hz)
–128	88F3100	1	Spring, Arm (Europe 50 Hz)
–129	88F3101	1	Ring (Europe 50 Hz)
–130	88F3102	1	Support, Bridge Frame (Europe 50 Hz)
–131	06F0402	1	Screw, Phillips Pan Hd M5 X 25 PP
–132	06F0407	1	Nut, M5 PP

Assembly 22: Preheat Platen, Back-up Roll Hardware



Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 1 of 8)
–2	06F0134	2	Bearing, Ball
–3	06F0775	2	Spacer
–5	88F3104	1	Arm, Steering Front (Printers without Backup Roll Lift hardware)
–		NP	Arm, Steering Front (Printers with Backup Roll Lift hardware)
–6	06F0417	1	Washer PP
–7	88F1626	1	Screw, Phillips Flat Hd M5 X 10 PP
–9	88F3105	1	Arm, Steering Rear (Printers without Backup Roll Lift hardware)
–9		NP	Arm, Steering Rear (Printers with Backup Roll Lift hardware)
–10	06F0417	1	Washer PP
–11	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M5 X 12 PP
–13	88F3106	1	Bracket
–14	88F3107	1	Bracket
–15	06F0213	2	Pulley, Plastic
–16	06F0418	2	E-Clip PP
–17	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–19	88F3108	2	Cable, Steering
–19	90H1117	2	Cable, Steering (Printers with Backup Roll Lift hardware)
–20	88F3109	2	Cable, Ground Asm
–21	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–22		NP	
–23		NP	
–24	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–25	06F0415	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–26	88F3112	2	Bracket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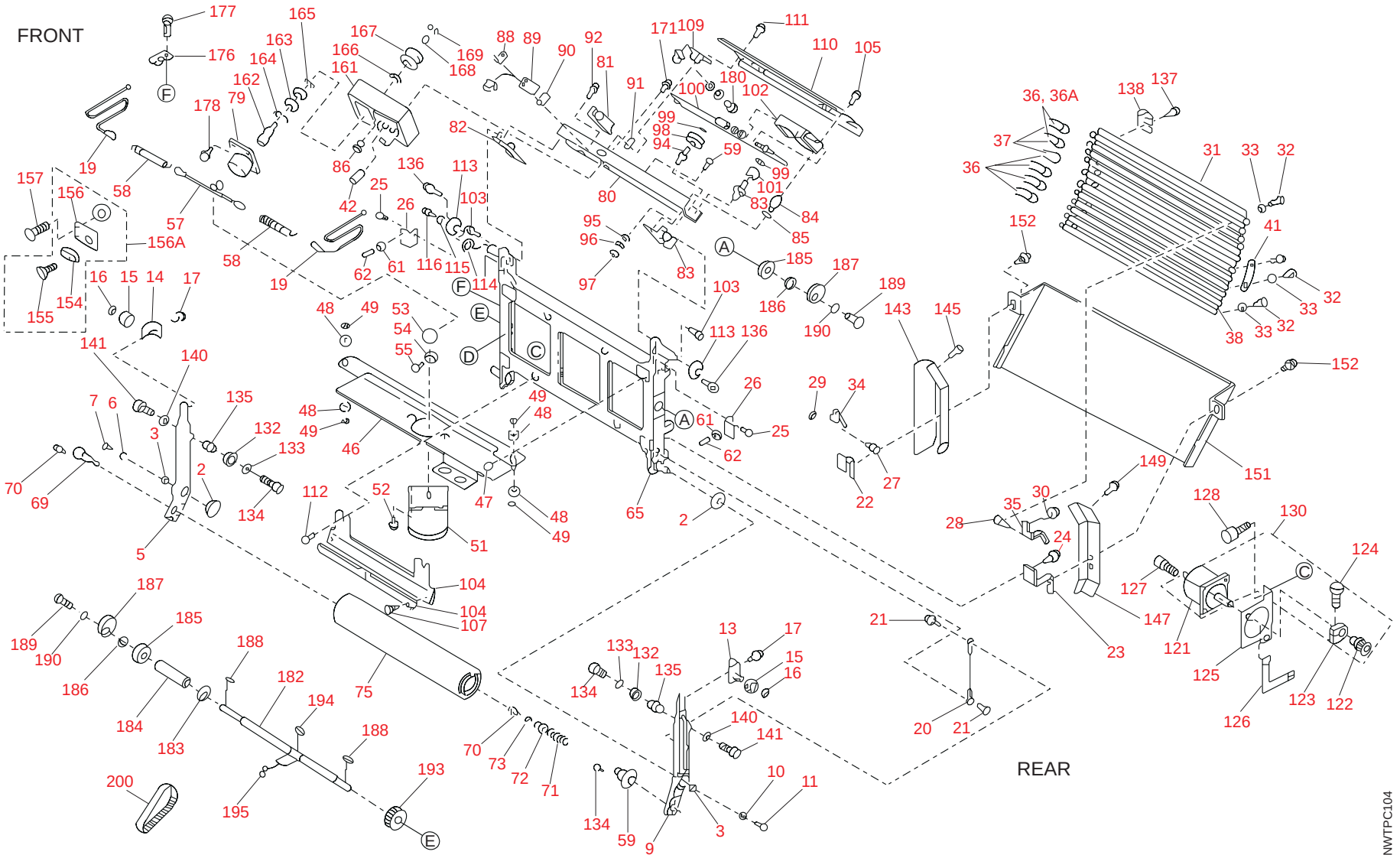
Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 2 of 8)
–27		NP	
–28		NP	
–29	06F0418	3	E-Clip PP
–30	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–31	57G6545	1	Platen, Upper Preheat (PH601) (All except 480/600 DPI Printer 2, IS1, ID1/ID2, and 324 PPM)
–31	24H8378	1	Platen, Upper Preheat (PH601) (480/600 DPI Printer 2, IS1, ID1/ID2, and 324 PPM only)
–32	06F0415	6	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–33	06F0417	6	Washer, VF PP
–34		NP	
–35		NP	
–36	88F3118	6	Tube, Silicone B (All except 480/600 DPI Printer 2, IS1, ID1/ID2, and 324 PPM)
–36A	88F3118	2	Tube, Silicone B (IS1, ID1/ID2, and 324 PPM)
–37	88F3118	3	Tube, Silicone B (480/600 DPI Printer 2 only)
–38	57G6546	1	Platen, Lower Preheat (All except 480/600 DPI Printer 2, IS1, ID1/ID2, and 324 PPM)
–38	24H8379	1	Platen, Lower Preheat (480/600 DPI Printer 2 only)
–38	90H1032	1	Platen, Lower Preheat (IS1, ID1/ID2, and 324 PPM only)
–39	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP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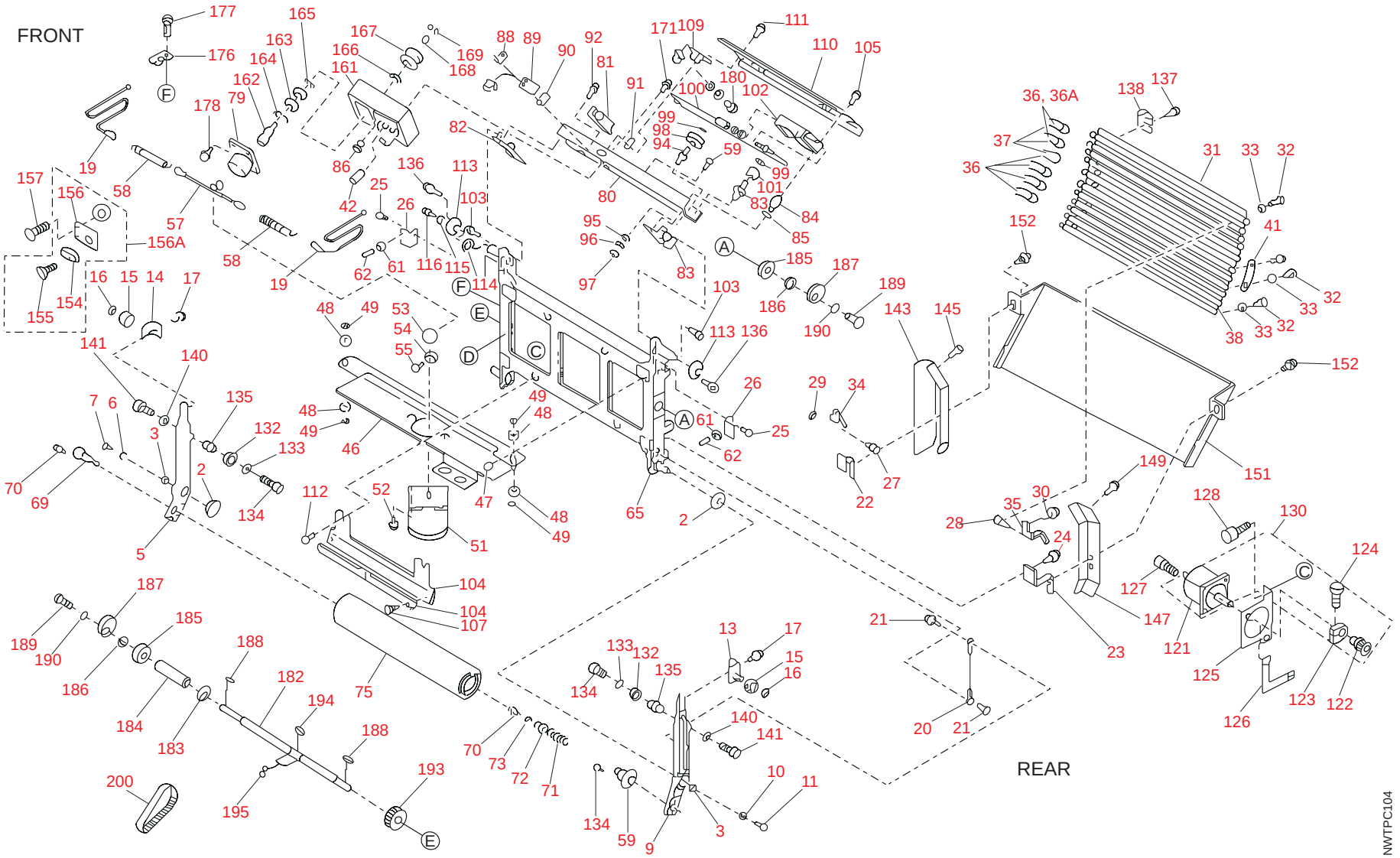
Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 3 of 8)
–41	88F3119	2	Strap
–42	24H8380	AR	Plug, Preheat Platen Vaccum Manifold
–46		NP	
–47	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–48	06F0213	4	Pulley, Plastic
–49	88F3122	4	E-Clip
–51	57G6511	1	Motor, Steering Asm (M601)
–52	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–53	88F3123	1	Pulley, Steering Motor
–54	06F0292	1	Ring, Clamp
–55	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 16 PP
–57	57G6843	1	Cable, Steering
–58	88F3125	2	Spring, Steering Cable
–59	88F3126	1	Shaft, Backup Roll (Rear)
–61	06F0407	2	Nut, M5 PP
–62	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 16 PP
–65		NP	
–69	88F3127	1	Shaft, Backup Roll (Front)
–70	06F0401	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–71	88F3128	1	Spring
–72	88F3129	1	Collar
–73	06F0417	1	Washer PP
–75	57G6460	1	Roll, Backup (All Except 480/600 DPI)
–75	24H8013	1	Roll, Backup (480/600 DPI Only)
–78	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–79	53F1964	1	Motor, Shutter Control Vacuum Asm (M602)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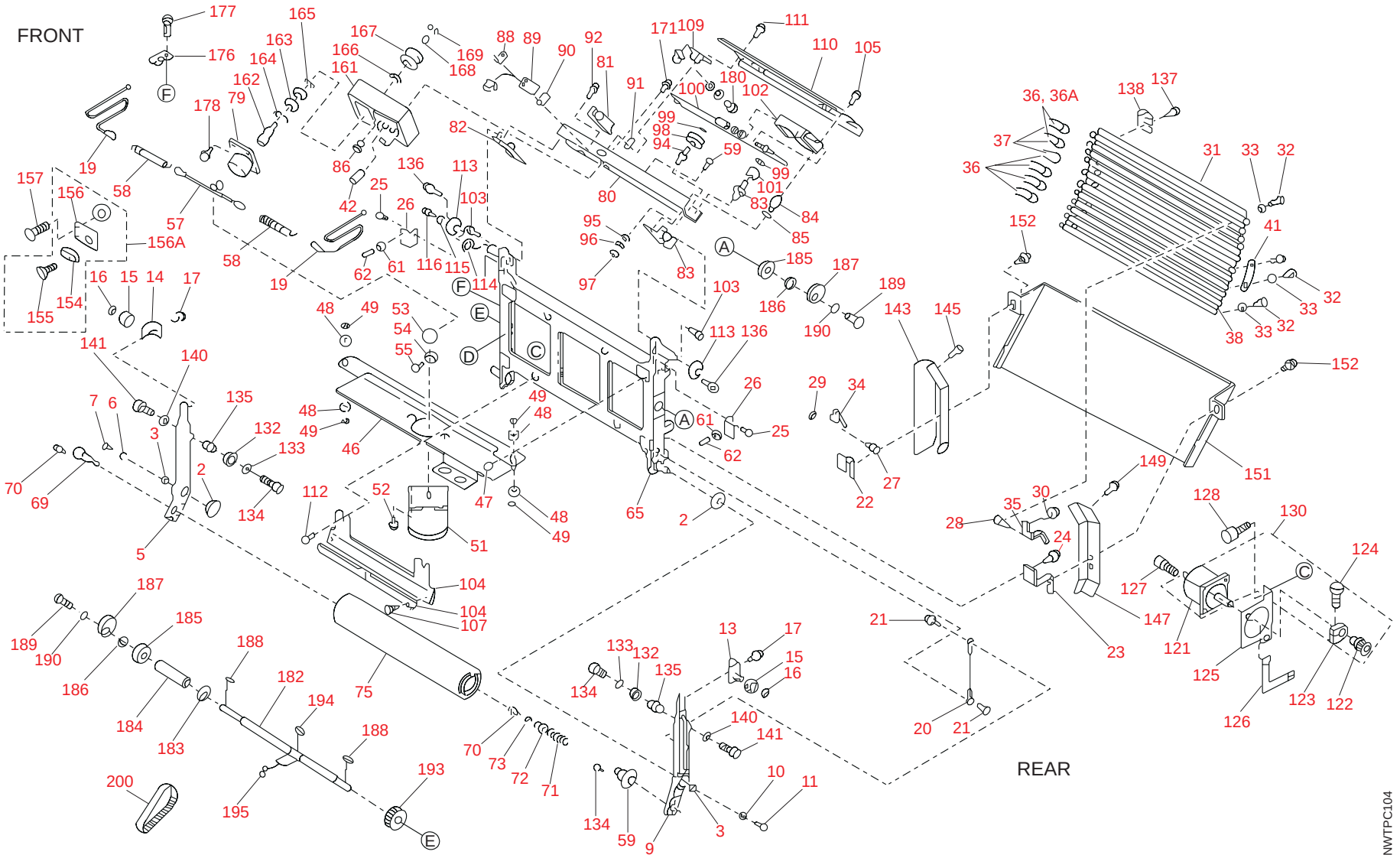
Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 4 of 8)
–80		NP	
–81	88F3131	1	Seal, Vacuum Rubber
–82	88F3132	1	Bracket
–83	88F3133	1	Bracket
–84	06F0796	4	Stud
–85	06F0417	4	Washer, Spring PP
–86	06F0492	1	Cap, Plug
–88	06F0798	1	Plate, Nut
–89	53F1958	1	Sensor, Vacuum Shutter Home (S604)
–90	06F0797	1	Spacer
–91	88F3134	1	Plate, Nut
–92	06F0403	2	Bolt, Hexagon Socket Hd M3 X 12 PP
–93	88F3135	1	Shaft, Bearing
–94	88F3136	1	Shaft, Pulley
–95	06F0405	2	Washer, Bolt M6
–96	06F0405	2	Washer, Spring M6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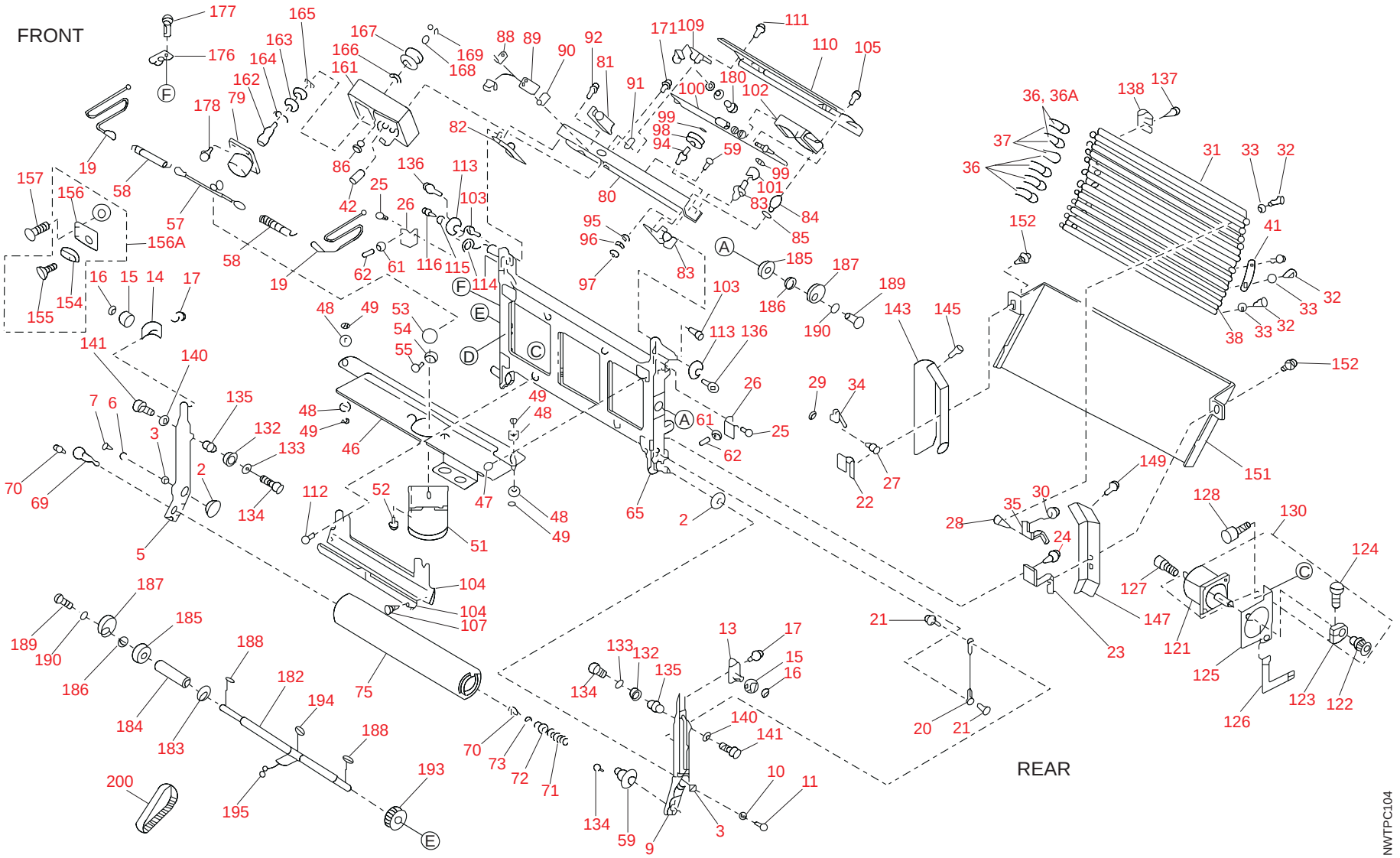
Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 5 of 8)
–97	06F0407	2	Nut, M6 PP
–98	88F3137	1	Pulley, Rear
–99	06F0418	2	E-Clip PP
–100	88F3138	1	Cable, Shutter (For printers with 9-inch minimum paper width)
–100	04H1058	1	Cable, Shutter (For printers with 8-inch minimum paper width)
–101	53F1978	1	Bearing
–102	88F3139	1	Shutter, Vacuum
–103	06F0415	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 16 PP
–104		NP	
–105	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–106	57G6513	2	Brush, Static Discharge
–107	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–109	53F1959	1	Sensor, Skew (D603)
–110	30H3177	1	Plate, Suction
–111	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–112	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–113	88F3142	2	Brushing, Pivot, Preheat Platen
–114	88F3359	1	Washer
–115	06F0417	1	Washer, VF PP
–116	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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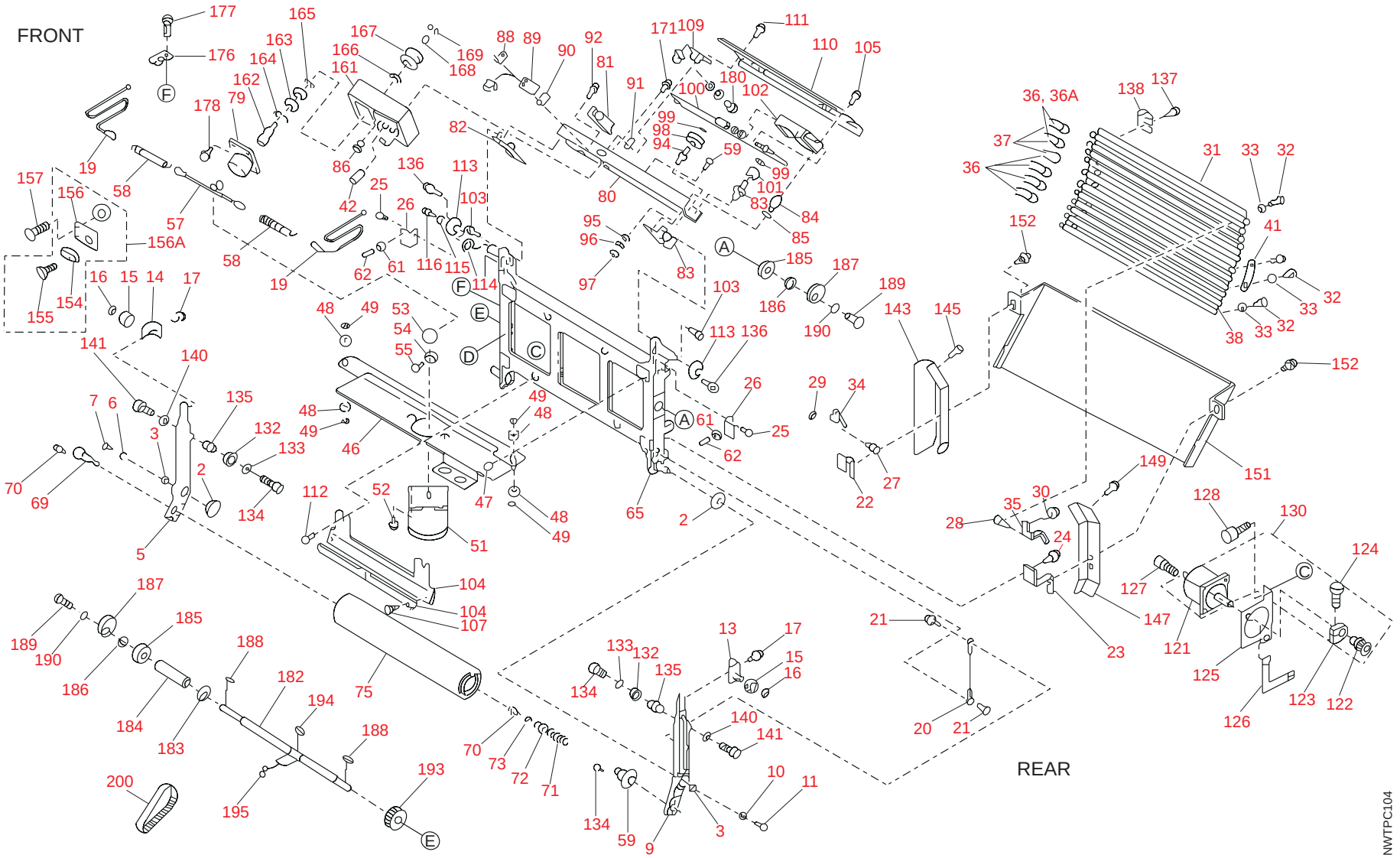
Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 6 of 8)
–121	90H2402	1	Motor, Backup Roll Lift (M610) (Printers with Backup Roll Lift hardware)
–122	90H2403	1	Pulley, Backup Roll Lift Motor (Printers with Backup Roll Lift hardware)
–123	06F0292	1	Ring, Tight (Printers with Backup Roll Lift hardware)
–124	06F0415	1	Screw, Hexagon Socket Hd with Star Wshr M4 X 16 PP (Printers with Backup Roll Lift hardware)
–125		NP	
–126	90H1108	1	Plate, Nut (Printers with Backup Roll Lift hardware)
–127	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr and Wshr M5 X 20 PP (Printers with Backup Roll Lift hardware)
–128	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr and Wshr M5 X 16 PP (Printers with Backup Roll Lift hardware)
–130	90H1106	1	Motor Asm, Backup Roll Lift Motor (Printers with Backup Roll Lift hardware)
–132	90H2406	2	Bearing, Ball (Printers with Backup Roll Lift hardware)
–133	06F0417	2	Washer PP (Printers with Backup Roll Lift hardware)
–134	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr and Wshr M4 X 12 PP (Printers with Backup Roll Lift hardware)
–135		NP	(Printers with Backup Roll Lift hardware)
–136	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 25 PP
–136	06F0401	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 25 PP (Printers with Backup Roll Lift hardware)
–137	88F3148	1	Stop, Vacuum Plate
–138	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–140	06F0417	2	Washer PP (Printers with Backup Roll Lift hardware)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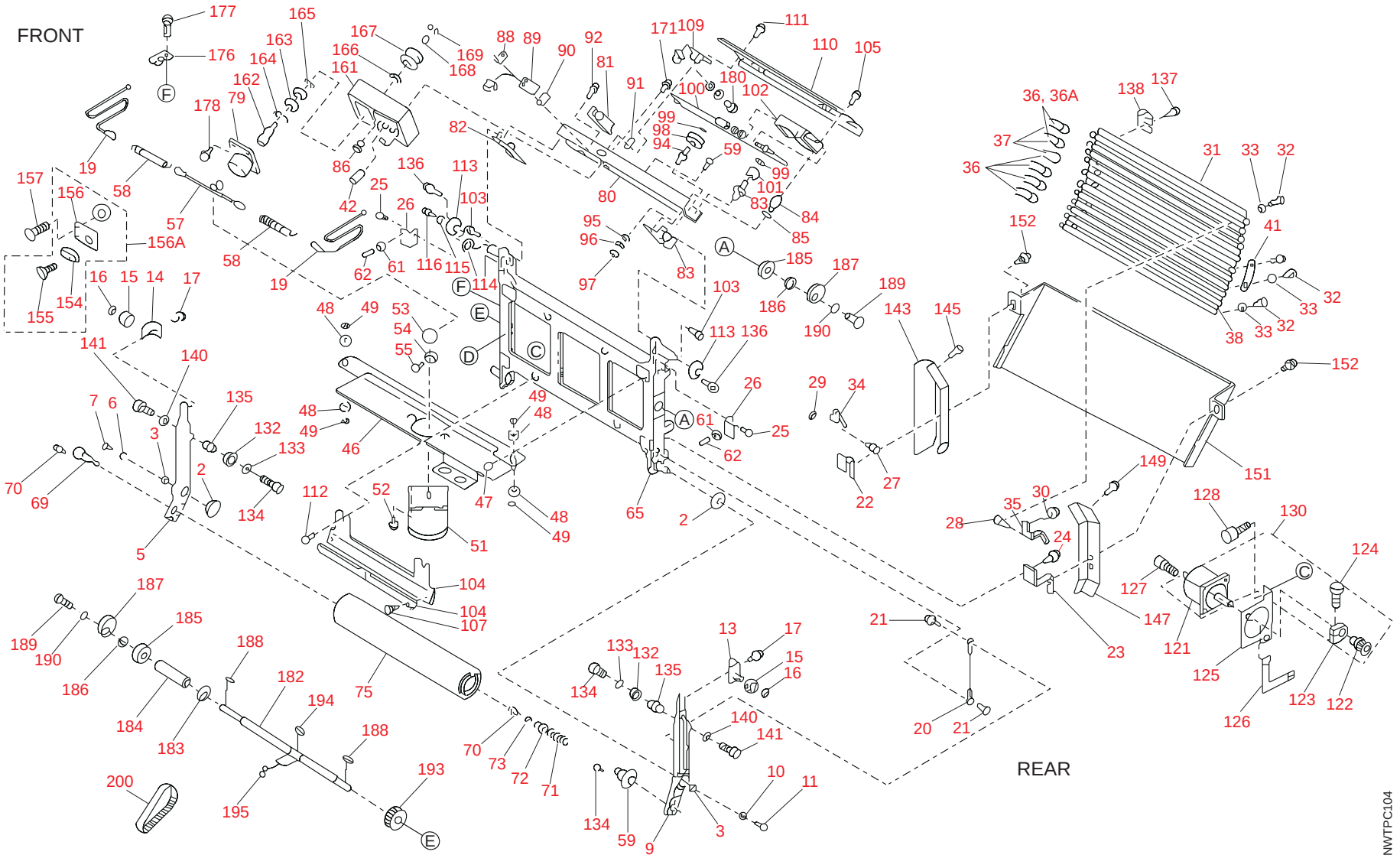
Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 7 of 8)
–141	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M4 X 12 PP (Printers with Backup Roll Lift hardware)
–143	88F3149	1	Cover, Pre-heater, Front
–145	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–147	88F3151	1	Cover, Pre-heater, Rear
–149	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–151		NP	
–152	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–154	90H2407	1	Sensor, Backup Roll Lift Position (S624) (Printers with Backup Roll Lift hardware)
–155		1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP (Printers with Backup Roll Lift hardware)
–156		1	Holder, Backup Roll Lift Position Sensor (Printers with Backup Roll Lift hardware)
–156A	90H1107	1	Sensor, Backup Roll Lift Position Sensor Asm (S624) (Printers with Backup Roll Lift hardware)
–157	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–159	06F0412	2	Screw, Phillips Flat Hd M4 X 10 PP
–161		NP	
–162	88F3155	1	Gear
–163	06F0158	2	Bearing, Ball
–164	06F0409	1	Ring, Retaining PP
–165	88F1627	1	Ring, Retaining PP
–167	88F3156	1	Pulley, Vacuum Shutter Drive
–168	88F1627	1	Key, 3 X 3 X 8 PP
–169	88F1627	1	Ring, Retaining PP
–171	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–174	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP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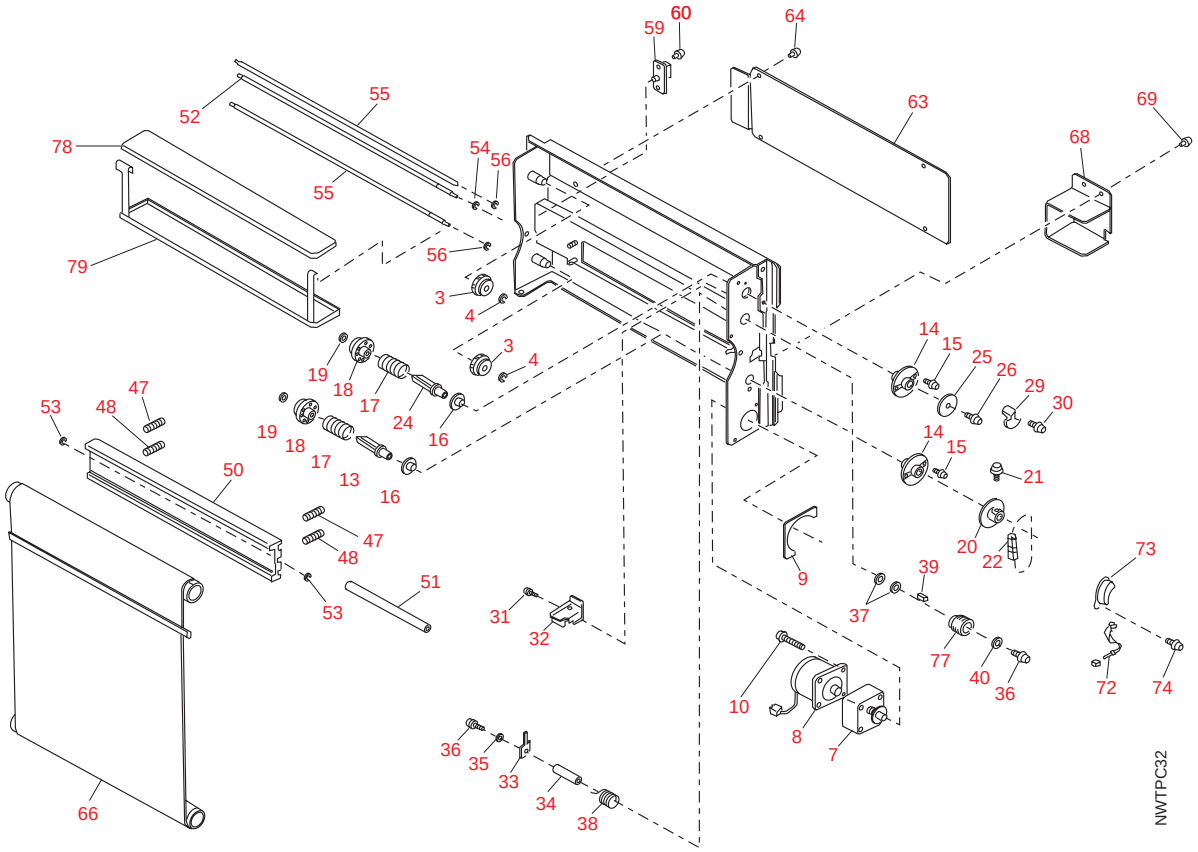
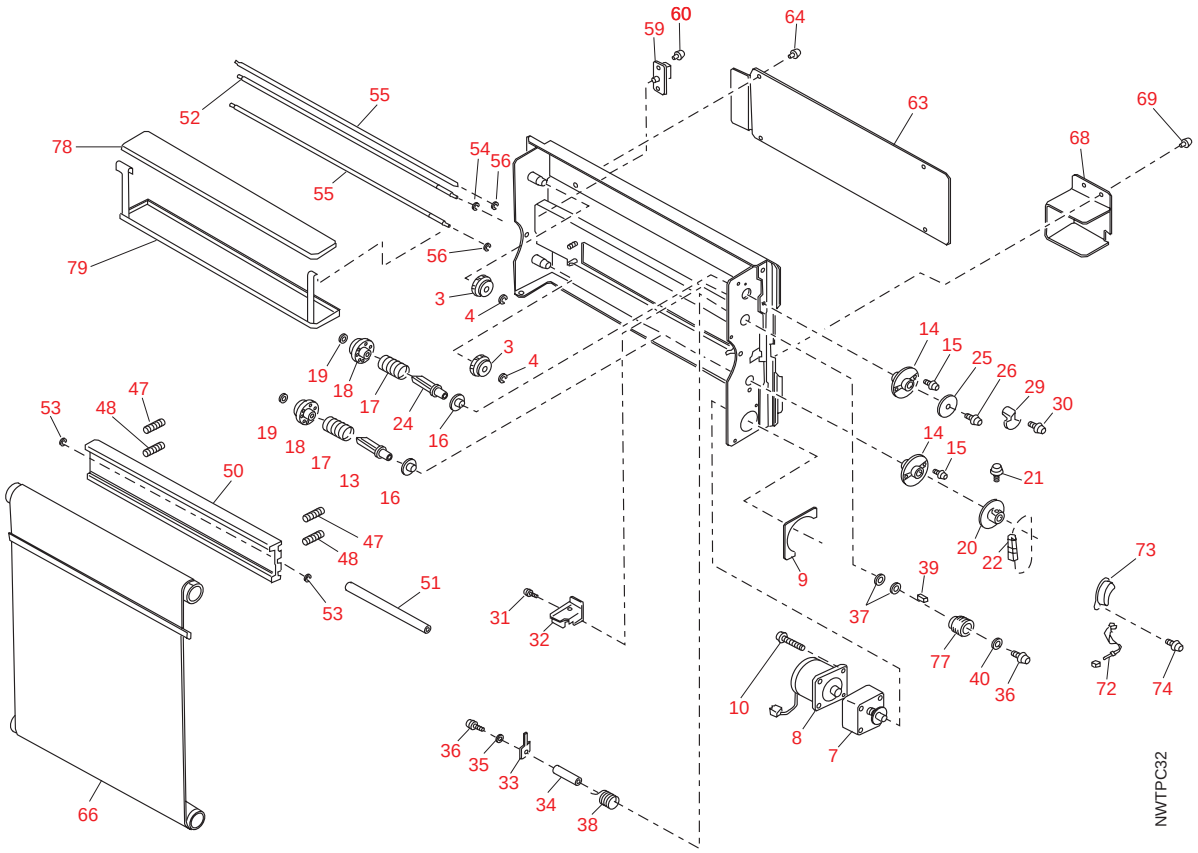
Asm–Index	Part Number	Units	Description
22–		NP	Preheat Platen, Backup Roll Hardware (Sheet 8 of 8)
–175		NP	
–177	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP (Printers with Backup Roll Lift hardware)
–180	06F0403	2	Bolt, Hexagon Socket Hd M3 X 12 PP
–182		NP	
–183	90H2411	1	Encoder, Disk (Printers with Backup Roll Lift hardware)
–184		NP	
–185	90H2406	2	Bearing, Ball (Printers with Backup Roll Lift hardware)
–186		NP	
–187	90H2415	2	Cam, Lift (Printers with Backup Roll Lift hardware)
–188	90H2416	2	Key, 4 X 4 X 8 (Printers with Backup Roll Lift hardware)
–189	06F0411	2	Screw, Phillips Pan Hd M4 X 10 PP (Printers with Backup Roll Lift hardware)
–190	06F0417	2	Washer PP (Printers with Backup Roll Lift hardware)
–193	90H2418	1	Pulley, Backup Roll Lift (Printers with Backup Roll Lift hardware)
–194	88F1627	1	Key, 4 X 4 X 15 PP (Printers with Backup Roll Lift hardware)
–195	06F0418	2	Ring, Retaining (Printers with Backup Roll Lift hardware)
–200	90H2421	1	Belt, Backup Roll Lift (Printers with Backup Roll Lift hardware)

Assembly 23: Oiler Hardware



Asm–Index	Part Number	Units	Description
23–		NP	Oiler Hardware (Sheet 1 of 4)
–			**For all except 480/600 DPI**
–1		NP	
–3	06F0809	2	Cap, Roller
–4	06F0418	2	E-Clip PP
–7	06F0164	1	Gearbox, Oiler Belt Motor
–8	06F0163	1	Motor, Oiler Belt (M706)
–9	06F0808	1	Plate, Motor Nut
–10	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 40 PP
–13		NP	
–14	06F0806	2	Flange
–15	06F0412	4	Screw, Phillips Flat Hd M4 X 12 PP
–16	06F0417	2	Washer PP
–17	06F0361	2	Spring, Belt Drive
–18	06F0359	2	Hub, Belt Drive
–19	06F0418	2	E-Clip PP
–20	06F0358	1	Sprocket, Belt Drive
–21	06F0411	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–22	06F0357	1	Chain, Oiler Belt Drive
–24	06F0805	1	Shaft, Top
–25	06F0804	1	Washer, Brake
–26	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–29	06F0803	1	Plate, Brake Pressure
–30	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–31	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–32		NP	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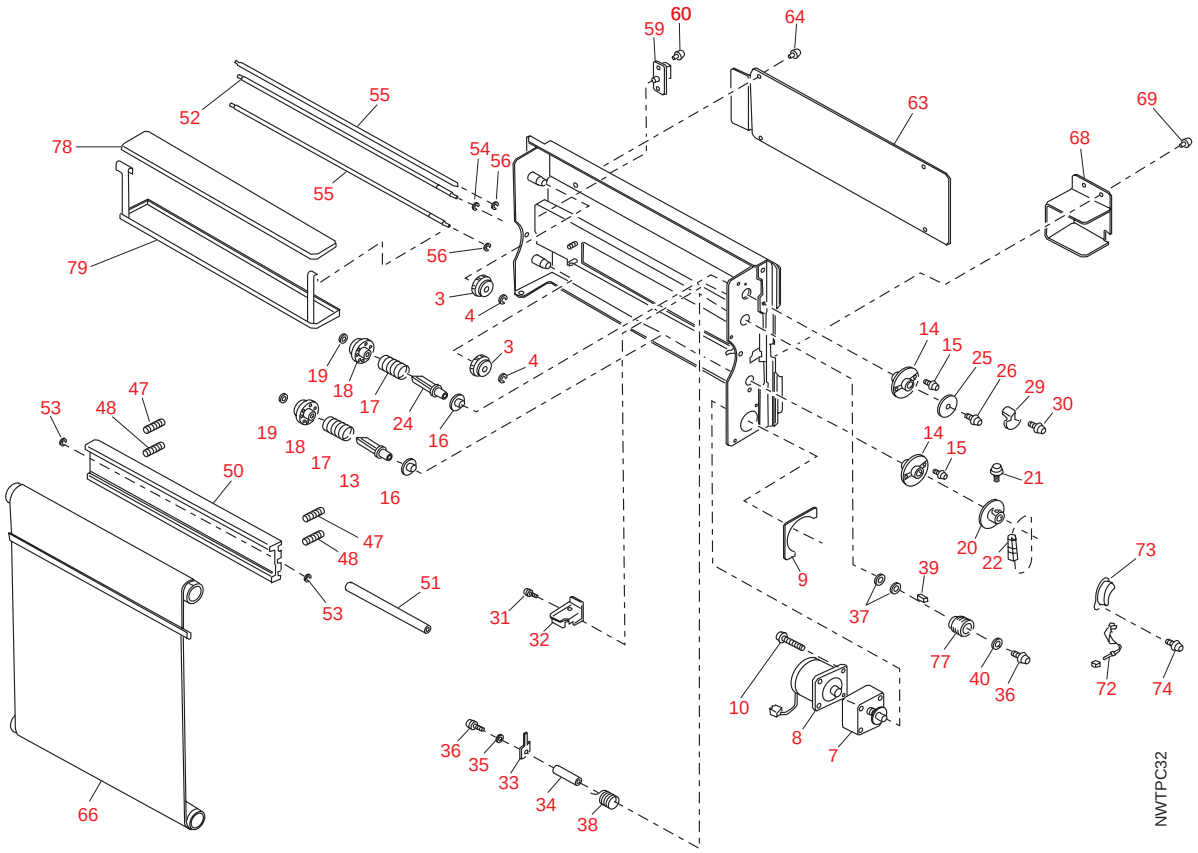
Asm–Index	Part Number	Units	Description
23–		NP	Oiler Hardware (Sheet 2 of 4)
–			**For all except 480/600 DPI**
–33	88F3161	1	Actuator
–34	88F3162	1	Shaft, Actuator
–35	06F0417	1	Washer, VF PP
–36	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–37	88F3360	2	Washer, Plastic
–38	88F3163	1	Spring, Actuator
–39	06F0408	1	Key, 4 X 4 X 10 PP
–40	88F3361	1	Washer, Point
–47	57G6852	2	Spring, Compression Coil, Top
–48	57G6853	2	Spring, Compression Coil, Bottom
–50	30H2995	1	Oiler, Port Asm (3-pump) (All except 324 PPM)
–50	90H1284	1	Oiler, Port Asm (6-pump) (324 PPM only)
–51		NP	
–52		NP	
–53	06F0418	2	E-Clip PP
–54	06F0418	2	E-Clip PP
–55		NP	
–56	06F0418	4	E-Clip PP
–59	06F0811	1	Fastener, Asm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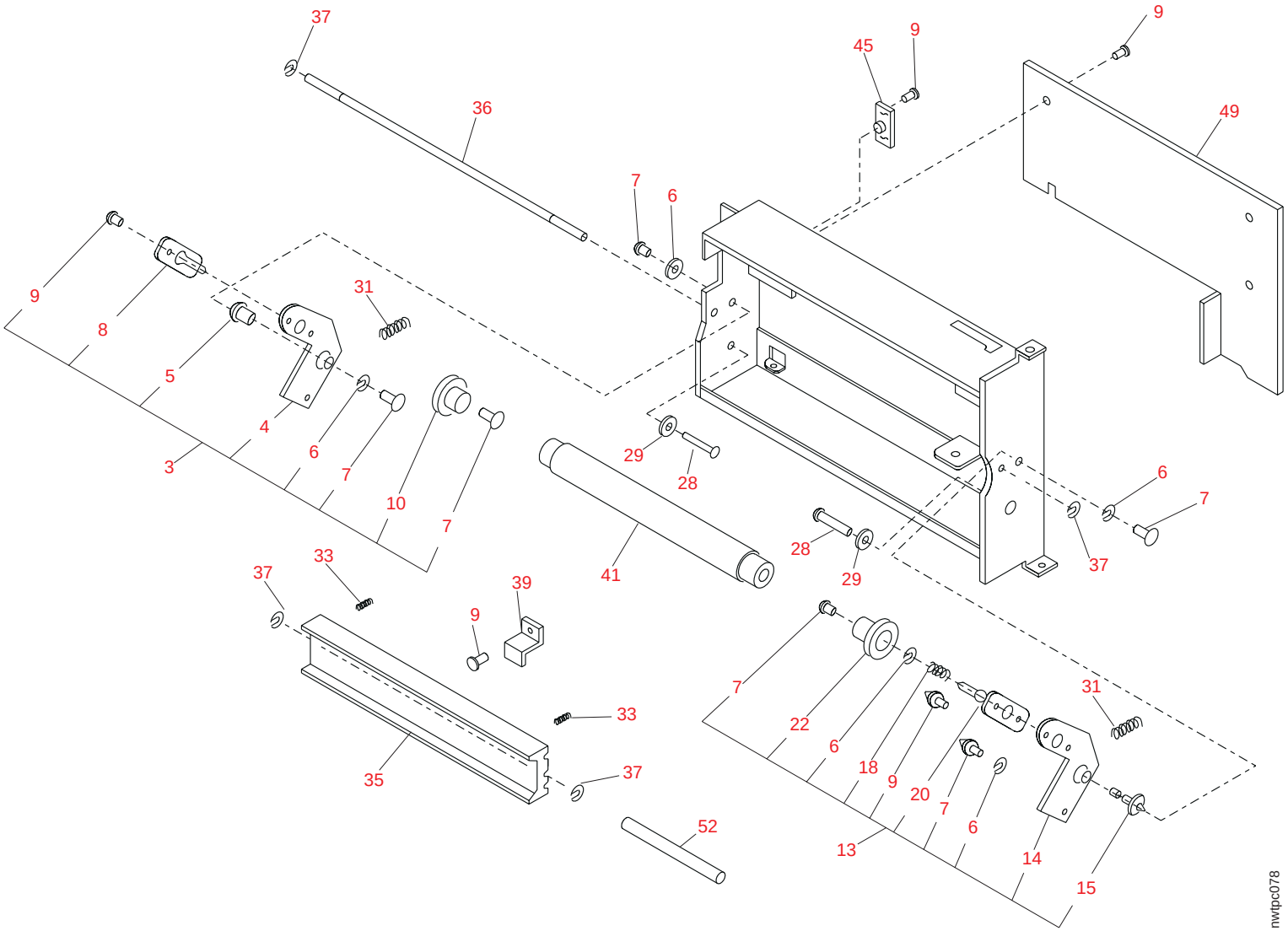
Asm–Index	Part Number	Units	Description
23–		NP	Oiler Hardware (Sheet 3 of 4)
–			**For all except 480/600 DPI**
–60	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–63		NP	
–64	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–66	04H0288	1	Belt, Oiler
–68	88F3166	1	Cover, Motor
–69	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–72	88F3167	1	Cable, Switch Asm
–73	53F1984	1	Switch, Oiler Belt End (S610)
–74	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–77	06F0348	1	Cam, Actuator
–78	30H6594	1	Pad, Oil Pan
–79	30H6587	1	Oil Pan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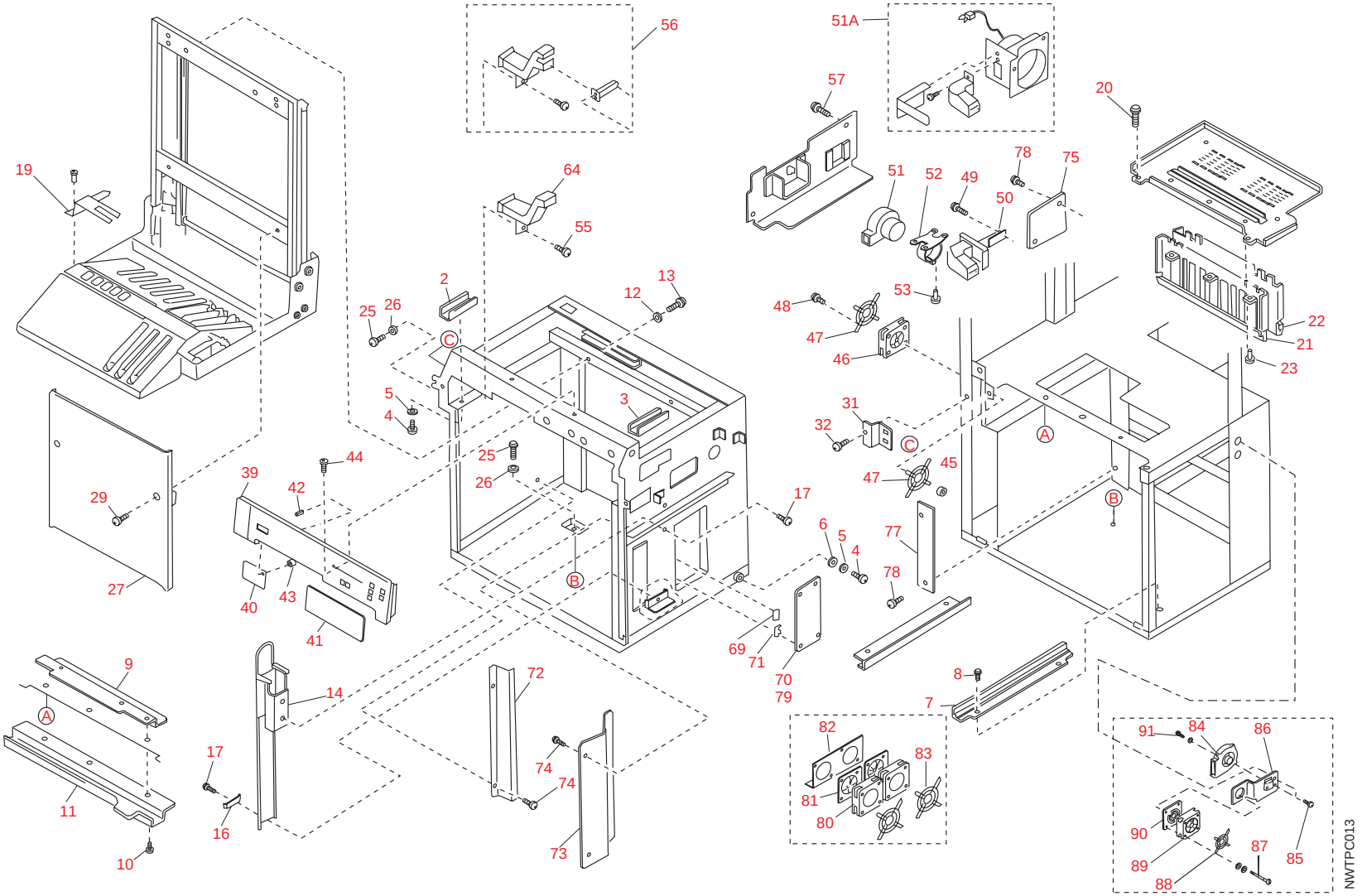
Asm–Index	Part Number	Units	Description
23–		NP	Oiler Hardware (Sheet 4 of 4)
–			**For 480/600 DPI only**
–1		NP	
–3		NP	
–4A	24H8171	2	Arm, Front
–5A	24H8170	1	Pin, Center
–6A	06F0417	4	Washer, Press
–7A	06F0401	5	Screw, M5 X 12 Phillips Pan Hd with Star Wshr & Wshr
–8A	24H8169	1	Shaft, Front
–9A	06F0411	5	Screw, M4 X 12 Phillips Pan Hd with Star Wshr & Wshr
–10A	24H8168	1	Ball Bearing Housing Asm
–13A		NP	
–14A	24H8167	1	Arm Asm
–15A	24H8166	1	Pin, Center
–18A	24H8165	1	Spring, Compression
–20A	24H8164	1	Shaft, Rear
–22A	24H8163	1	Ball Bearing Housing Asm
–28A	06F0403	2	Bolt, M5 X 30 Hexagon Socket Hd
–29A	06F0407	2	Lock Nut, M5
–31A	24H8150	2	Spring
–33A	57G6853	2	Spring, Compression Coil
–35A	24H8366	1	Oiler Port Asm (IR1/IR2)
–35A	90H1369	1	Oiler Port Asm (IR3/IR4)
–36A	24H8148	1	Oiler Port Guide Shaft
–37A	06F0418	4	Retaining Ring D5
–39A		NP	
–41A	24H8173	1	Oiler Wick Roll (IR1/IR2)
–41A	90H1758	1	Oiler Wick Roll (IR3/IR4)
–45A	06F0811	1	Fastener Asm
–49A		NP	
–52A		NP	

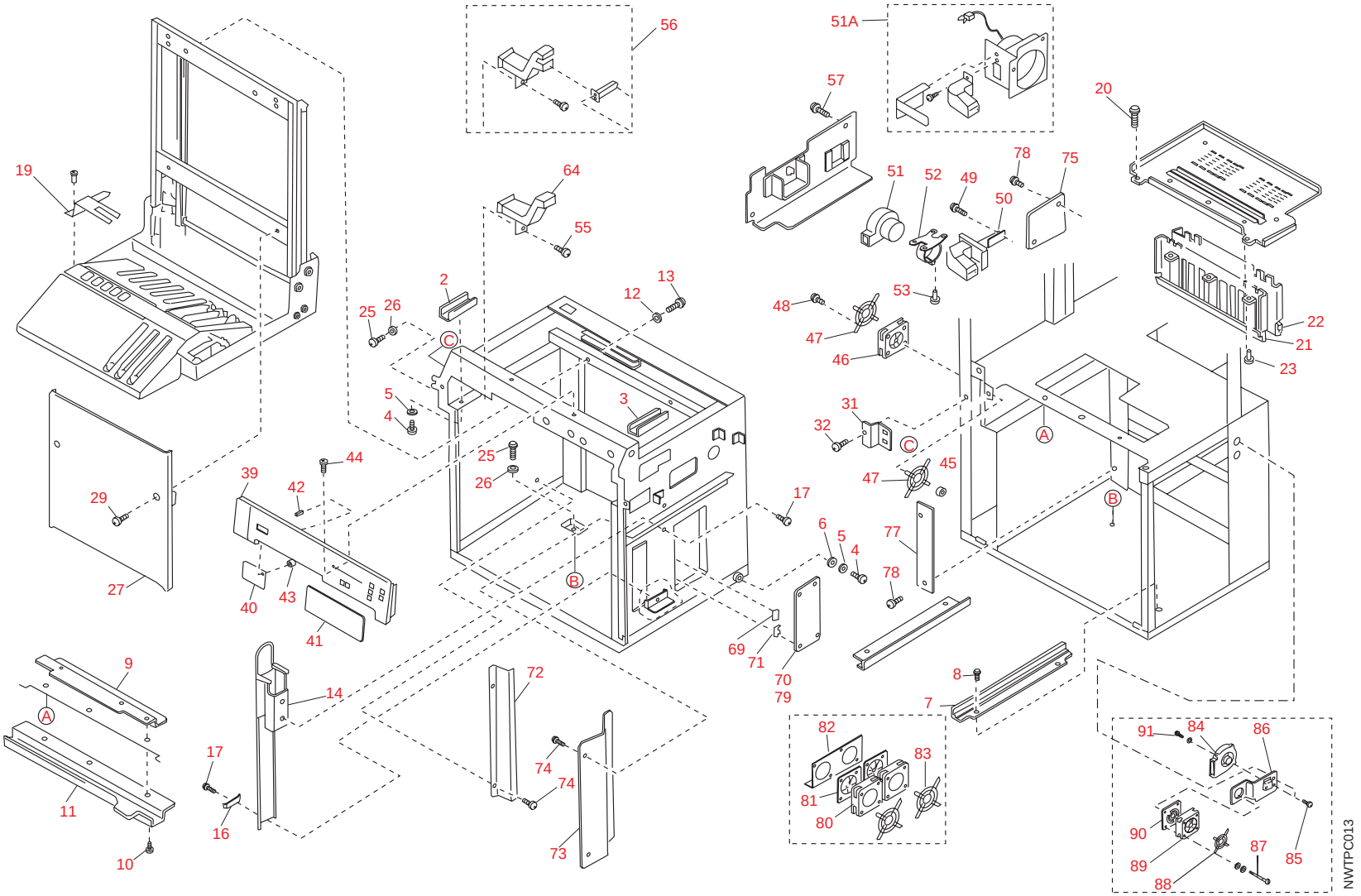
Assembly 24: No Assembly 24 for this Printer

Asm–Index	Part Number	Units	Description
24–			Not Used

Assembly 25: Stacker



Asm–Index	Part Number	Units	Description
25–		NP	Stacker (Sheet 1 of 4)
–2		NP	
–3		NP	
–4	06F0415	6	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 12 PP
–5	06F0420	4	Washer, Press PP
–6		NP	
–7		NP	
–8	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–9		NP	
–10	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–11		NP	
–12	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–13	06F0420	2	Washer, Press PP
–14		NP	
–16		NP	
–17	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–19	24H7993	1	Subtable assembly
–20	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–21		NP	
–22		NP	
–23	06F0420	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–25	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–26	06F0420	4	Washer, Press PP
–27		NP	
–29	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–31		NP	
–32	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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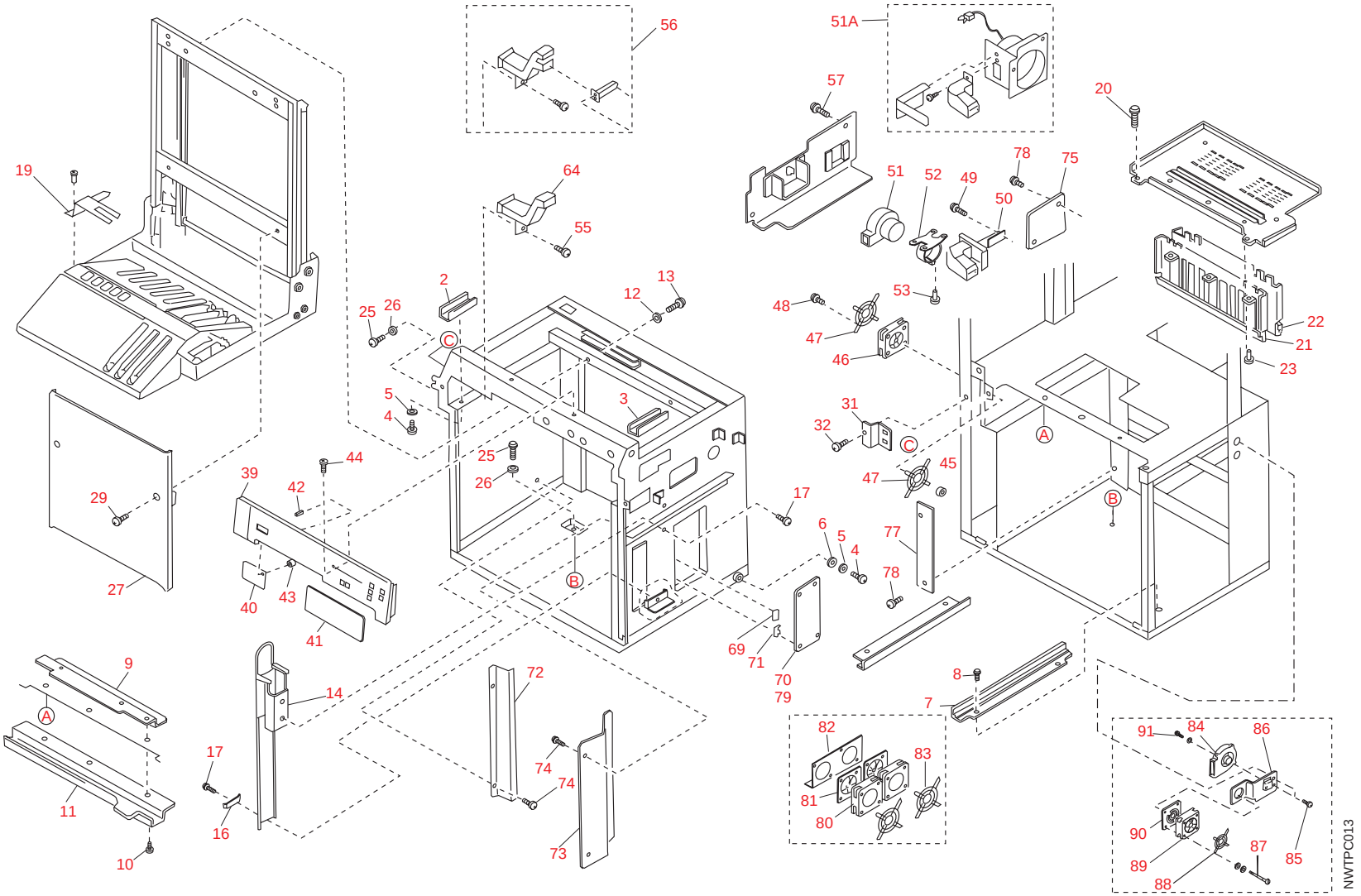
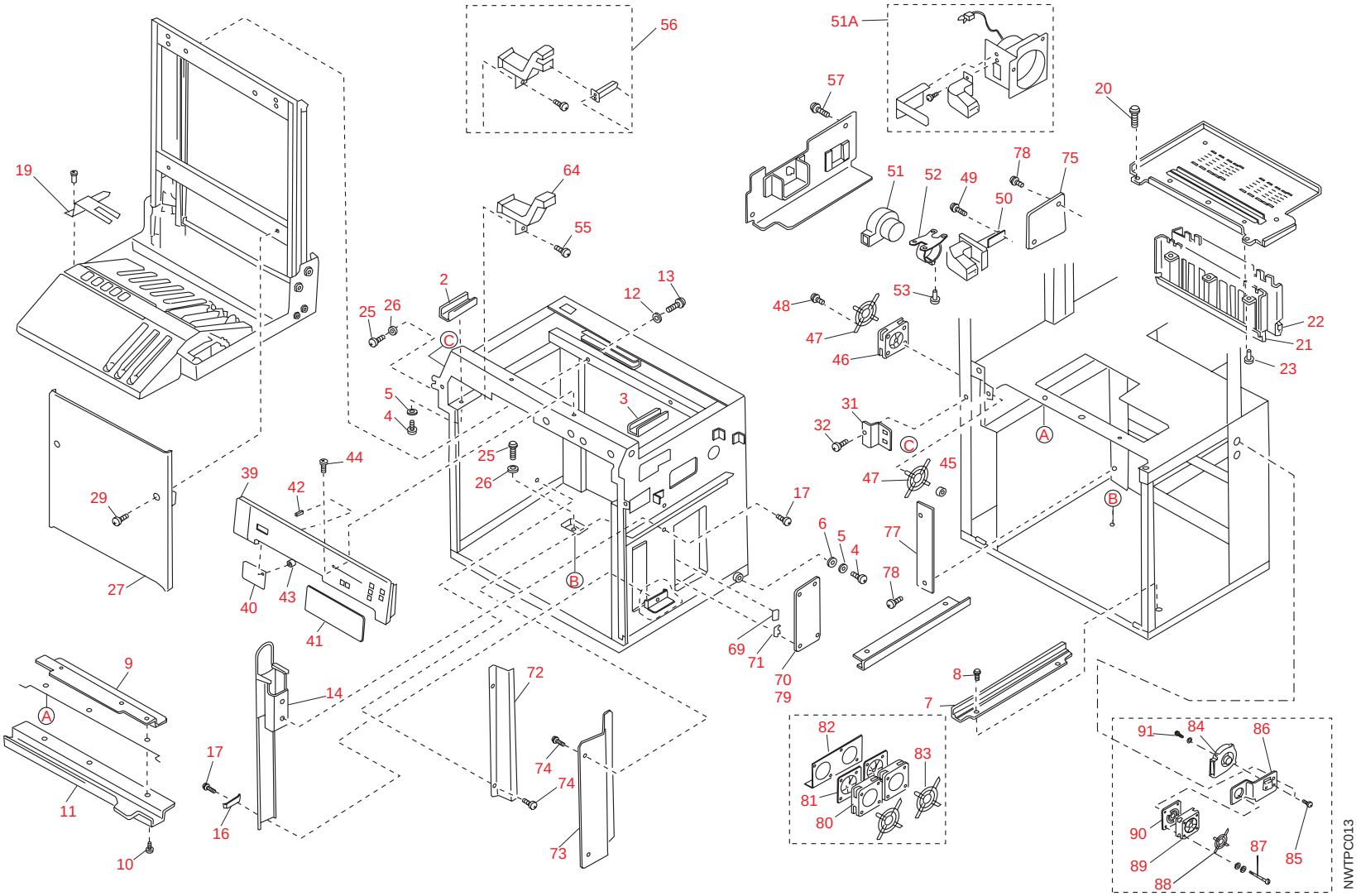
Asm–Index	Part Number	Units	Description
25–		NP	Stacker (Sheet 2 of 4)
–39		NP	
–40	53F1994	1	Board, Forms Width LED Asm (LD091)
–41	53F1787	1	Panel, Stacker Control (SW511)
–42	88F1644	11	Spacer
–43	06F0407	11	Nut, M4 PP
–44	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–45	06F0407	2	Nut, M4 PP
–46	06F0194	1	Fan, (Without enhanced rear stacker cooling)
–47	06F0569	1	Finger Guard
–48	06F0413	2	Screw, Phillips Bind Hd M4 X 50 PP
–49	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M54 X 12 PP
–50	57G6659	1	Holder, Blower Asm (Without enhanced rear stacker cooling)
–51	53F1965	1	Blower, Stacker Cooling (B703) and Capacitor (C704) Asm (Without enhanced rear stacker cooling)
–51A	24H7995	1	Blower, Stacker Cooling Asm (With enhanced rear stacker cooling)
–52	88F3181	1	Holder, Blower (Without enhanced rear stacker cooling)
–53	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–54	57G6660	1	Duct, Cooling Asm (Without enhanced rear stacker cooling)

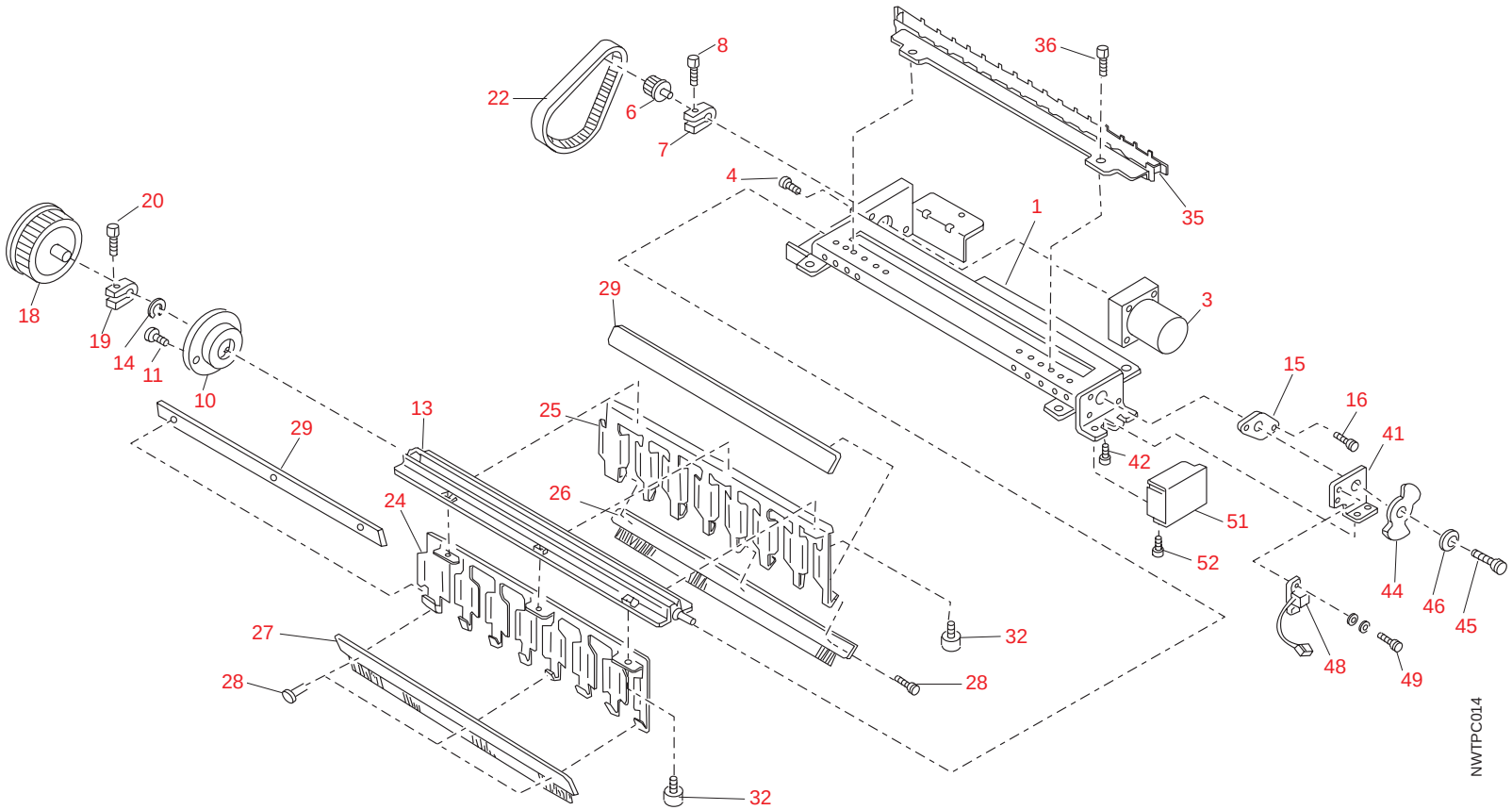

NWTPC013

Asm–Index	Part Number	Units	Description
25–		NP	Stacker (Sheet 3 of 4)
–55	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–56	24H7986	1	Duct, Cooling Asm (With enhanced rear stacker cooling)
–56	90H1376	1	Duct, Cooling Asm (With shutter design)
–57	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–69		NP	
–70	57G6527	1	Card, Stacker Control SC061 (ID1/2, IS1, IS2 @ 310 PPM - without bloom improvement feature) (See note below)
–70	24H8015	1	Card, Stacker Control SC091 (IR1/IR2 without bloom improvement) (See note below)
–70	90H1110	1	Card, Stacker Control SC101 (ID1/2, IS1, IS2 @ 310 PPM - with bloom improvement) (See note below)
–70	90H1291	1	Card, Stacker Control SC103 (ID3/ID4 & IS2 @ 324 PPM) (See note below)
–70	90H1365	1	Card, Stacker Control SC106 (IR3/IR4) (See note below)
–70	90H1365	1	Card, Stacker Control SC108 (IR1/IR2 with bloom improvement) (See note below)
–71		NP	
–72		NP	
–73		NP	
–74	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–76		NP	
–77		NP	
–78	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–79	90H2363	1	EPROM For SC061 Card
–79	90H2363	1	EPROM For SC061 Card - IS2 @ 310 PPM
–	11L6176	1	EPROMFor SC091 Card
–79	90H1783	1	EPROM For SC101 Card
–79	11L6204	1	EPROM For SC103 Card
–79	11L6177	1	EPROM For SC106 Card
–79	11L6276	1	EPROM For SC108 Card **Note:** When you order a new SCXXX Card, also order the correct EPROM (Item 79) to go with the card. Replace the EPROM that is already installed on the card.

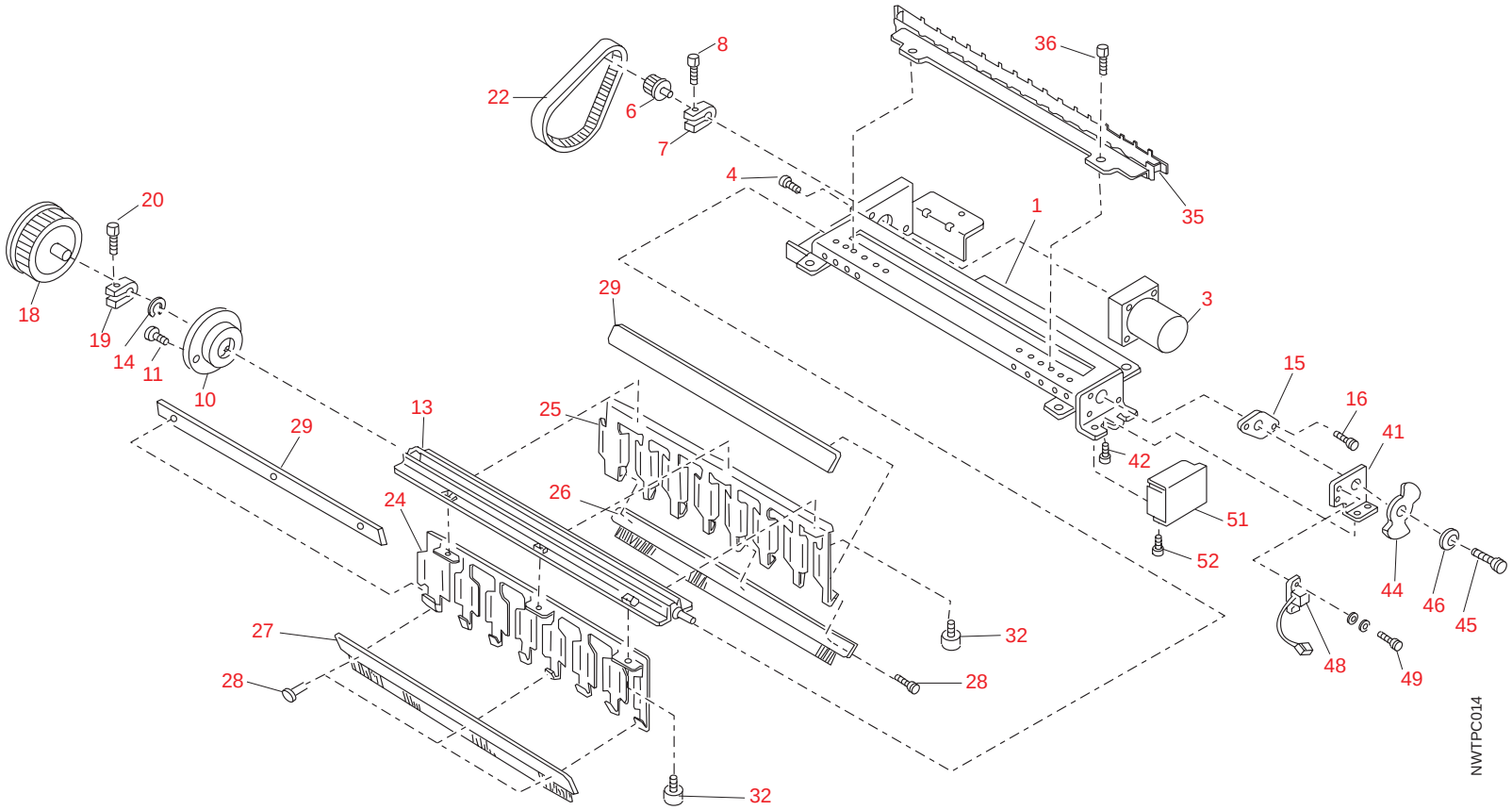

NWTPC013

Asm–Index	Part Number	Units	Description
25–		NP	Stacker (Sheet 4 of 4)
–80	24H8035	2	Fan, Stacker Front Cooling
–81		NP	
–82		NP	
–83	06F0569	2	Finger Guard
–84	11L5199	1	Blower, stacker front cooling (With enhanced front stacker cooling)
–85	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP(With enhanced front stacker cooling)
–86		NP	Holder, stacker fron cooling (With enhanced front stacker cooling)
–87		NP	Screw, Phillips Pan Hd M5 X 12 with washer (With enhanced front stacker cooling)
–88	06F0569	1	Finger Guard (With enhanced front stacker cooling)
–89	24H8035	1	Fan, Stacker Front Cooling (With enhanced front stacker cooling)
–90		NP	Finger Guard (With enhanced front stacker cooling)
–91	06F0420	1	Screw, Phillips Pan Hd M5 X 16 (With enhanced front stacker cooling)

Assembly 26: Pendulum



Asm–Index	Part Number	Units	Description
26–		NP	Pendulum (Sheet 1 of 2)
–1		NP	
–3	57G6515	1	Base, Pendulum Motor Asm
–4	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–6	06F0687	1	Pulley, Pendelum Drive
–7	06F0292	1	Ring, Tight
–8	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 16 PP
–10	06F0227	1	Holder, Ball Bearing Asm
–11	06F0412	2	Screw, Phillips Flat Hd M4 X 12 PP
–13	30H6610	1	Shaft, Metal, Fin Drive
–14		NP	
–15		NP	
–16	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–18	04H0212	1	Pulley, Driven
–19	06F0292	1	Ring, Tight
–20	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 16 PP
–22	06F0111	1	Belt, Timing
–24	88F3341	1	Fin, Swing
–25	88F3342	1	Fin, Swing
–26	06F0223	1	Brush, Discharge
–27	06F0224	1	Brush, Discharge
–28	06F0412	6	Screw, Phillips Flat Hd M3 X 8 PP
–29		NP	
–32	06F0420	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–35		NP	
–36	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP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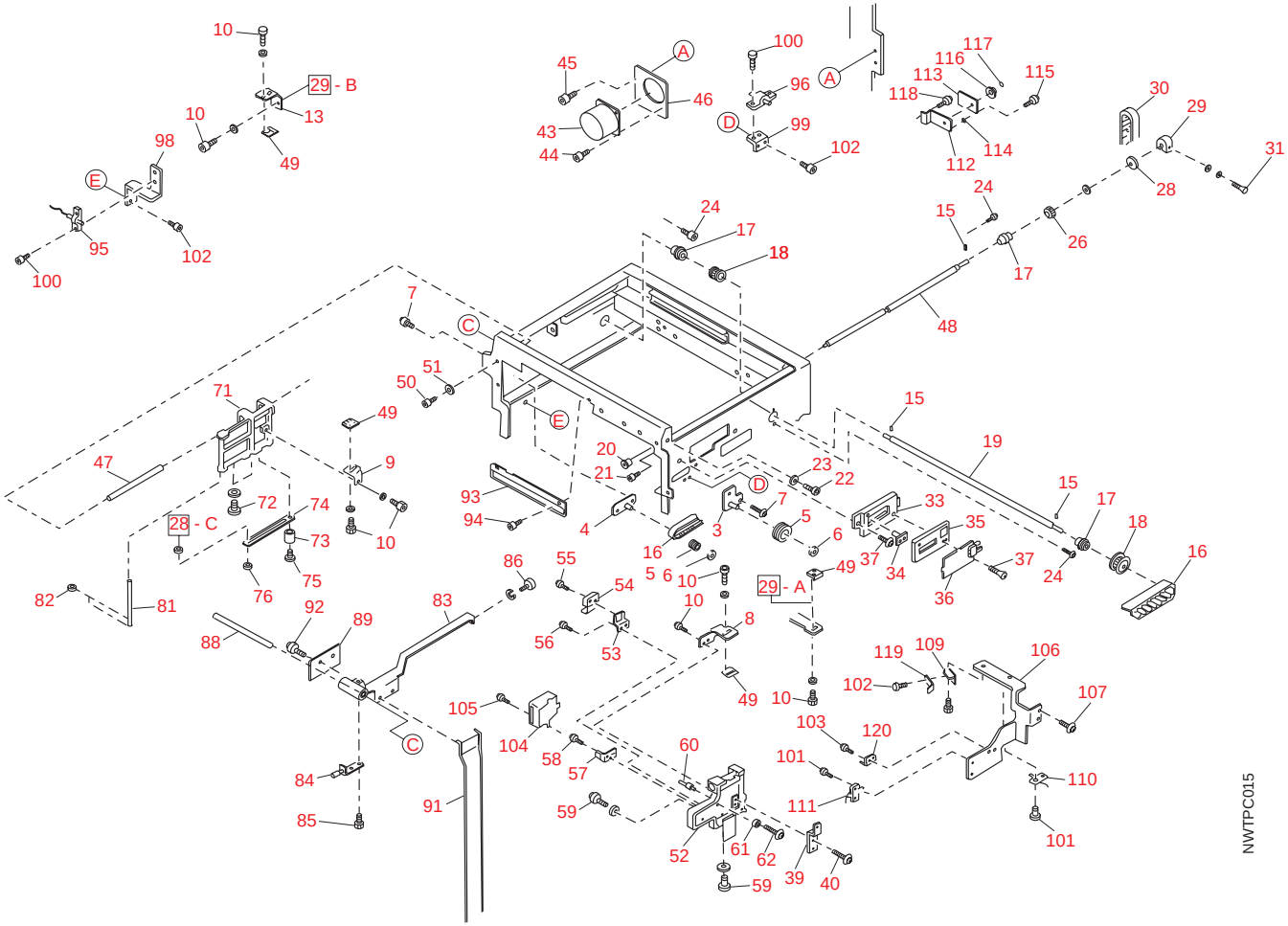
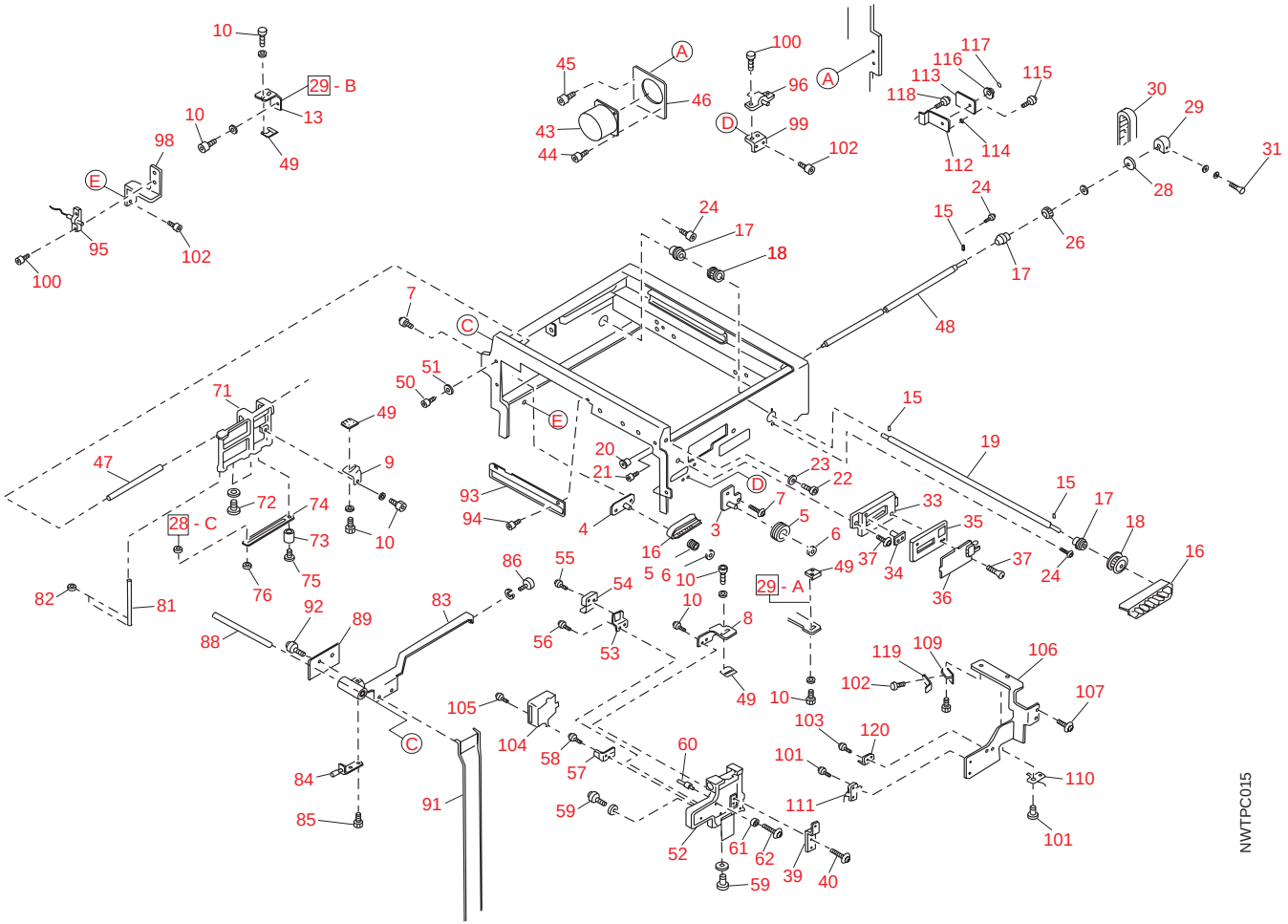
NWTPC014

Asm–Index	Part Number	Units	Description
26–		NP	Pendulum (Sheet 2 of 2)
–41		NP	
–42	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–44		NP	
–45	06F0415	1	Bolt, Hexagon Socket Hd with Star Wshr M4 X 12 PP
–46	06F0417	1	Washer, VF PP
–48	06F0228	1	Sensor, Pendulum Position (S619)
–49	06F0402	2	Screw, Phillips Pan Hd M3 X 6 PP
–51		NP	
–52	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP

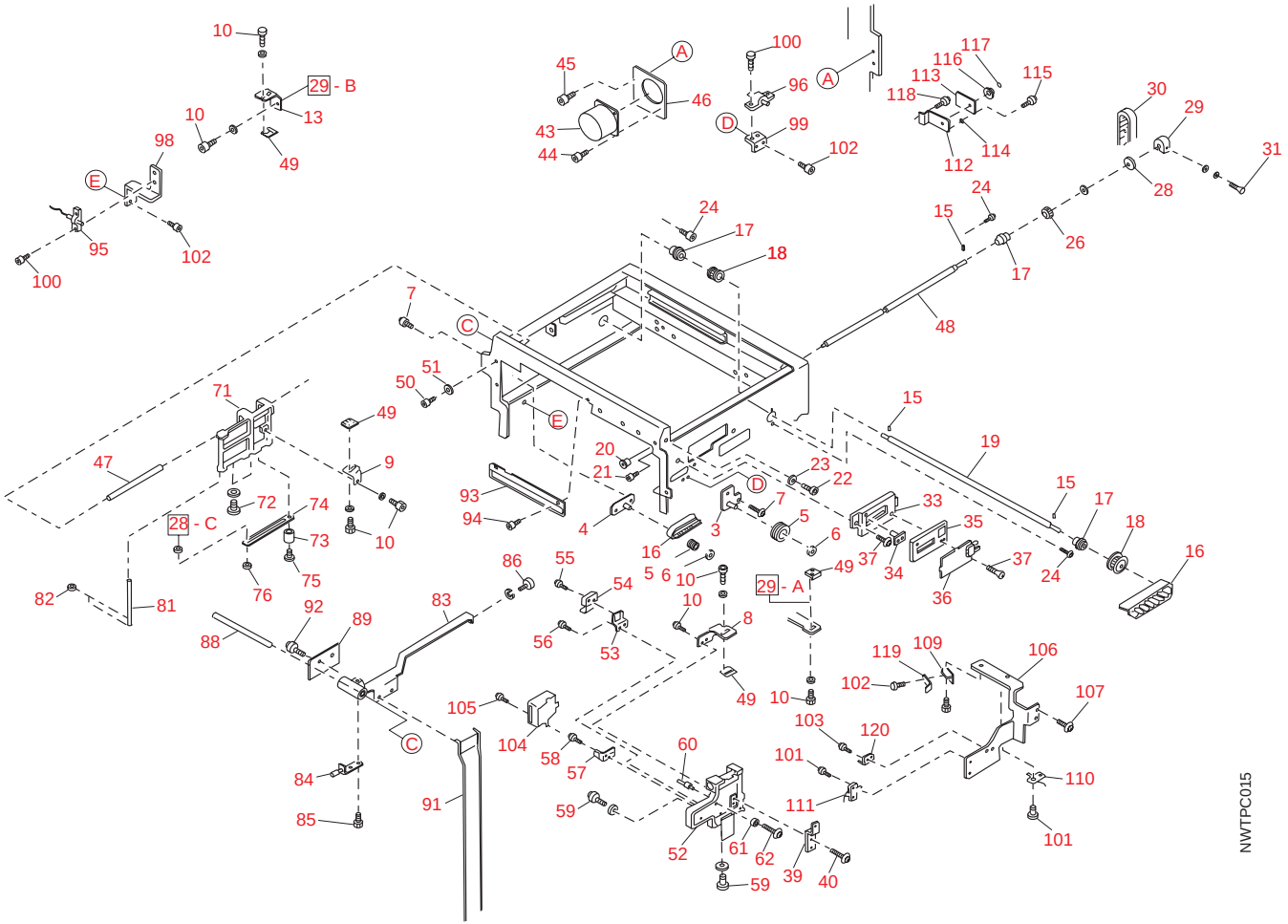
Assembly 27: Stacker



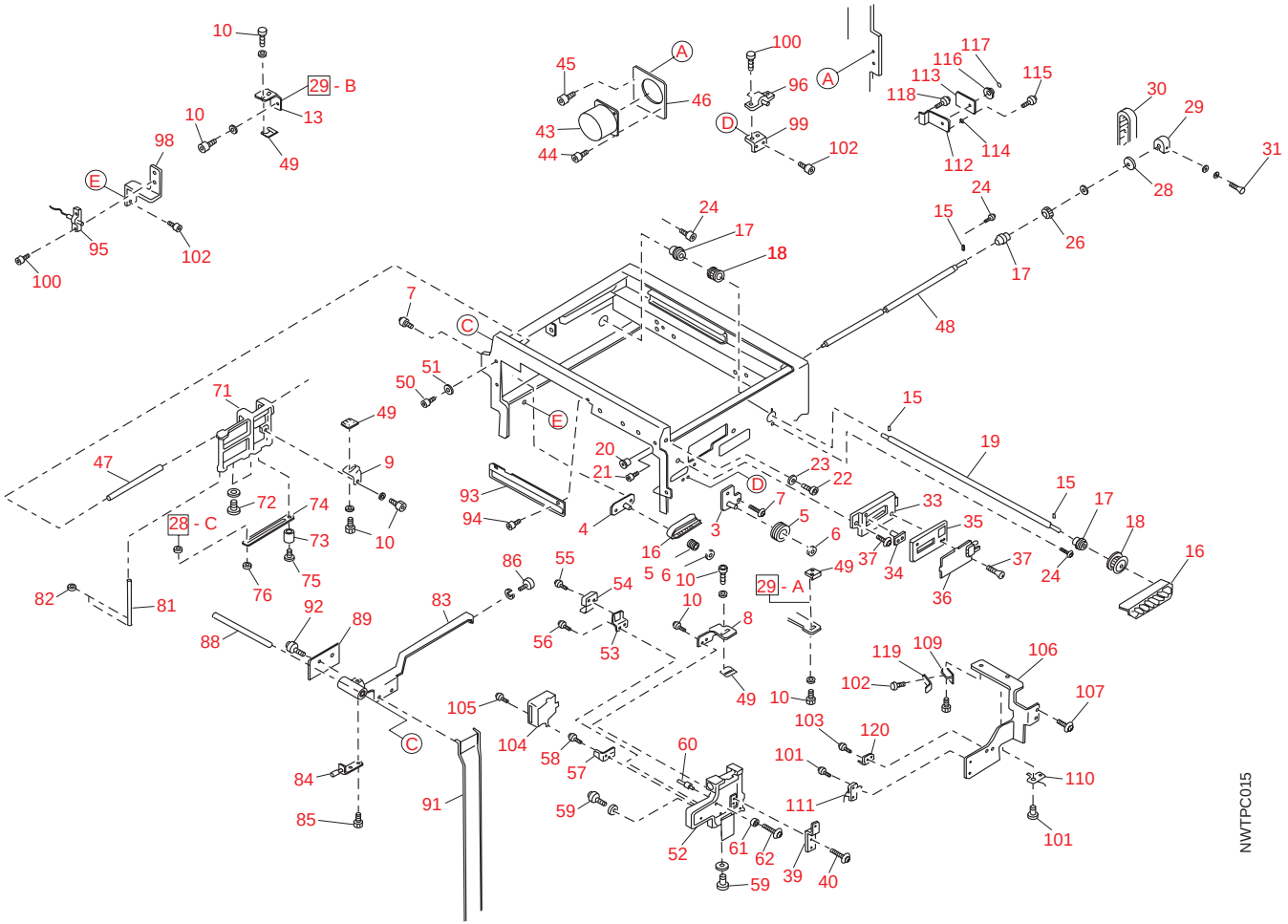
Asm–Index	Part Number	Units	Description
27–		NP	Stacker (Sheet 1 of 5)
–3		NP	
–4		NP	
–5	65F6161	2	Pulley, Idler Asm
–6	06F0418	2	E-Clip PP
–7	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–8		NP	
–9	88F3219	1	Clamp, Belt
–10	06F0415	10	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 12 PP
–13		NP	
–15	88F1627	3	Pin, D3 X 14 PP
–16	65F6163	2	Belt, Stacker Forms Length
–17	65F6158	3	Bearing, Ball
–18	88F3222	2	Pulley, Drive
–19		NP	
–20		NP	
–21	06F0413	1	Screw, Phillips Bind Hd M4 X 8 PP
–22	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–23	06F0420	1	Washer, Press
–24	06F0413	6	Screw, Phillips Bind Hd M4 X 8 PP
–26	88F3226	1	Pulley, Drive
–28	88F3228	1	Gear, Drive
–29	06F0760	1	Collar, Clamp
–30	65F6164	1	Belt, Forms Length Drive
–31	88F1626	1	Bolt, Hexagon Socket Hd M3 X 16 PP
–33		NP	
–34		NP	
–35		NP	
–36	57G6529	1	Board, Forms Length Sensor (FL061)
–36	88F3391	1	Ferrite Bead (Located on FL061 cable)
–37	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP


NWTPC015

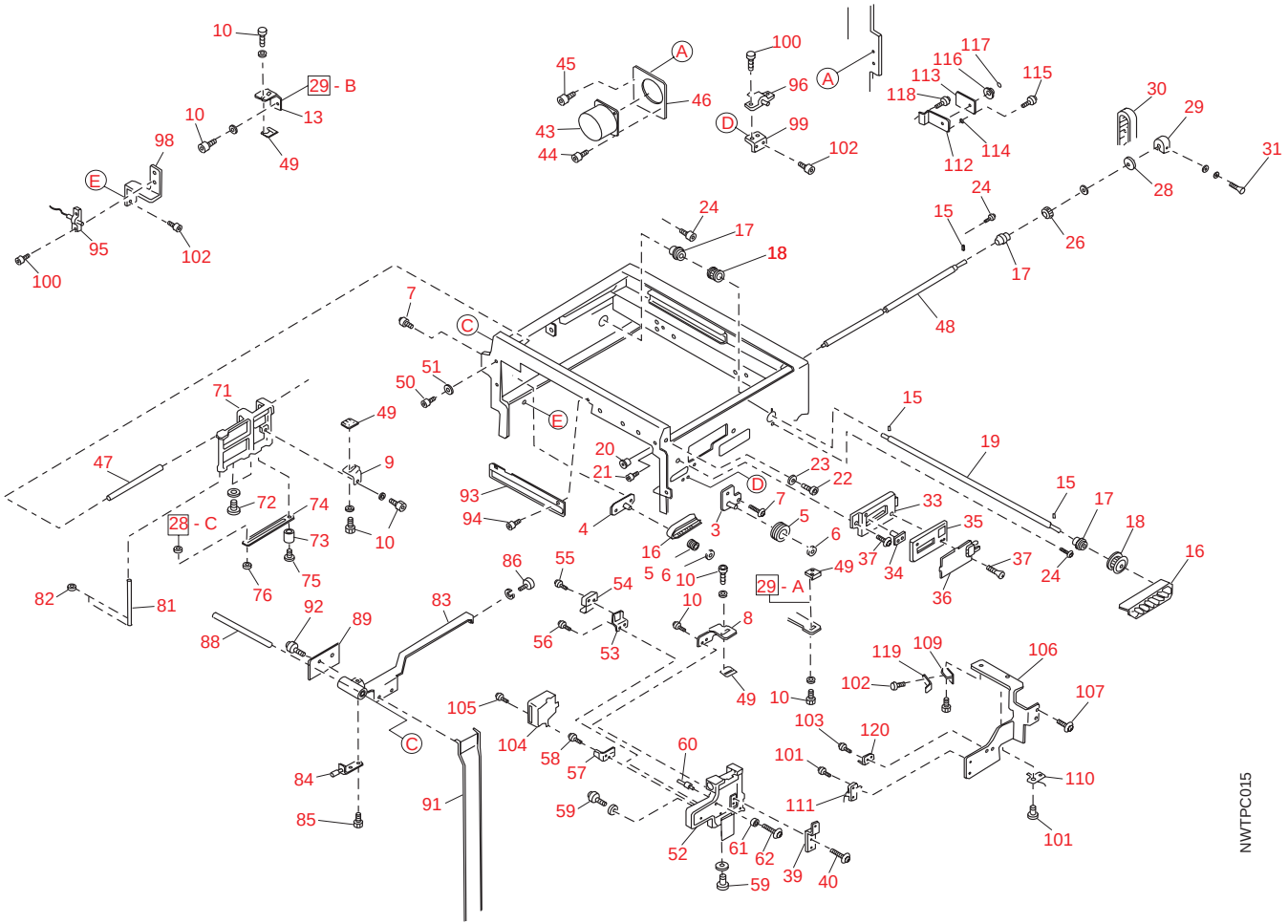
Asm–Index	Part Number	Units	Description
27–		NP	Stacker (Sheet 2 of 5)
–39		NP	
–40	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–43	53F1996	1	Motor, Forms Length Drive (M707)
–44	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP
–45	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr M5 X 16 PP
–46	88F3230	1	Plate, Motor Mounting
–47		NP	
–48	90H2714	1	Shaft
–49	88F3233	4	Clamper, Belt
–50	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–51	06F0420	1	Washer, Press PP
–52		NP	
–53	88F3235	1	Bracket, Switch
–54	06F0207	1	Switch, Stacker Gate Interlock (S712)
–55	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–56	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–57	06F0905	1	Catch, Latch Asm
–58	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16 PP


NWTPC015

Asm–Index	Part Number	Units	Description
27–		NP	Stacker (Sheet 3 of 5)
–59	06F0214	3	Bearing, Plastic
–60		NP	
–61	06F0417	1	Washer, VF PP
–62	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–71	88F3237	1	Casting, Rear
–72	06F0214	2	Bearing, Plastic
–73	88F3457	1	Spacer
–74	88F3238	1	Stop, Stacker Gate
–75	06F0415	1	Bolt, Socket Hd with Star Wshr & Wshr M4 X 16 PP
–76	88F1627	2	E-Clip PP
–81	88F3239	1	Shaft, Hinge
–82	06F0409	2	E-Clip PP
–83	88F3240	1	Slider, Forms Width Guide
–84	88F3241	1	Lever, Forms Width Guide
–85	06F0413	2	Screw, Bind Hd M4 X 8 PP
–86	06F0214	1	Bearing, Plastic
–88		NP	
–89	24H7992	1	Plate, Airshield (310 PPM and 324 PPM only)
–91		NP	
–92	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 PP
–93	88F3245	1	Guide, Forms Width
–94	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP

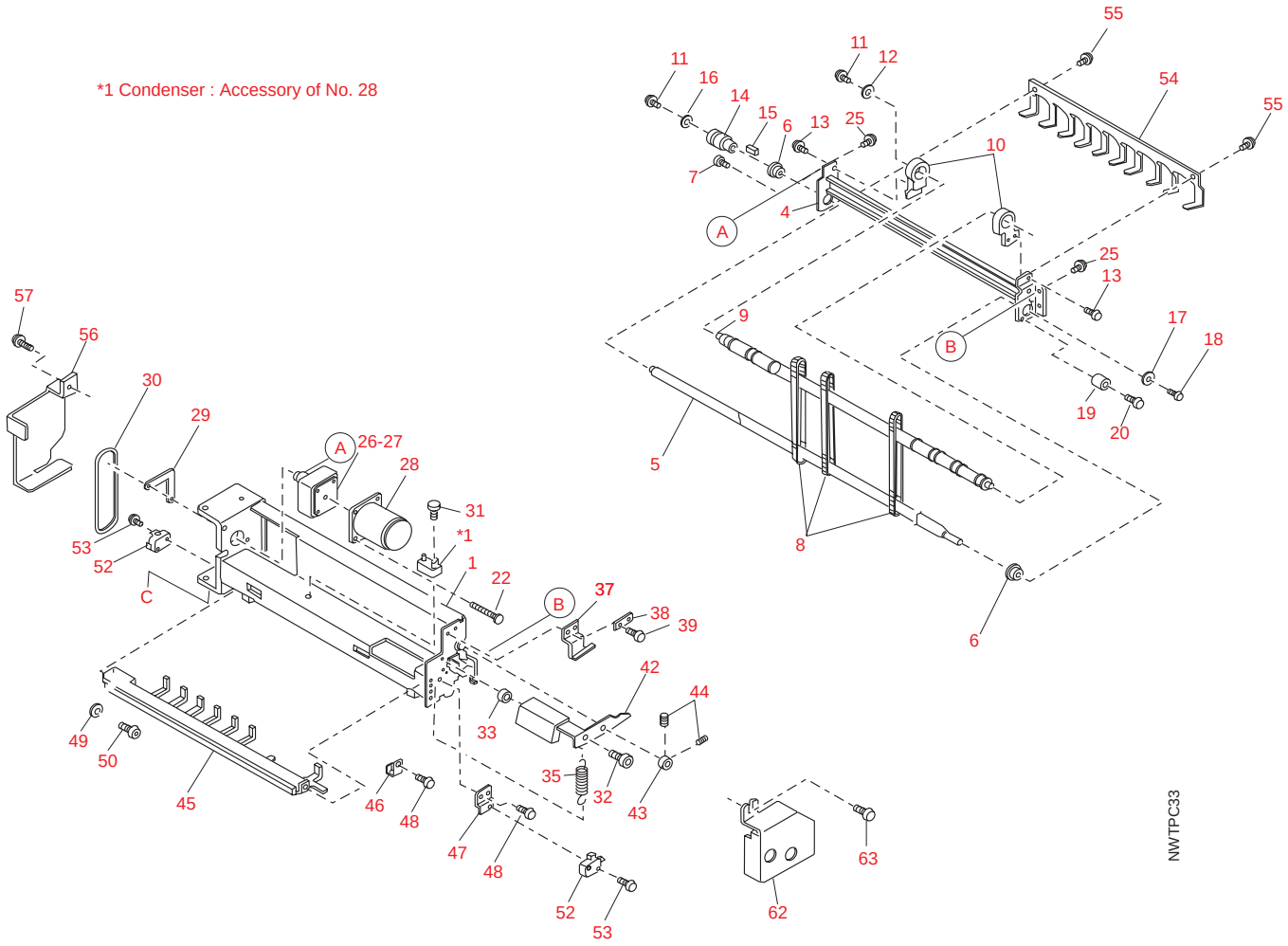

NWTPC015

Asm–Index	Part Number	Units	Description
27–		NP	Stacker (Sheet 4 of 5)
–95	53F1997	1	LED, Left Stacker Height (PL703)
–95	90H2681	1	Bracket, LED
–96	53F1998	1	Sensor, Left Stacker Height (Q703)
–96	90H2681	1	Bracket, sensor
–98		NP	
–99		NP	
–100	06F0401	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–101	88F1626	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 8 PP
–102	06F0420	6	Screw, Phillips Pan Hd with Star Wsh r & Wshr M4 X 8 PP
–103	06F0413	1	Screw, Phillips Bind Hd with Star Wshr M4 X 6 PP
–104	88F3249	1	Cover, Switch
–105	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–106	30H6611	1	Holder, Sensor Bracket
–107	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–109	88F3252	1	Holder, Mirror 1
–110	53F1776	1	LED, Stacker Jam (PL701)
–110	90H2681	1	Bracket, LED
–111	53F1775	1	Sensor, Stacker Jam (Q701)
–111	90H2681	1	Bracket, sensor
–112		NP	


NWTPC015

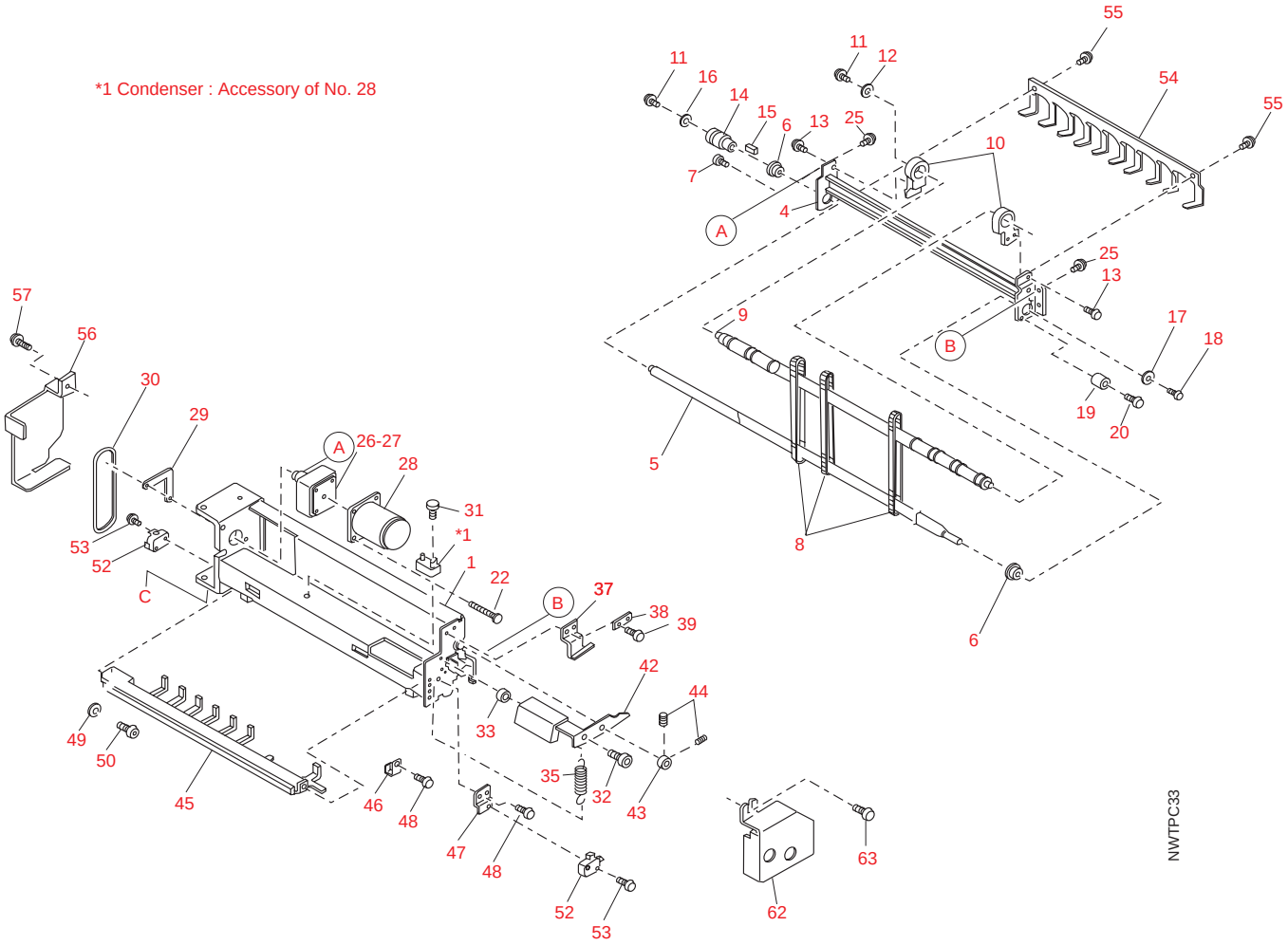
Asm–Index	Part Number	Units	Description
27–		NP	Stacker (Sheet 5 of 5)
–113	53F1995	1	Board, Forms Length Rotary Sensor (FL041)
–114		NP	
–115	06F0413	2	Screw, Phillips Bind Hd M4 X 8 PP
–116	88F3255	1	Gear, Driven
–117	06F0418	1	E-Clip PP
–118	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–119	88F3256	1	Stacker Mirror 1
–120	88F3257	1	Stacker Mirror 2

Assembly 28: Stacker



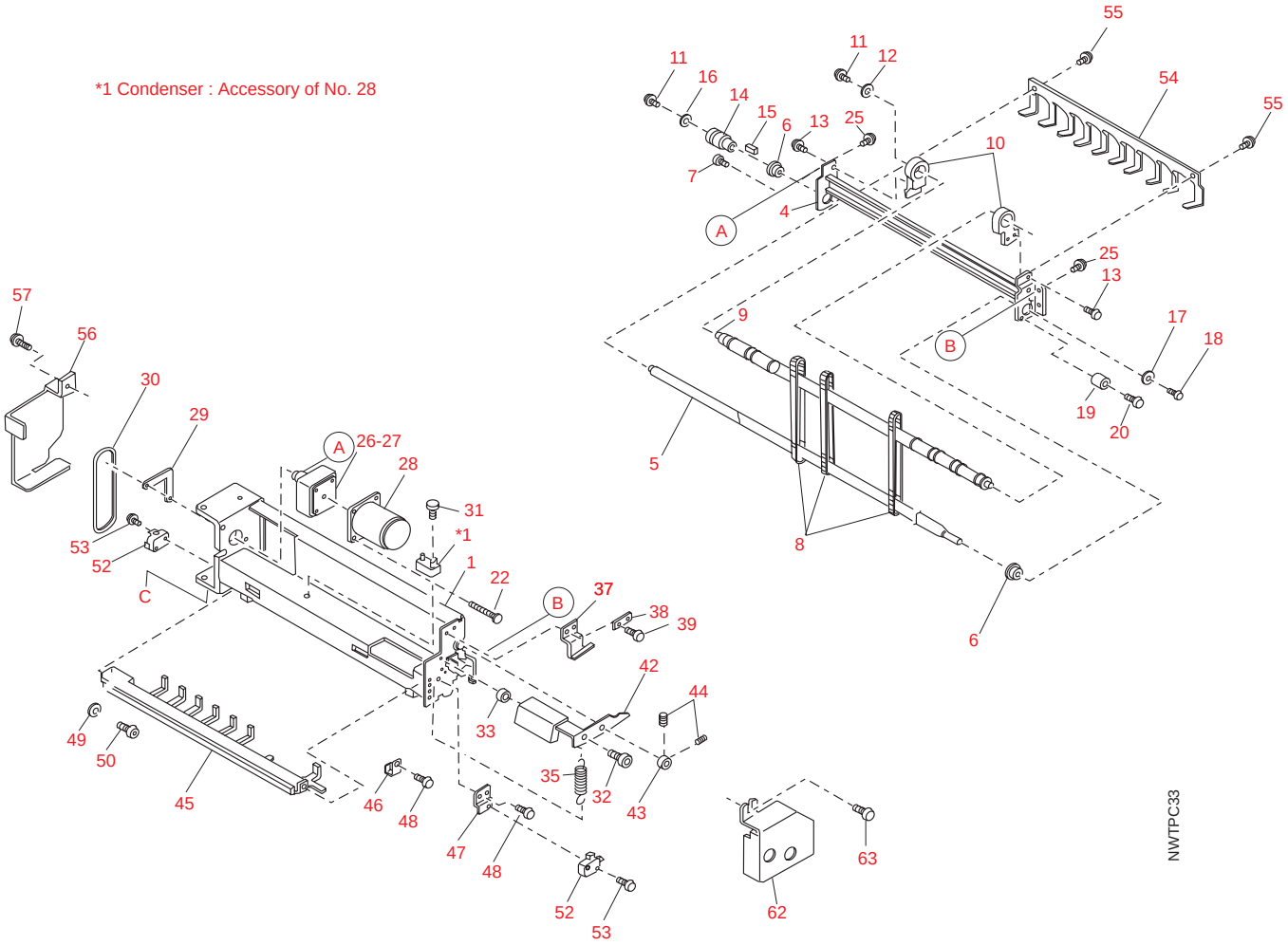
Asm–Index	Part Number	Units	Description
28–		NP	Stacker (Sheet 1 of 3)
–1		NP	
–4		NP	
–5	04H0764	1	Shaft, Asm Lower
–6	06F0110	2	Bearing, Ball
–7	06F0413	2	Screw, Phillips Bind Hd M4 X 6 PP
–8	06F0220	7	Belt, Stacker Finger
–9	30H2755	1	Shaft, Asm Upper (Same as 04H0763)
–10	06F0914	2	Holder, Ball Bearing Asm
–11	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–12	06F0406	1	Washer, FP PP
–13	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–14	06F0912	1	Pulley, Driven
–15	06F0408	1	Key, 3 X 3 X 10 PP
–16	06F0417	1	Washer PP
–17	06F0417	1	Washer, Ball Bearing PP
–18	06F0412	1	Screw, Phillips Flat Hd M4 X 12 PP
–19	06F1049	1	Rubber
–20	06F0404	1	Screw, Shoulder PP
–22	06F0402	2	Screw, Phillips Pan Hd M4 X 50 PP
–25	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–26	65F6156	1	Gearbox, 50 Hz (All except 310 and 324 PPM)
–26	04H0778	1	Gearbox, 50 Hz (310 and 324 PPM only)
–27	65F6157	1	Gearbox, 60 Hz (All except 310 and 324 PPM)
–27	04H0779	1	Gearbox, 60 Hz (310 and 324 PPM only)
–28	88F3380	1	Motor, Left Finger Belt Drive (M701) and Capacitor (C702) Asm
–29	06F0621	1	Plate, PM Nut
–30	65F6165	1	Belt, V
–31	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–32	06F0403	1	Bolt, Hexagon Socket Hd M4 X 16 PP
–33	06F0407	1	Nut, M4 PP
–35	88F3260	1	Spring PP

*1 Condenser : Accessory of No. 28



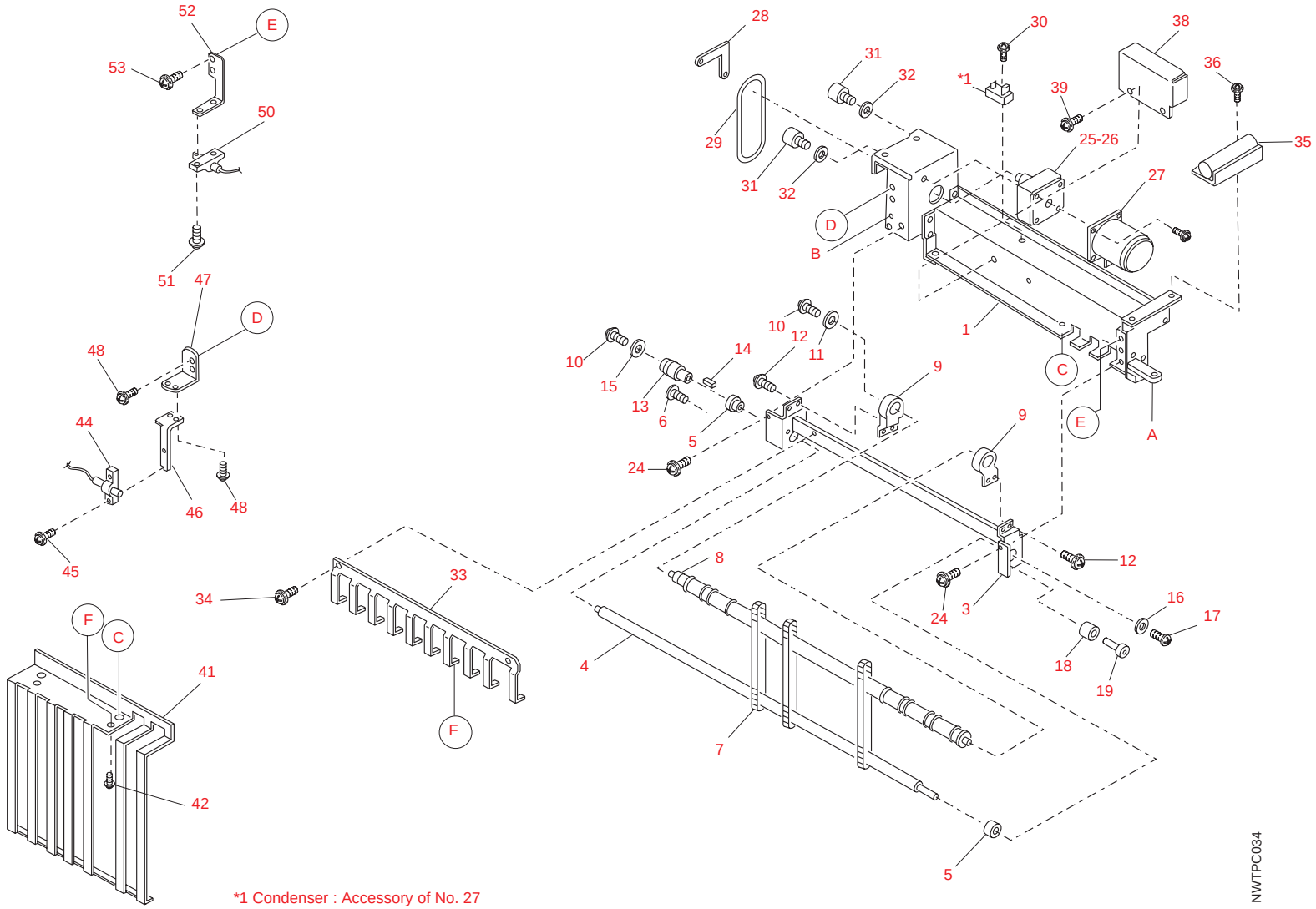
Asm–Index	Part Number	Units	Description
28–		NP	Stacker (Sheet 2 of 3)
–37	88F3261	1	Guide, Ball Bearing
–38		NP	
–39	06F0412	2	Screw, Phillips Flat M4 X 6
–42	88F3262	1	Lever, Latch Asm
–43	06F0926	1	Stopper, Lever
–44	06F0416	2	Screw, Set Hexagon Socket Hd M4 X 6 PP
–45		NP	
–46	88F3264	1	Holder, Safety Bail
–47		NP	
–48	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–49	06F0405	1	Washer, Spring D4 PP
–50	06F0403	1	Bolt, Hexagon Socket Hd M4 X 8 PP

*1 Condenser : Accessory of No. 28



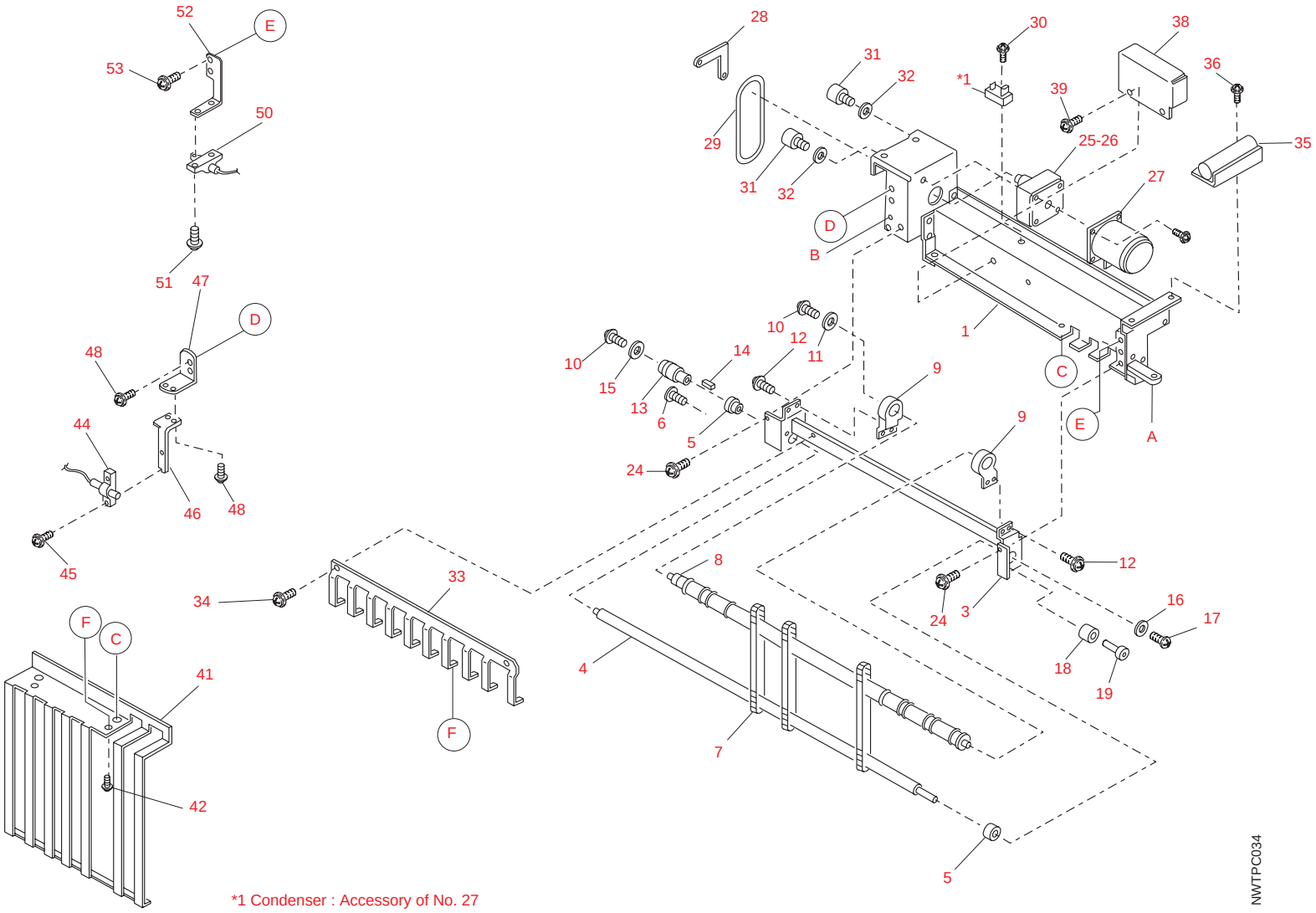
Asm–Index	Part Number	Units	Description
28–		NP	Stacker (Sheet 3 of 3)
–52	06F0206	2	Switch, Stacker Gate Safety (S713 & S714)
–53	06F0401	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–54		NP	
–55	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–56	88F3267	1	Cover, Belt
–57	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–62		NP	
–63	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP

Assembly 29: Stacker



*1 Condenser : Accessory of No. 27

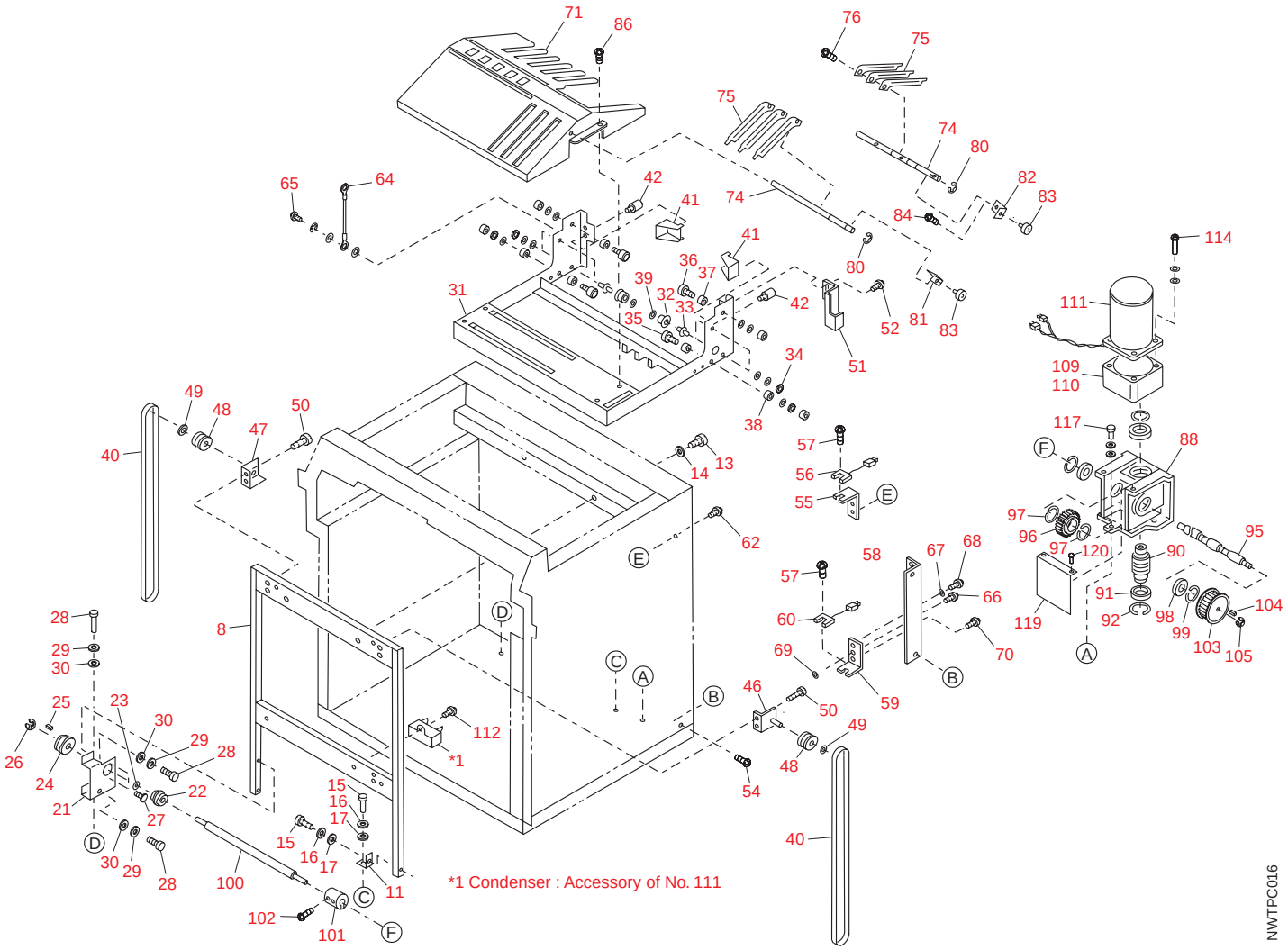
Asm–Index	Part Number	Units	Description
29–		NP	Stacker (Sheet 1 of 2)
–1		NP	
–3		NP	
–4	04H0764	1	Shaft, Lower Finger Belt
–5	06F0110	2	Bearing, Ball
–6	06F0413	2	Screw, Phillips Bind Hd M4 X 6 PP
–7	06F0220	7	Belt, Stacker Finger
–8	30H2755	1	Shaft, Upper Finger Belt (Same as 04H0763)
–9	06F0931	2	Holder, Ball Bearing Asm
–10	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–11	06F0406	1	Washer, FP PP
–12	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–13	06F0912	1	Pulley, Driven
–14	06F0408	1	Key, 3 X 3 X 10 PP
–15	06F0417	1	Washer PP
–16	06F0417	1	Washer, Ball Bearing PP
–17	06F0412	1	Screw, Phillips Flat Hd M4 X 12 PP
–18	06F1049	1	Rubber
–19	06F0404	1	Screw, Shoulder PP
–24	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–25	65F6156	1	Gearbox, Asm 50 Hz
–26	65F6157	1	Gearbox, Asm 60 Hz
–27	88F3381	1	Motor, Right Finger Belt Drive (M702) and Capacitor (C703) Asm
–28	06F0621	1	Plate, PM Nut
–29	65F6165	1	Belt, V
–30	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–31	06F0214	2	Bearing, Plastic
–32	06F0405	2	Washer, Spring D6 PP



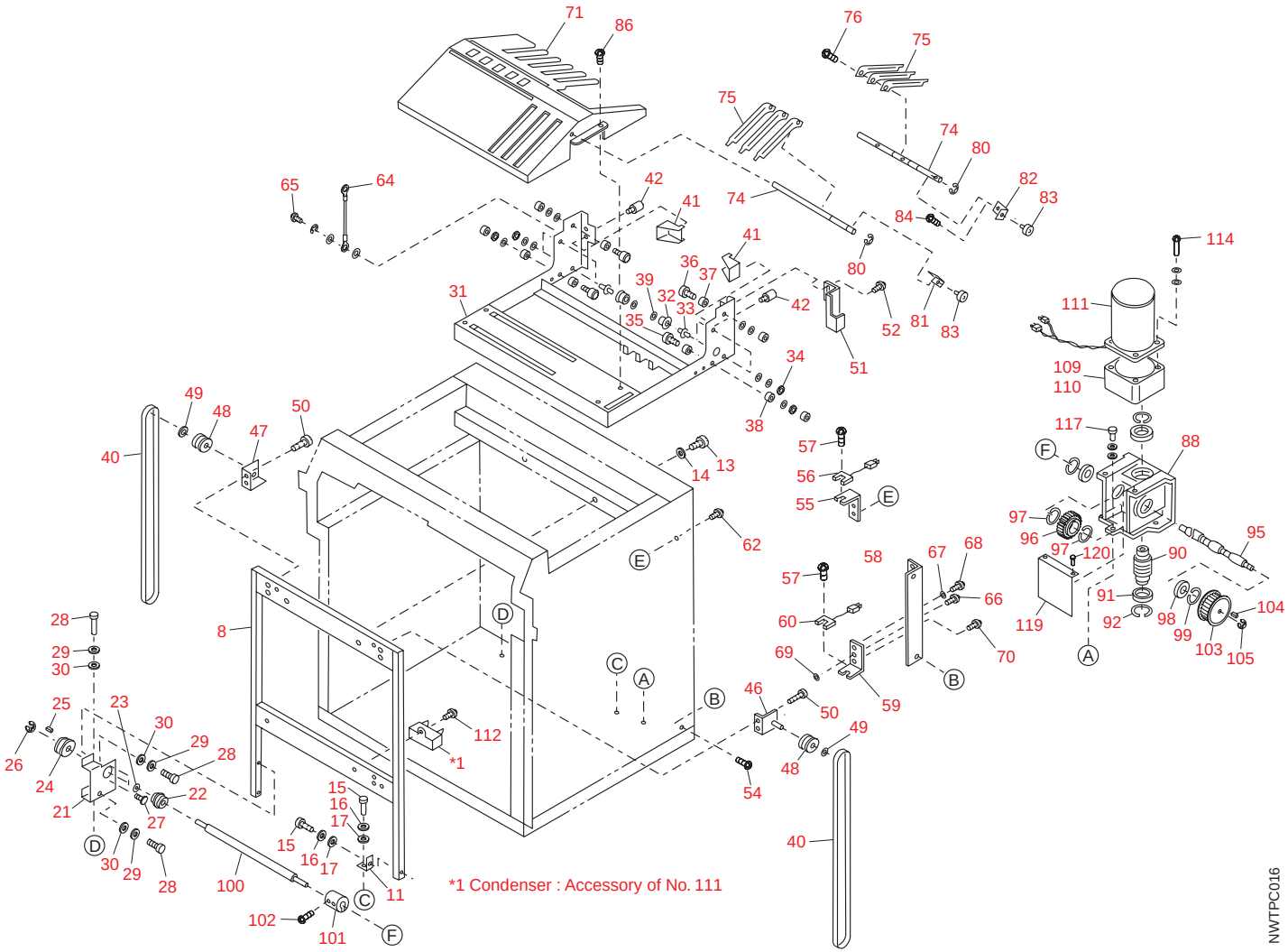
*1 Condenser : Accessory of No. 27

Asm–Index	Part Number	Units	Description
29–		NP	Stacker (Sheet 2 of 2)
–33	88F3272	1	Guide, Forms, Right
–33		NP	
–34	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–35	90H2715	1	RR belt holder
–36	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–38	88F3274	1	Cover, Capacitor
–39	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–41		NP	
–42	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–44	53F1839	1	LED, Right, Stacker Height (PL702)
–44	90H2681	1	Bracket, sensor
–45	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–46	88F3276	1	Holder, LED
–47	88F3277	1	Holder, LED
–48	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–50	53F1886	1	Sensor, Right Stacker Height (Q702)
–50	90H2681	1	Bracket, sensor
–51	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12 PP
–52	88F3278	1	Holder, Sensor
–53	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP

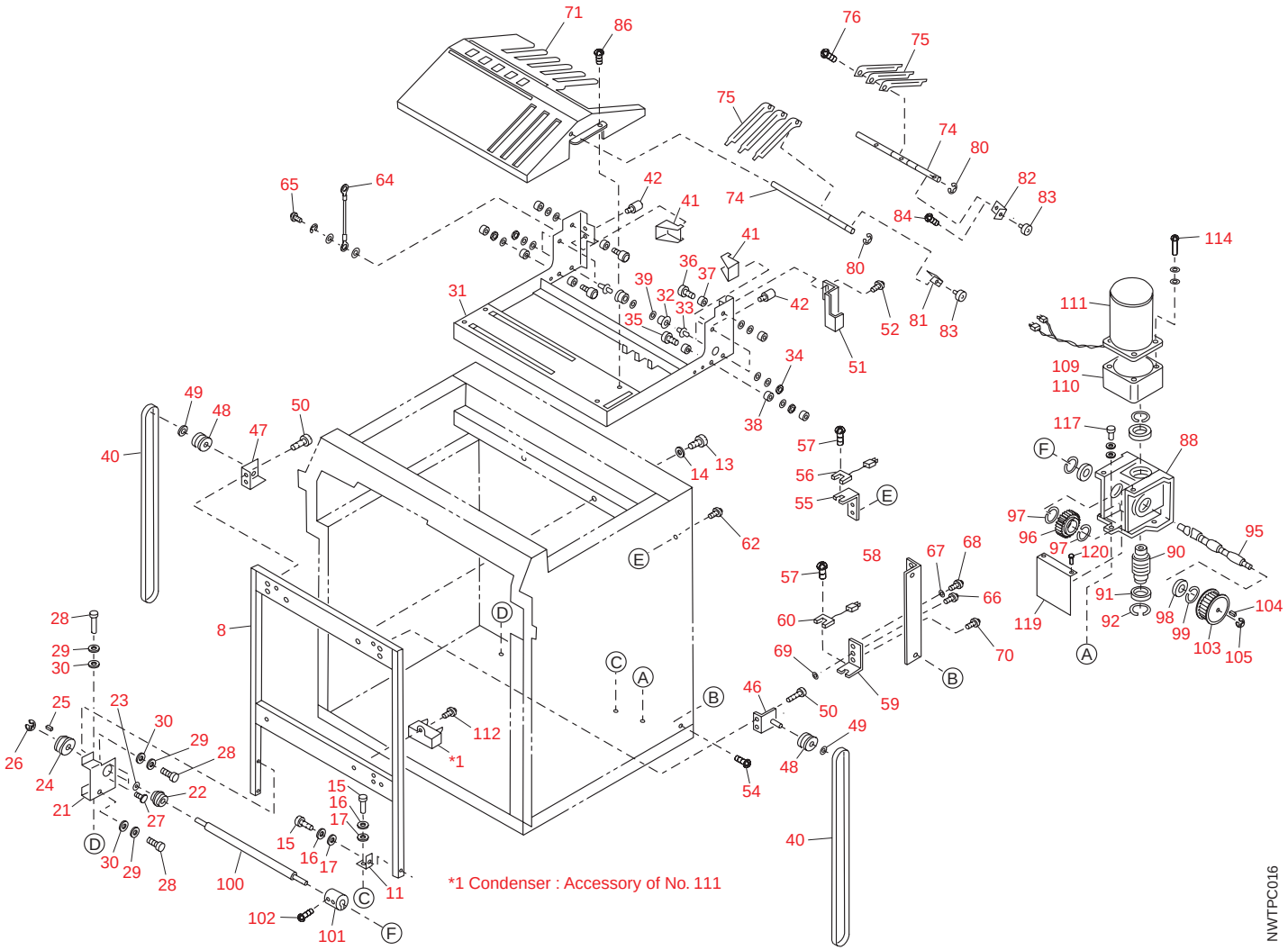
Assembly 30: Stacker Table



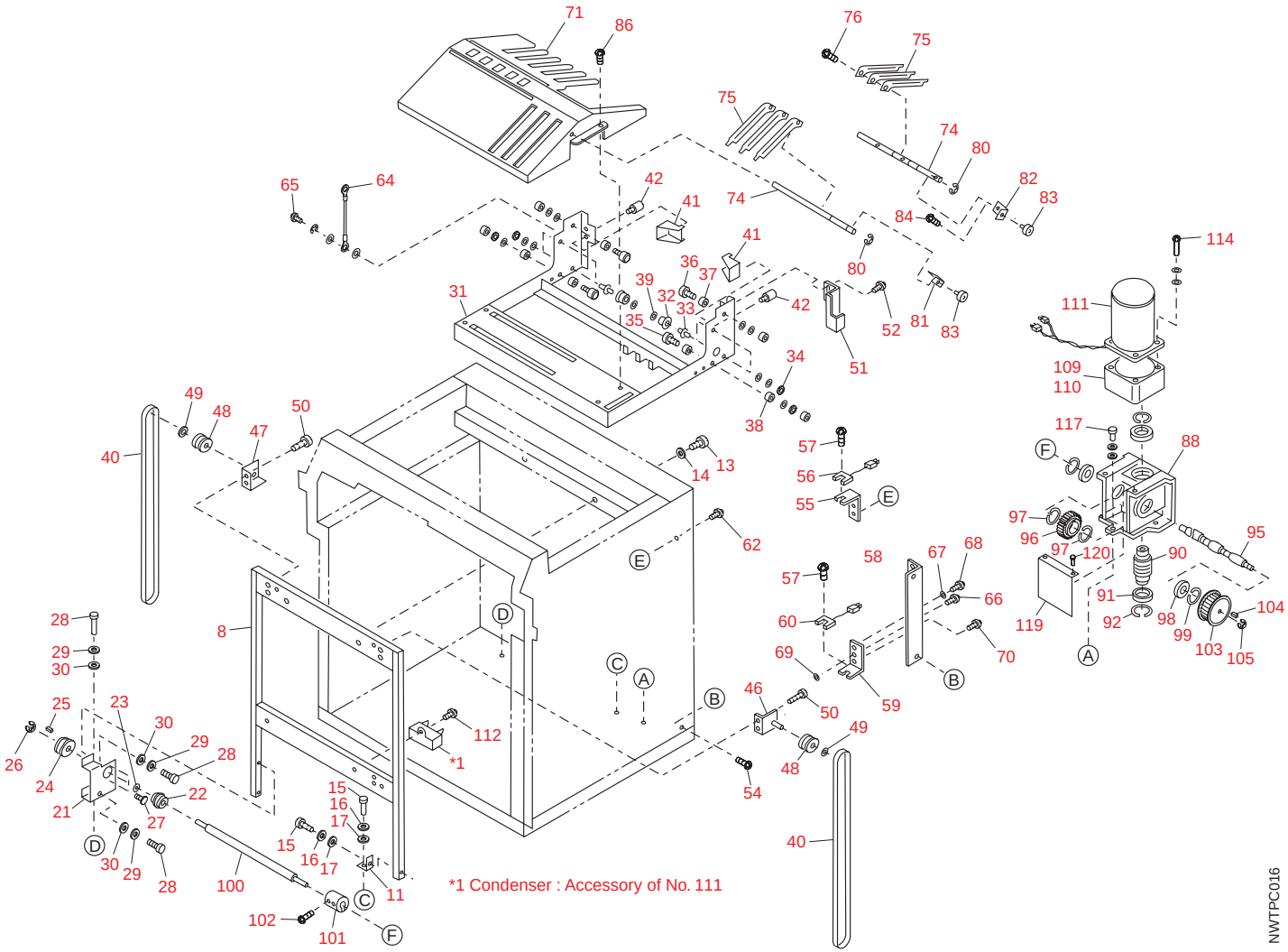
Asm–Index	Part Number	Units	Description
30–		NP	Stacker Table (Sheet 1 of 4)
–8		NP	
–11	88F3280	1	Holder, Rail
–13	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–14	06F0420	2	Washer, Press PP
–15	06F0403	2	Bolt, Hexagon Socket Hd M5 X 12 PP
–16	06F0405	2	Washer, Spring D5 PP
–17	06F0405	2	Washer, Bolt D5 PP
–21	88F3281	1	Holder, Rail
–22	65F6158	1	Bearing, Ball
–23	88F3282	1	Spacer, TD
–24	88F1653	1	Pulley, Table Drive
–25	06F0408	1	Key, 4 X 4 X 10 PP
–26	06F0409	1	Ring, Retaining PP
–27	06F0413	2	Screw, Phillips Bind Hd M4 X 8 PP
–28	06F0403	3	Bolt, Hexagon Socket Hd M5 X 12 PP
–29	06F0405	3	Washer, Spring D5 PP
–30	06F0405	3	Washer, Bolt D5 PP
–31		NP	
–32	88F3284	4	Roller, Guide
–33	88F3285	4	Shaft, Guide Roller
–34	88F1627	4	Nut, M8 PP
–35	65F6160	2	Roller
–36	65F6159	2	Roller
–37	88F3286	2	Collar
–38	88F3287	4	Collar
–39	06F0418	4	E-Clip PP
–40	06F0198	2	Belt, Stacker Table Drive


*1 Condenser : Accessory of No. 111
NWTPC016

Asm–Index	Part Number	Units	Description
30–		NP	Stacker Table (Sheet 2 of 4)
–41	88F3288	2	Clamp, Belt
–42	88F1626	4	Bolt, Hexagon Socket with Star Wshr & Wshr PP
–46	88F3289	1	Bracket, Idler
–47	88F3290	1	Bracket, Idler
–48	65F6161	2	Pulley, Idler
–49	06F0418	2	E-Clip PP
–50	06F0415	4	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 6 PP
–51		NP	
–52	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–54	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP

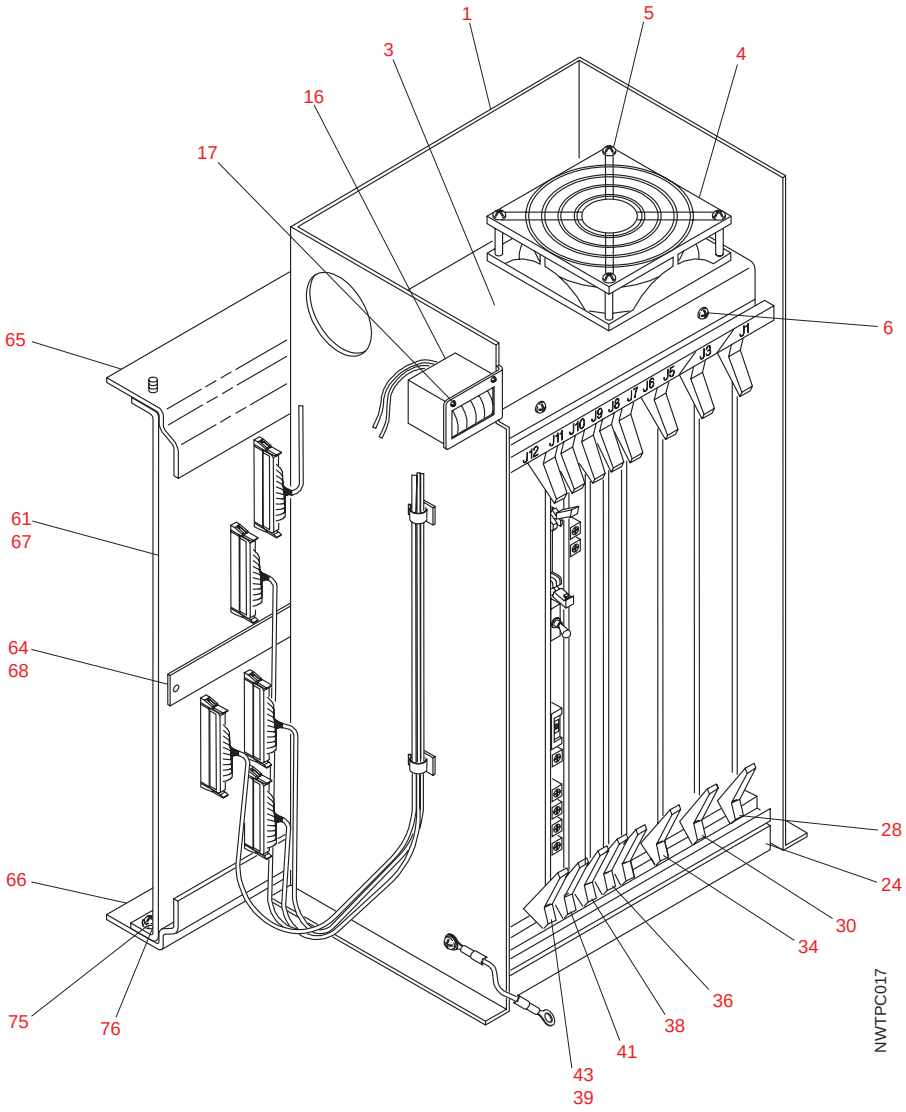

*1 Condenser : Accessory of No. 111
NWTPC016

Asm–Index	Part Number	Units	Description
30–		NP	Stacker Table (Sheet 3 of 4)
–55		NP	
–56	53F1793	1	Sensor, Stacker Table Upper Limit (S704)
–57	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16 PP
–58		NP	
–59		NP	
–60	88F2415	1	Sensor, Stacker Table Lower Limit (S701)
–62	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–64	88F3295	1	Cable, Ground Wire
–65	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–66	88F1627	1	Bolt, Clamp PP
–67	06F0405	1	Bolt, D6 Wshr PP
–68	06F0404	1	Screw, Shoulder PP
–69	06F0418	1	E-Clip PP
–70	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X12 PP
–71		NP	
–74		NP	
–75	06F0987	6	Expander, Perforation
–76	06F0420	6	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–80	06F0418	4	E-Clip PP
–81	06F0992	1	Bracket, Bearing
–82	06F0991	1	Bracket, Bearing
–83	06F0214	2	Bearing, Plastic
–84	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M4 X 10 PP
–86	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP

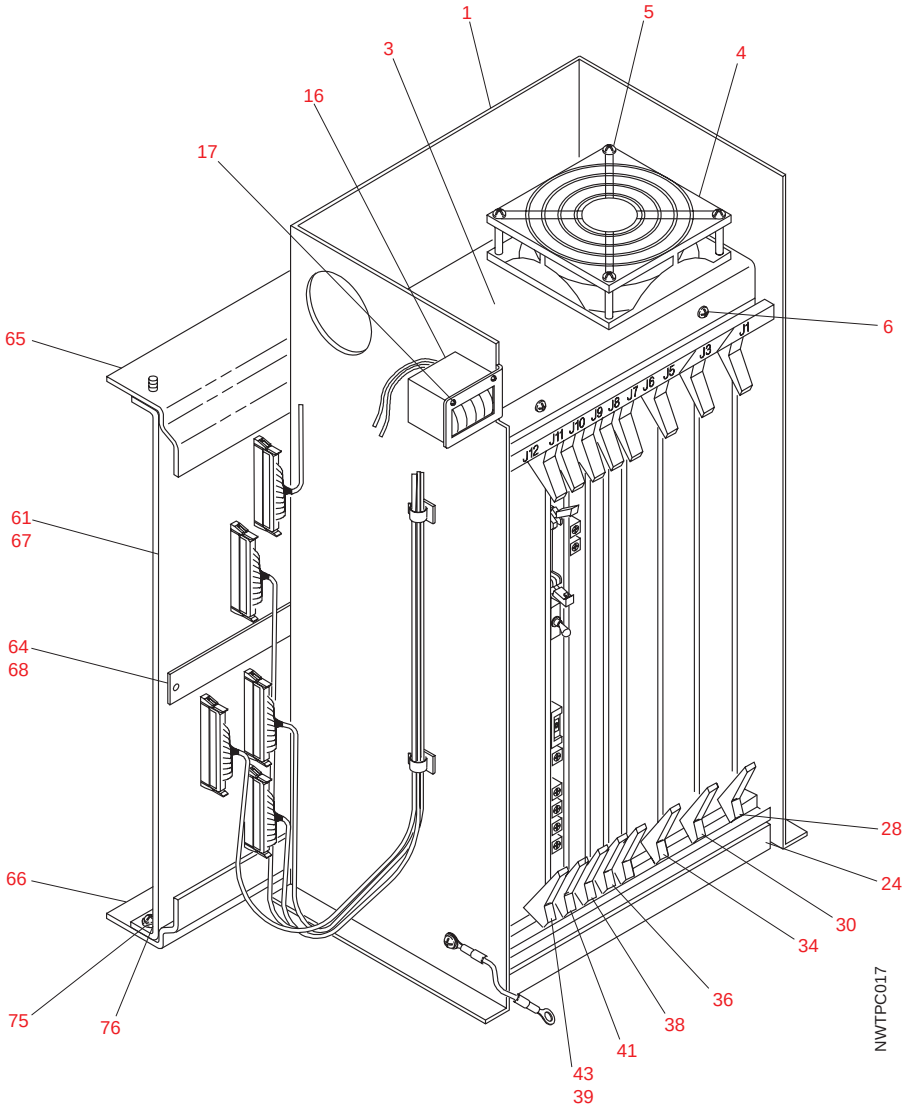

*1 Condenser : Accessory of No. 111
NWTPC016

Asm–Index	Part Number	Units	Description
30–		NP	Stacker Table (Sheet 4 of 4)
–88		NP	
–90	06F0969	1	Gear, Worm
–91	88F3299	2	Bearing, Ball
–92	06F0409	2	Ring, Retaining PP
–95	88F3300	1	Shaft, Table Drive
–96	88F3301	1	Gear, Helical
–97	06F0418	2	E-Clip PP
–98	53F1976	2	Bearing, Ball
–99	06F0409	2	Ring, Retaining PP
–100		NP	
–101	06F0964	1	Coupling
–102	06F0415	2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 16 PP
–103	88F1653	1	Pulley, Table Drive
–104	06F0408	1	Key, 4 X 4 X 10 PP
–105	06F0409	1	Ring, Retaining PP
–109	06F0196	1	Gearbox, 50 Hz
–110	53F2000	1	Gearbox, 60 Hz
–111	06F0195	1	Motor, Stacker Table (M803) and Capacitor (C803) Asm
–112	06F0420	1	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–114	06F0414	2	Bolt, Hexagon Socket Hd M6 X 60 PP
–117	06F0403	3	Bolt, Hexagon Socket Hd M5 X 20 PP
–119	88F3302	1	Cover, Gear
–120	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP

Assembly 31: B1 Boards



Asm–Index	Part Number	Units	Description
31–		NP	B1 Boards (Sheet 1 of 3)
–1		NP	
–3		NP	
–4	06F0194	1	Fan, (B403)
–5	06F0413	2	Screw, Phillips Bind Hd M4 X 45 PP
–6	06F0411	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 PP
–16	06F0028	1	Counter, Asm
–17	06F0401	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6 PP
–24	57G6547	1	Filter
–28	57G6516	1	Card, DV021 (B1J1)
–30	57G6517	1	Card, DV022 (B1J3) (All except 324 PPM)
–30	11L5160	1	Card, DV023 (B1J3) (324 PPM only)
–32	57G6518	1	Card, DV041 (B1J5) (All except 324 PPM, IR3/IR4, and later versions of IR1/IR2)
–32	90H1281	1	Card, DV091 (B1J5) (324 PPM, IR3/IR4, and later versions of IR1/IR2)
–34	57G6519	1	Card, RH011 (B1J7) (All except 324 PPM)
–34	11L5159	1	Card, RH041 (B1J7) (324 PPM Only)
–36	30H2788	1	Card, FU031 (B1J8) (310 PPM only)
–36	24H8014	1	Card, FU051 (B1J8) (Early versions of IR1/IR2 only)
–36	24H8327	1	Card, FU061 (B1J8) (IS1, ID1/ID2 only)
–36	90H1280	1	Card, FU091 (B1J8) (324 PPM only)
–36	90H1371	1	Card, FU092 (B1J8) (IR3/IR4)
–36	11L6278	1	Card, FU094 (B1J8) (Later versions of IR1/IR2 only)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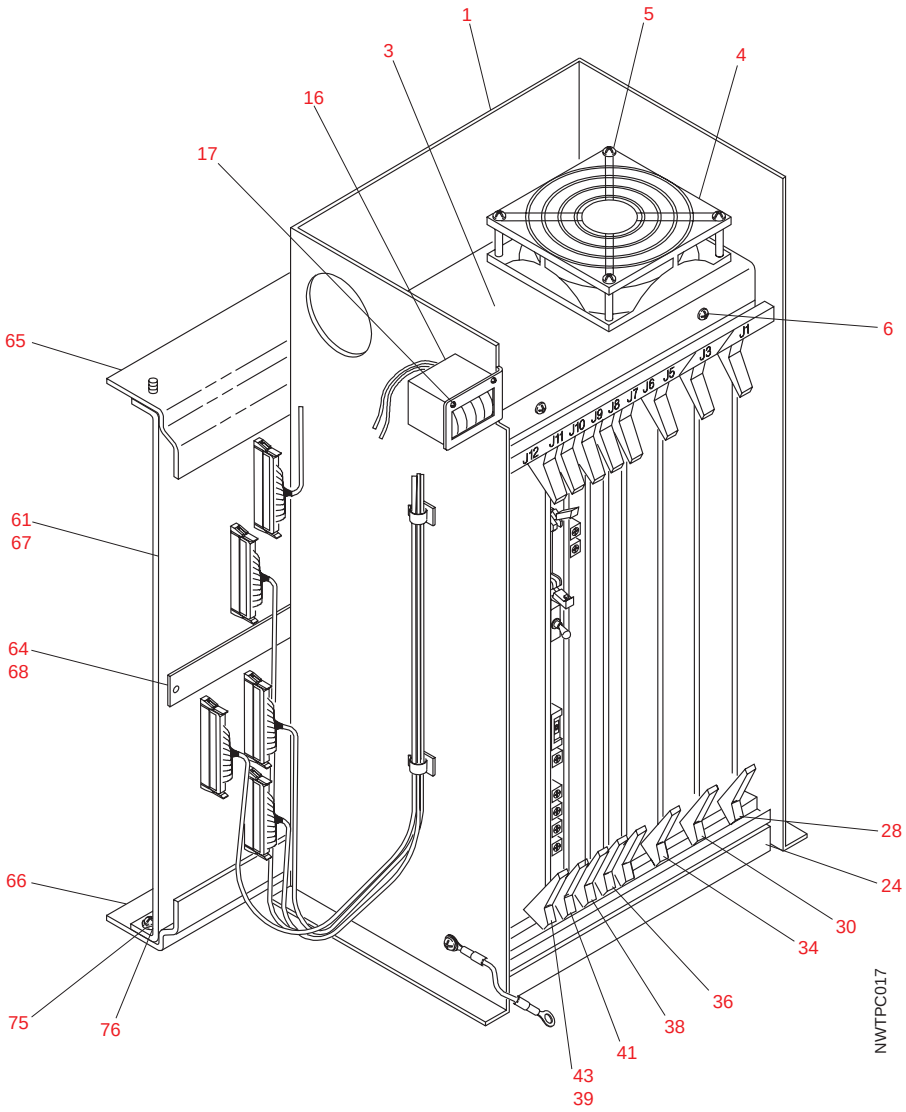
Asm–Index	Part Number	Units	Description
31–		NP	B1 Boards (Sheet 2 of 3)
–38	04H0784	1	Card, MC121 (B1J9) (310 PPM only)
–38	24H8028	1	Card, MC141 (B1J9) (Earlier versions of IR1/IR2)
–38	24H8323	1	Card, MC151 (B1J9) (IS1, ID1/ID2 only)
–38	90H1362	1	Card, MC182 (B1J9) (IR3/IR4)
–38	90H1274	1	Card, MC184 (B1J9) (324 PPM only)
–38	11L6279	1	Card, MC186 (B1J9) (Later versions of IR1/IR2)
–39	24L4551	1	EPROM Kit (B1J11 Card) (IS1, ID1/ID2 only)
–39	24L9752	1	EPROM Kit (B1J11 Card) (310 PPM only)
–39	90H2754	1	EPROM Kit (B1J11 Card) (IR1/IR2 with CP16X Card Only)
–39	24L5331	1	EPROM Kit (B1J11 Card) (324 PPM only)
–39	24L5329	1	EPROM Kit (B1J11 Card) (IR1/IR2 with CP17X Card only)
–39	24L5330	1	EPROM Kit (B1J11 Card) (IR3/IR4 only)
–41	57G6522	1	Card, PF041 (B1J10) (All except 310 PPM and 324 PPM)
–41	04H0877	1	Card, PF061 (B1J10) (310 PPM only)
–41	90H1301	1	Card, PF081 (B1J10) (324 PPM only)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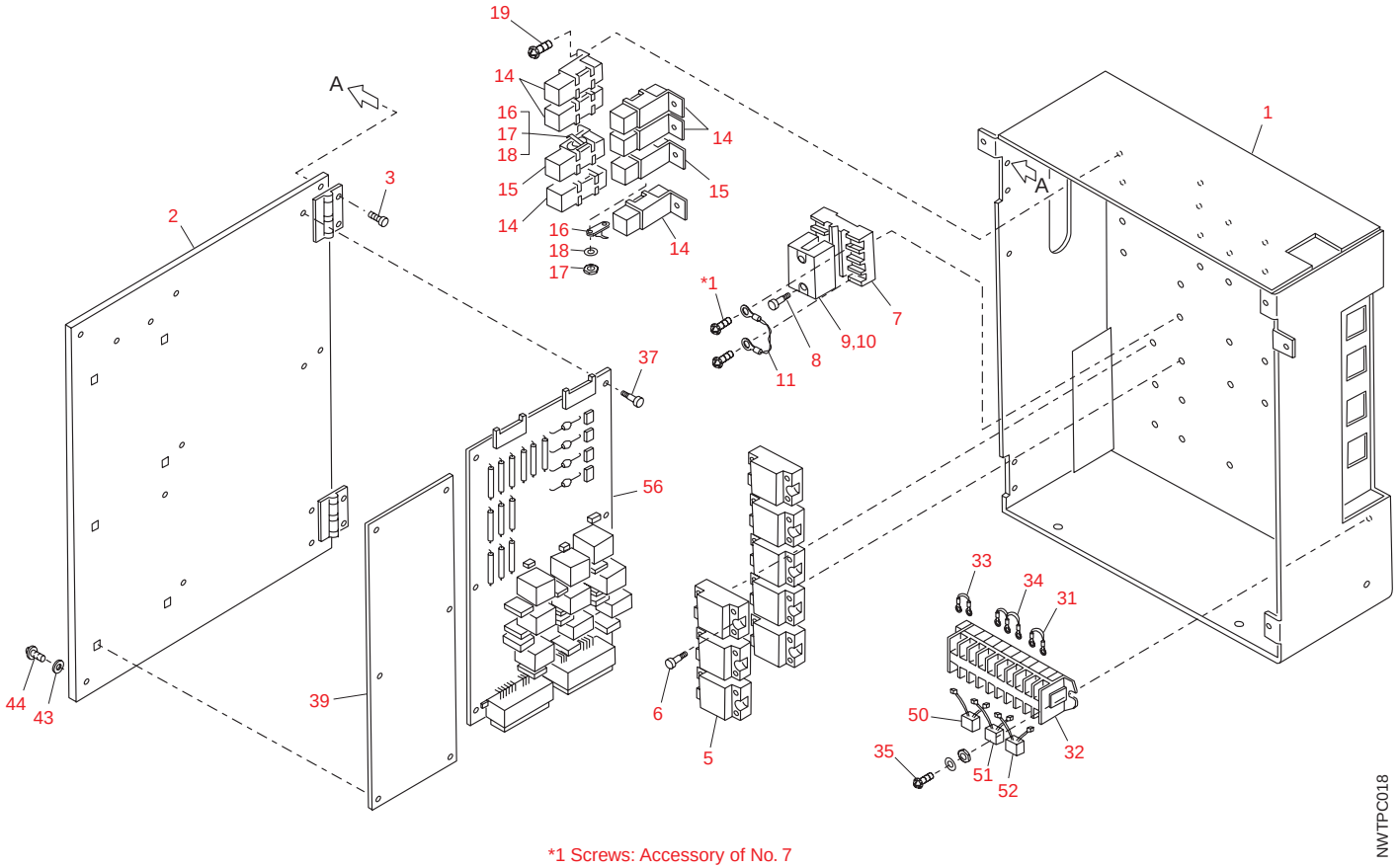
NWTPC017

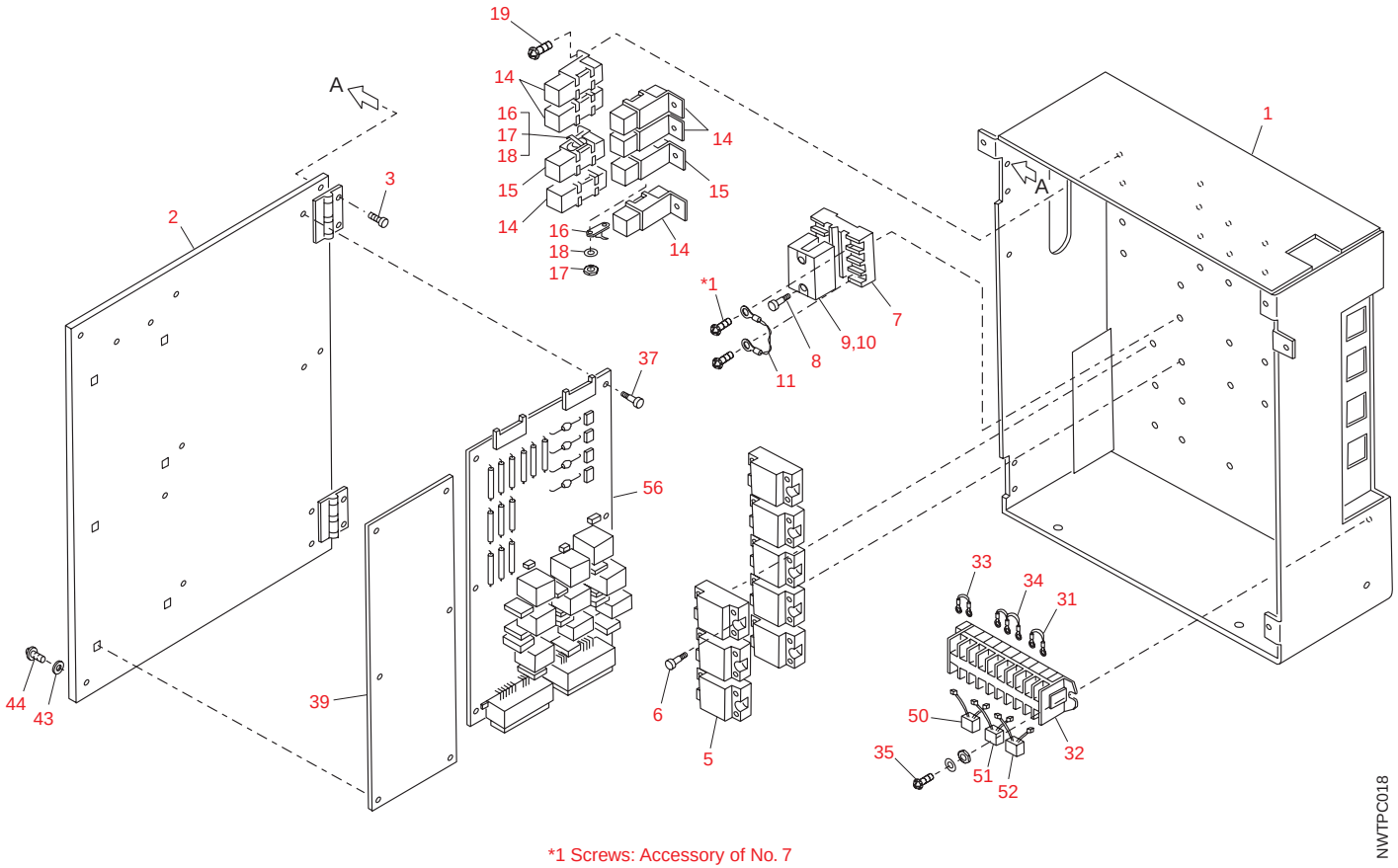
Asm–Index	Part Number	Units	Description
31–		NP	B1 Boards (Sheet 3 of 3)
–43	57G6523	1	Card, CP161 (B1J11) (All except 324 PPM and IR3/IR4) (See note below)
–43	90H1364	1	Card, CP172 (B1J11) (IR3/IR4) (See note below)
–43	90H1302	1	Card, CP173 (B1J11) (324 PPM) (See note below)
–43	11L6280	1	Card, CP175 (B1J11) (Earlier versions of IR1/IR2 only) (See note below)
–	89H9676	1	Battery, (B1J11) (All except 324 PPM) **Note:** When you order a new B1J11 Card, also order the correct EPROM kit to go with the card. Replace the EPROM that is already installed on the new card.
–61		NP	
–64		NP	
–65		NP	
–66		NP	
–67	06F0420	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–68	06F0420	3	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16 PP
–74		NP	
–75	06F0420	4	Screw, d with Star Wshr & Wshr M4 X 8 PP

Assembly 32: Fuser Control Box



*1 Screws: Accessory of No. 7

Asm–Index	Part Number	Units	Description
32–		NP	Fuser Control Box (Sheet 1 of 2)
–1		NP	
–2		NP	
–3	06F0411	4	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10 PP
–5	06F0172	8	Relay, Solid State
–6	06F0413	16	Screw, Phillips Bind Hd M4 X 12 PP
–7	88F3311	1	Relay, Socket
–8	06F0413	2	Screw, Phillips Bind Hd M4 X 12 PP
–9	53F1774	1	Relay, (US/Canada 60 Hz and Japan 50 Hz or 60 Hz) (K601)
–10	53F1815	1	Relay, (Europe 50 Hz and Norway 50 Hz) (K601)
–11	88F3312	1	Diode, Flyback Asm
–14	06F1022	6	Resistor, without Thermal Switch Asm
–15	06F1023	2	Resistor, with Thermal Switch Asm
–16	06F0173	2	Switch, Thermal
–17	06F0407	4	Nut, M3 PP
–18	06F0405	4	Washer, Spring D3 PP
–19	06F0420	8	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP
–31	88F3368	1	Jumper, Shorting
–32	88F3313	1	Block, Terminal
–33	88F3314	1	Jumper, Shorting
–34	88F3315	1	Jumper, Shorting
–35	88F1626	2	Screw, Phillips Pan Hd M4 X 20 PP
–37	06F0413	6	Screw, Phillips Bind Hd M3 X 20 PP
–39	57G6526	1	Board, FS051 (All except 480/600 DPI, IS1, 324 PPM, and ID1/ID2)
–39	90H1044	1	Board, FS053 (IS1, ID1/ID2)
–39	24H8012	1	Board, FS071 (324 PPM and IR1/IR2) (Without bloom improvement)
–39	11L6132	1	Board, FS083 (IR3/IR4)
–39	24L4358	1	Board, FS082 (IR1/IR2 with bloom improvement hardware)
–43	06F0417	2	Washer, VF PP
–44	06F0420	2	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 PP



*1 Screws: Accessory of No. 7

Asm–Index	Part Number	Units	Description
32–		NP	Fuser Control Box (Sheet 2 of 2)
–50	88F3316	1	Capacitor, Asm
–51	88F3317	1	Capacitor, Asm
–52	88F3318	1	Capacitor, Asm
–56	53F1773	1	Board, Relay (RB091) (Printers without Backup Idler Roll)
–56	45G1862	1	Board, Relay (RB092) (Printers with Backup Idler Roll)

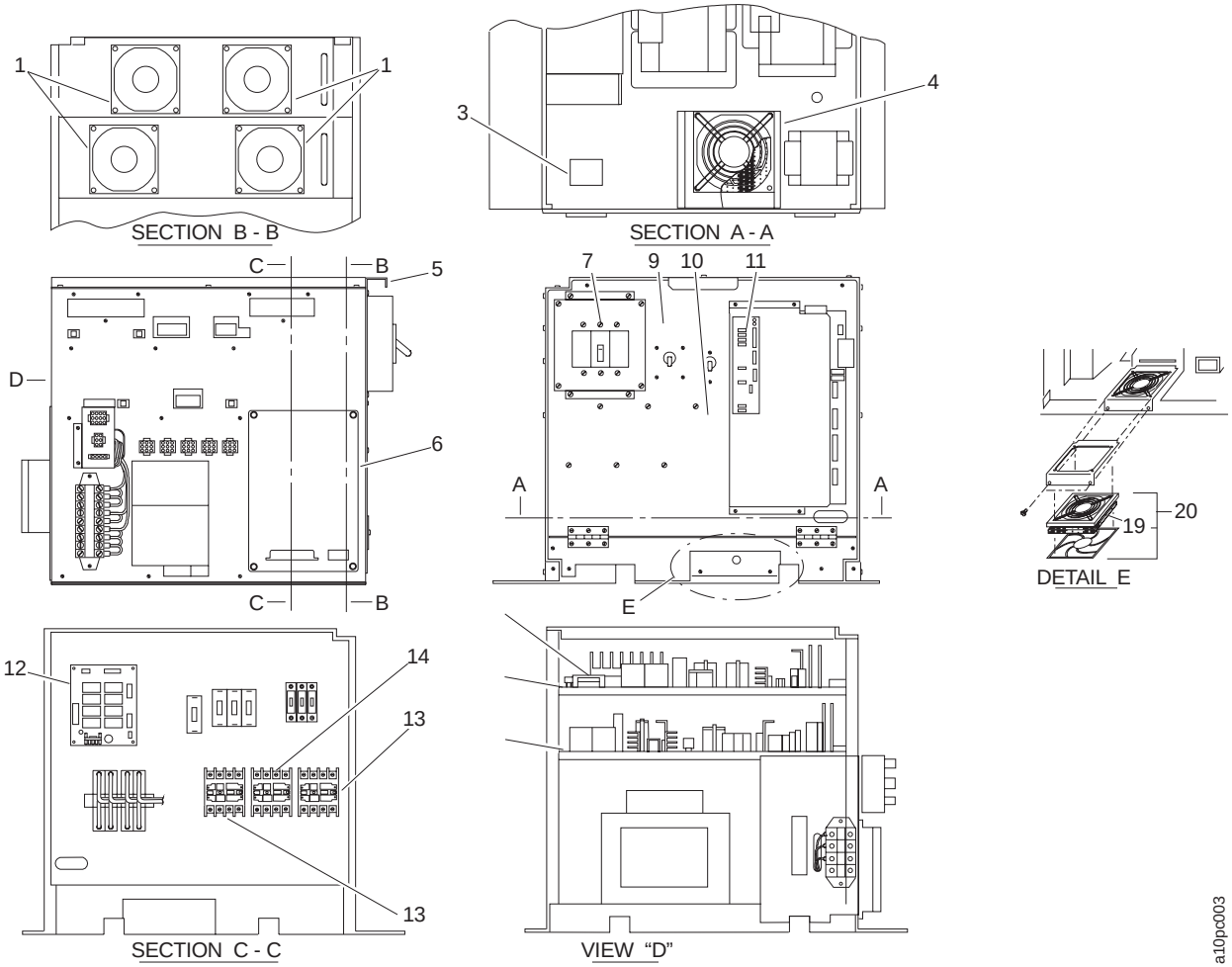
Assembly 33: No Assembly 33 for this Printer

Asm–Index	Part Number	Units	Description
33–			Not Used

Assembly 34: No Assembly 34 for this Printer

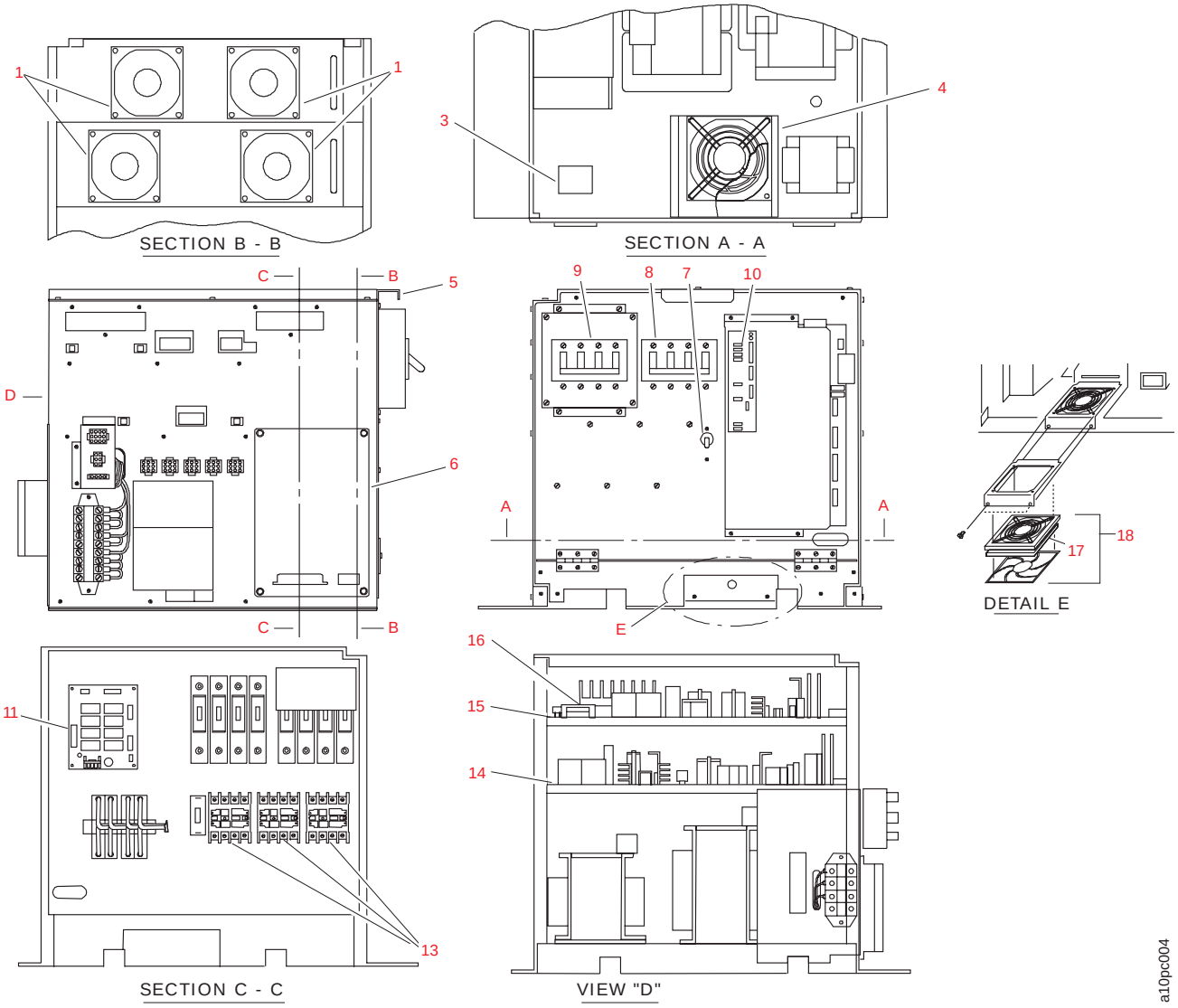
Asm–Index	Part Number	Units	Description
34–			Not Used

Assembly 35: AC Power Supply 200V



Asm–Index	Part Number	Units	Description
35–		NP	AC Power Supply 200V
–1	45G1876	4	Fan,(2) Asm
–3	53F1764	1	Relay, (K505) 200V/400V
–4	45G1875	1	Fan,(1) Asm
–5	45G1869	1	Power Supply 200V AC (310 PPM)
–5	90H1751	1	Power Supply 200V AC (324 PPM and IR3/IR4)
–5	89H9659	1	Power Supply 200V AC (IR1/IR2, IS1, ID1/ID2 only)
–6	53F1752	1	RB101, Relay Board
–7	45G1871	1	Breaker, Circuit (1) 200V (All except 324 PPM and IR3/IR4)
–7	11L5197	1	Breaker, Circuit (1) 200V (324 PPM and IR3/IR4)
–9	45G1872	1	Breaker, Circuit (2) 200V
–10	45G1873	1	Breaker, Circuit (3) 200V
–11	45G1859	1	Card Asm, SQ081 (310 PPM)
–11	89H9661	1	Card Asm, SQ082 (480/600 DPI, IS1, ID1/ID2, and 324 PPM only)
–12	45G1868	1	Card, (SR081) (AC Supply)
–13	45G1891	2	Relay, (1) 200V
–14	45G1892	1	Relay, (2) 200V
–16	45G1844	1	Power Supply DC1
–17	45G1843	1	Power Supply DC2
–18	04H0210	1	Fuse
–19	88F3386	1	Filter, Power Supply
–20	88F3387	1	Filter Asm, Power Supply

Assembly 36: AC Power Supply 400V

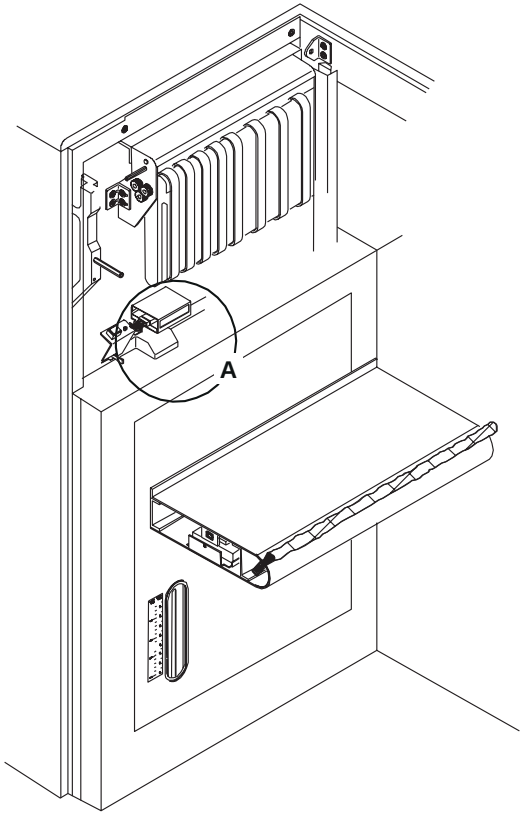


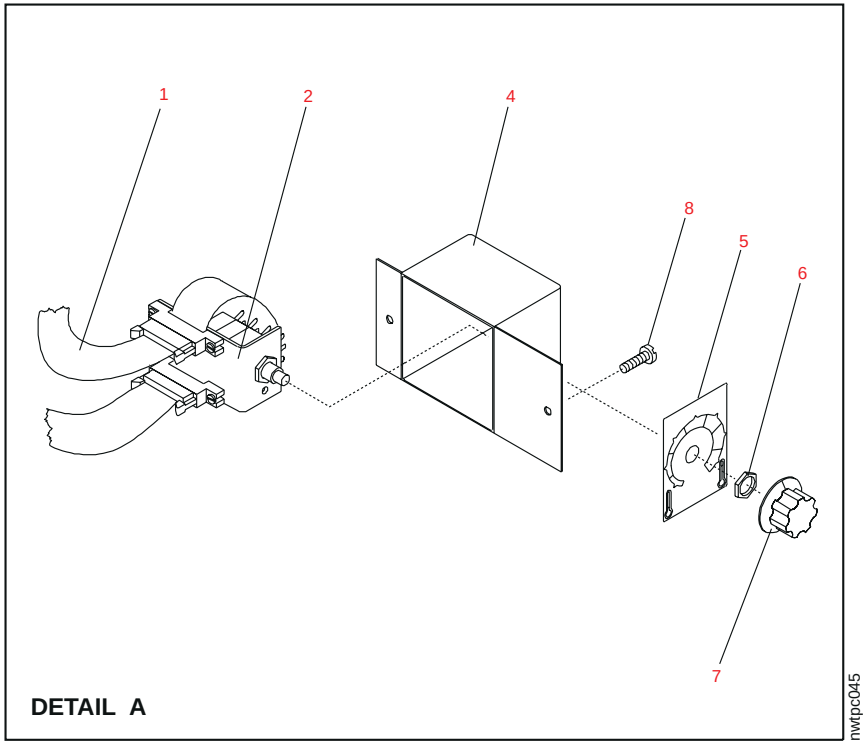
Asm–Index	Part Number	Units	Description
36–		NP	AC Power Supply 400V
–1	45G1876	1	Fan (2) Asm
–3	53F1764	1	Relay, (K505) 200V/400V
–4	45G1875	1	Fan (1) Asm
–5	45G1870	1	Power Supply (400V), AC (310 PPM)
–5	89H9660	1	Power Supply (400V), AC (IR1/IR2, IS1, ID1/ID2 only)
–5	90H1752	1	Power Supply (400V), AC (324 PPM and IR3/IR4 only)
–6	53F1752	1	RB101, Relay Board
–7	45G1873	1	Breaker, Circuit (CB504) 400V
–8	53F1761	1	Breaker, Circuit (CB503) 400V
–9	45G1874	1	Breaker, Circuit (CB501) 400V
–10	45G1859	1	Card Asm, SQ081 (310 PPM)
–10	89H9661	1	Card Asm, SQ082 (480/600 DPI, IS1, ID1/ID2, and 324 PPM only)
–11	45G1868	1	Card, SR081 (AC Power Supply)
–12	45G1892	3	Relay, (K501-503) 400V
–14	45G1844	1	Power Supply DC1
–15	45G1843	1	Power Supply DC2
–16	04H0210	1	Fuse
–17	88F3386	1	Filter, Power Supply
–18	88F3387	1	Filter Asm, Power Supply

Assembly 37: No Assembly 37 for this Printer

Asm–Index	Part Number	Units	Description
37–			Not Used

Assembly 38: Preheat Platen Control



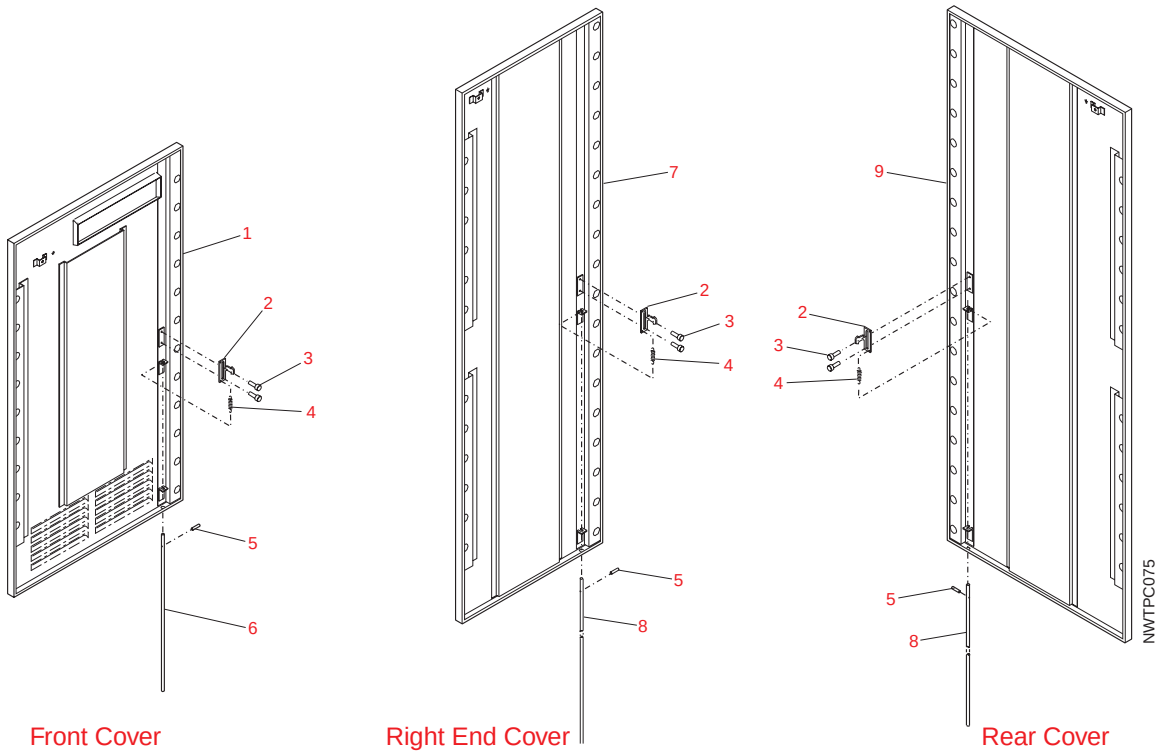


Asm–Index	Part Number	Units	Description
38–		NP	Preheat Platen Control (Sheet 1 of 1)
–1	57G6633	1	Cable, Preheat
–2	09G7012	1	Preheat Potentiometer Asm
–4	88F3699	1	Enclosure
–5	88F3700	1	Label
–6	06F7017	1	Nut
–7	88F3710	1	Knob
–8	1621190	2	Screw M4 X 8

Assembly 39: No Assembly 39 for this Printer

Asm–Index	Part Number	Units	Description
39–			Not Used

Assembly 40: Control Unit Covers



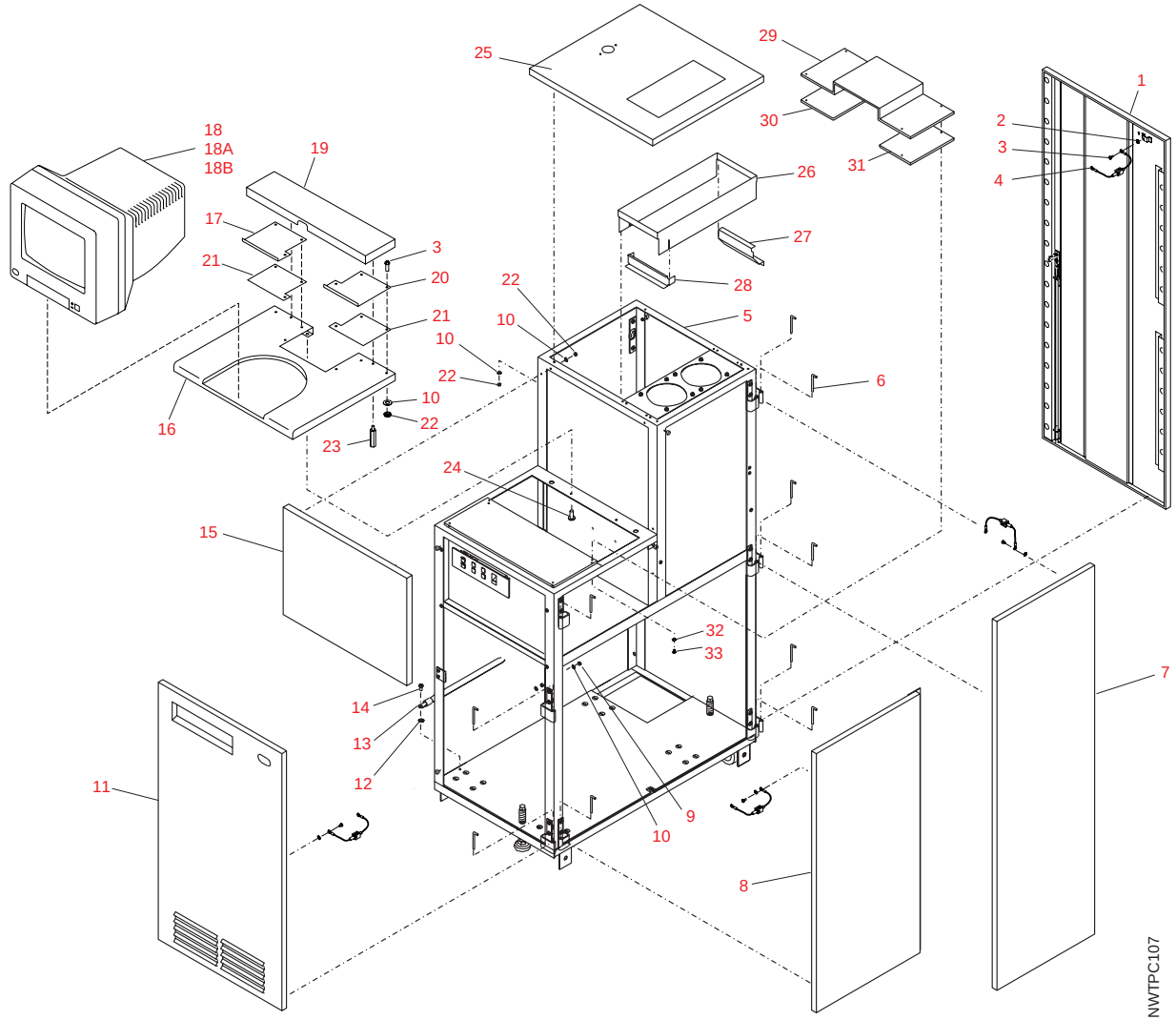
Front Cover

Right End Cover

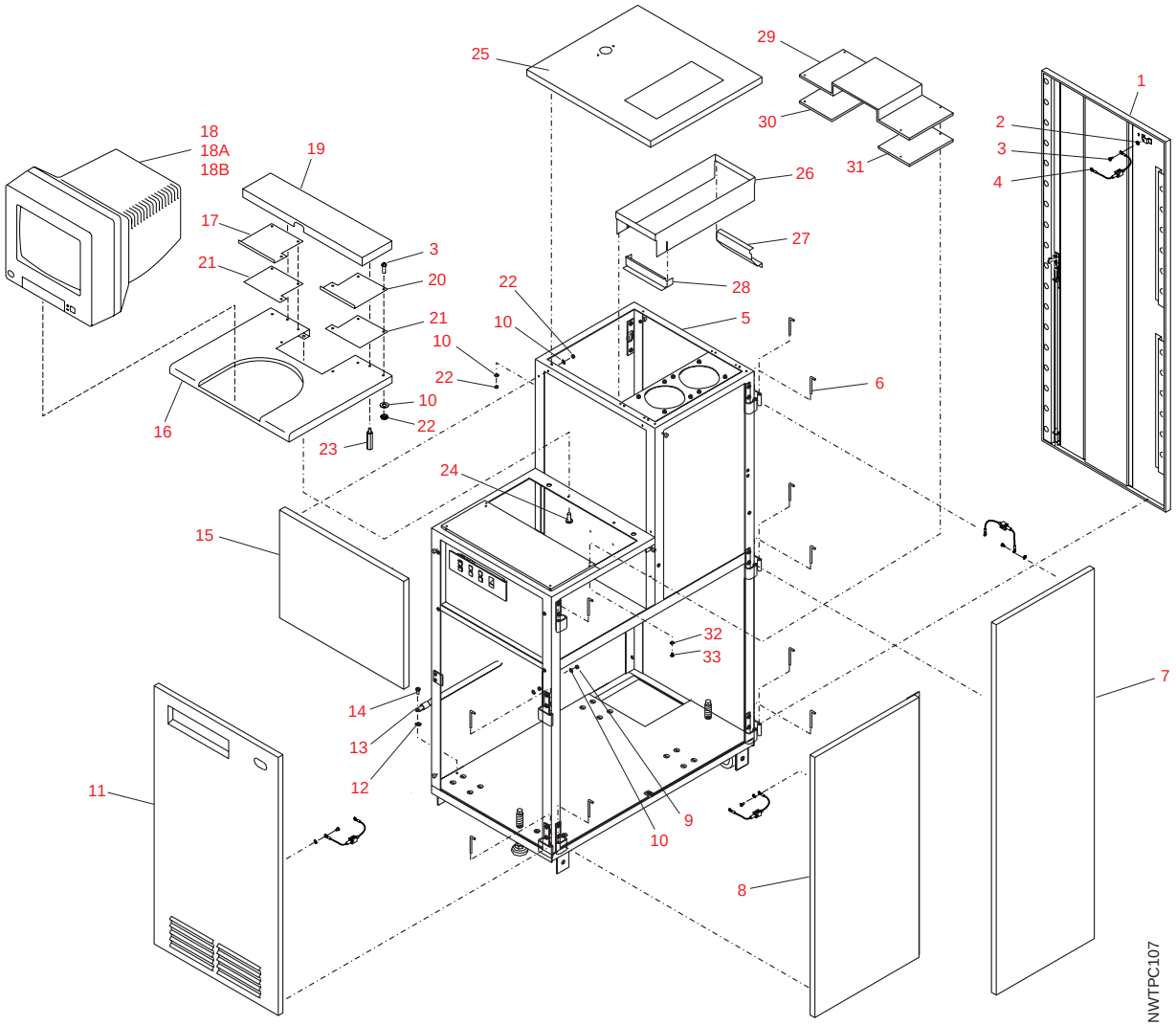
Rear Cover

Asm–Index	Part Number	Units	Description
40–		NP	Control Unit Covers
–	30H6873	1	Cover Front Asm (All except IR3/IR4)
–	63H6574	1	Cover Front Asm (IR3/IR4 only)
–1C	30H6872	1	Cover, Front (All except IR3/IR4)
–1C	63H6575	1	Cover, Front (IR3/IR4 only)
–2C	30H2989	2	Latch, Bracket
–3C	53F1667	2	Screw, Shoulder
–4C	53F1609	1	Spring
–5C	1693629	1	Pin
–6C	30H6882	1	Rod (All except IR3/IR4)
–6C	11L6063	1	Rod (IR3/IR4 only)
–	30H6877	1	Cover, End Asm
–7C	30H6876	1	Cover, End
–8C	30H6831	1	Rod
–	30H6875	1	Cover, Rear Asm
–9C	30H6874	1	Cover, Rear

Assembly 41: Control Unit Covers and CRT



Asm–Index	Part Number	Units	Description
41–		NP	Control Unit Covers and CRT (Sheet 1 of 2)
–			
–1A	30H6875	1	Cover Asm, Rear (See Asm 40 for Detail)
–2A	1622346	2	Washer, Star
–3A	53F1665	4	Screw
–4A	81X0295	3	Cable, Ground
–5A		NP	
–6A	53F1607	10	Pin, Cover Hinge
–7A	30H6877	1	Cover Asm, Right End Rear (See Asm 40 for Detail)
–8A	30H6878	1	Cover, Right End Front
–9A	1622393	1	Nut
–10A	1622304	3	Washer
–11A	30H6873	1	Cover Asm, Front (See Asm 40 for Detail)
–12A	1622348	1	Washer, Star
–13A	45G2091	1	Cable, Ground
–14A	1621862	1	Screw, M6 X 10
–15A	30H6880	1	Cover, Top Middle
–16A	30H2885	1	Shelf, (For CU with the CRT)
–16A	30H6520	1	Shelf, (For CU without the CRT)
–16A	90H2665	1	Shelf, (Required for CRT PN 90H1744)
–17A	30H2967	1	Mount, Cover
–18	96H3126	1	Monitor (Display/Touch Screen) 6542–G41T, World Trade (Southern Hemisphere-White)
–18A	90H1744	1	Monitor (Display/Touch Screen) G52, (Black-With shelf PN 90H2665)
–18B	90H2678	1	Monitor (Display/Touch Screen) G52 (White-Northern Hemisphere)
–19A	30H2962	1	Cover, Cable
–20A	30H2968	1	Mount, Cover
–21A	30H2919	1	Plate, Cover Mount
–22A	1622403	8	Nut
–23A	30H6521	2	Stud
–24A	53F1663	2	Screw, M5 X 8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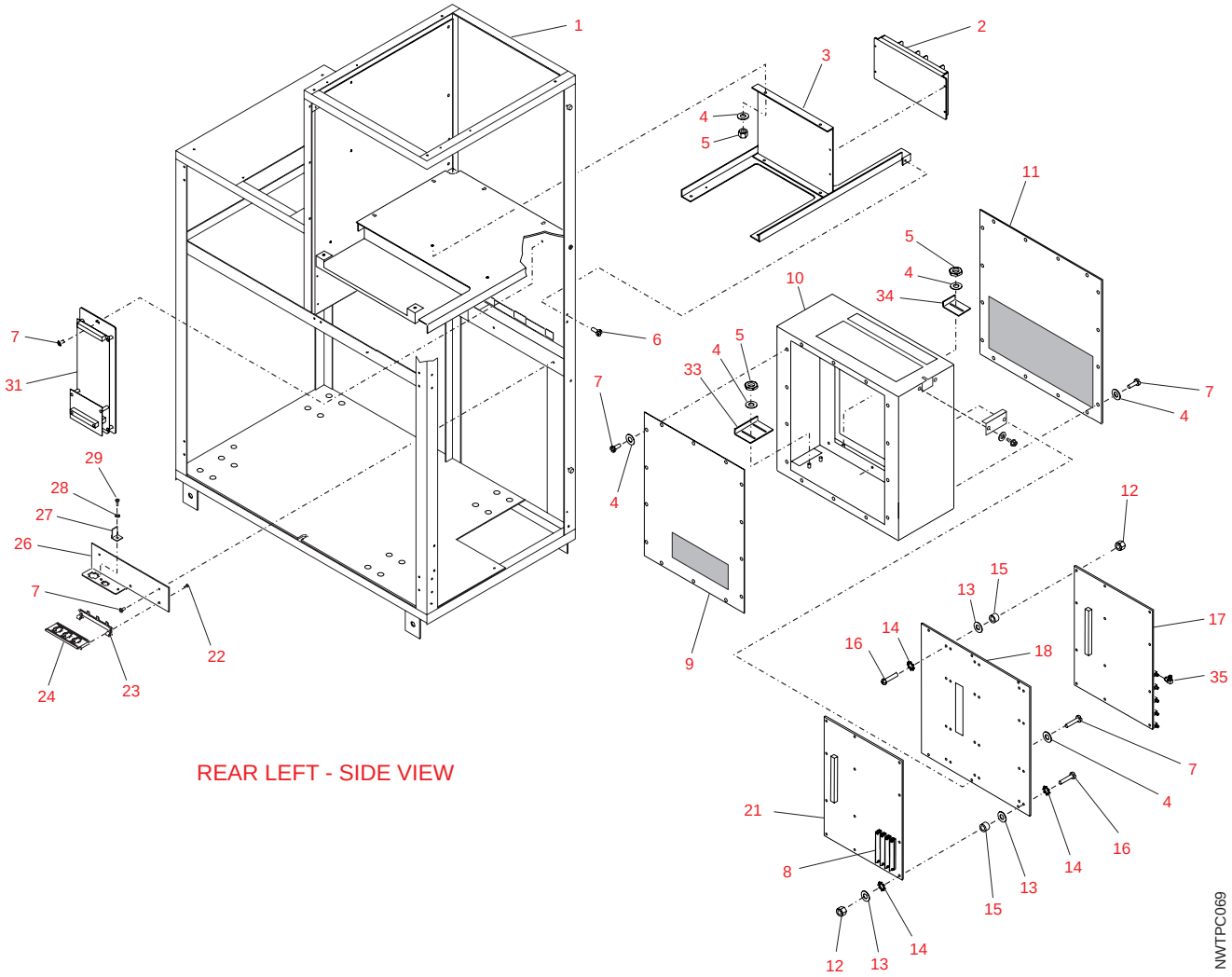
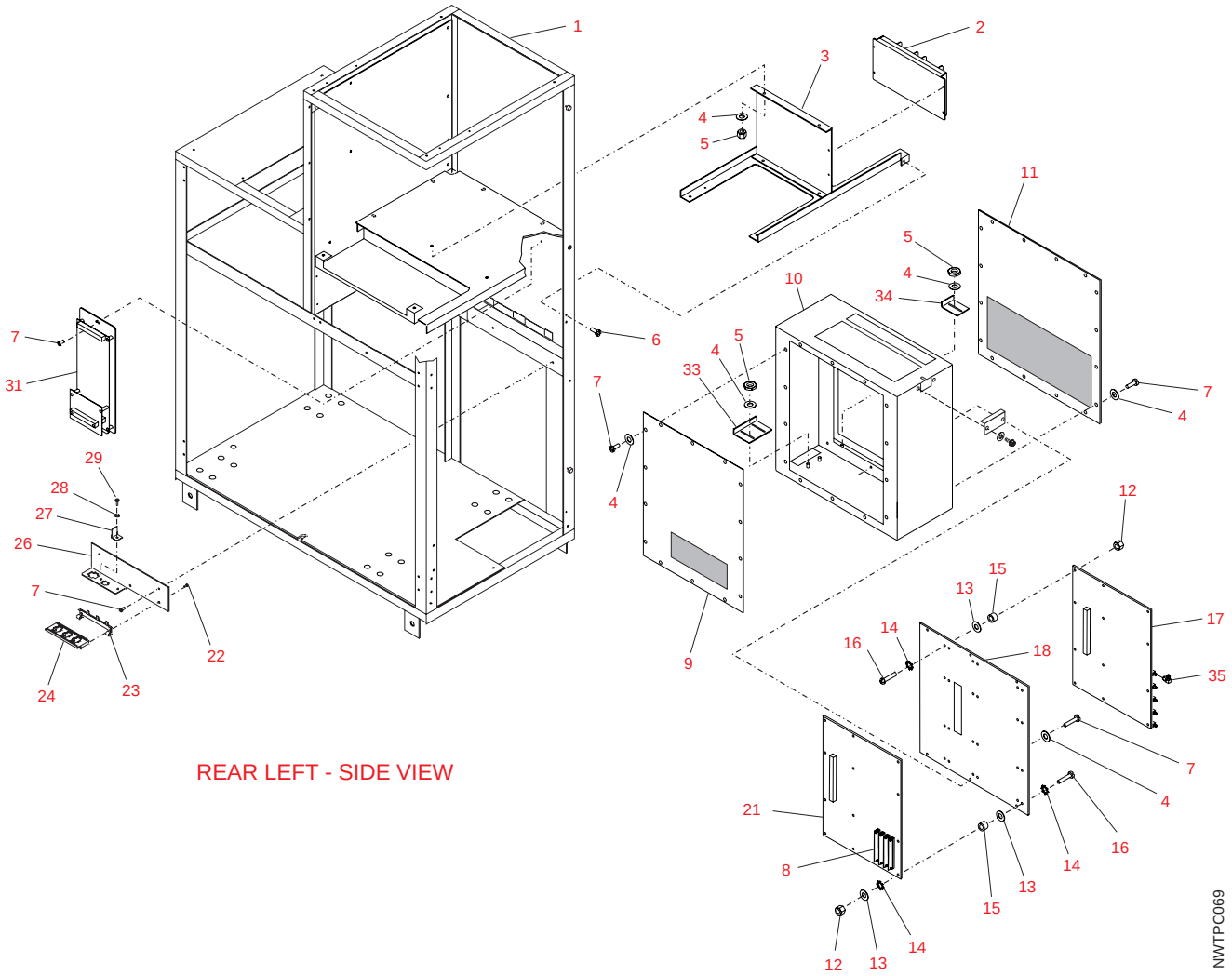
Asm–Index	Part Number	Units	Description
41–		NP	Control Unit Covers and CRT (Sheet 2 of 2)
–25A	30H6879	1	Cover, Top Rear
–26		NP	Deflector, air
–27A		NP	Bracket, rear deflector
–28A		NP	Bracket, front deflector
–29A		NP	Bracket, shelf support
–30A		NP	Spacer, left support
–31A		NP	Spacer, right support

Assembly 42: Control Unit Service Access Covers

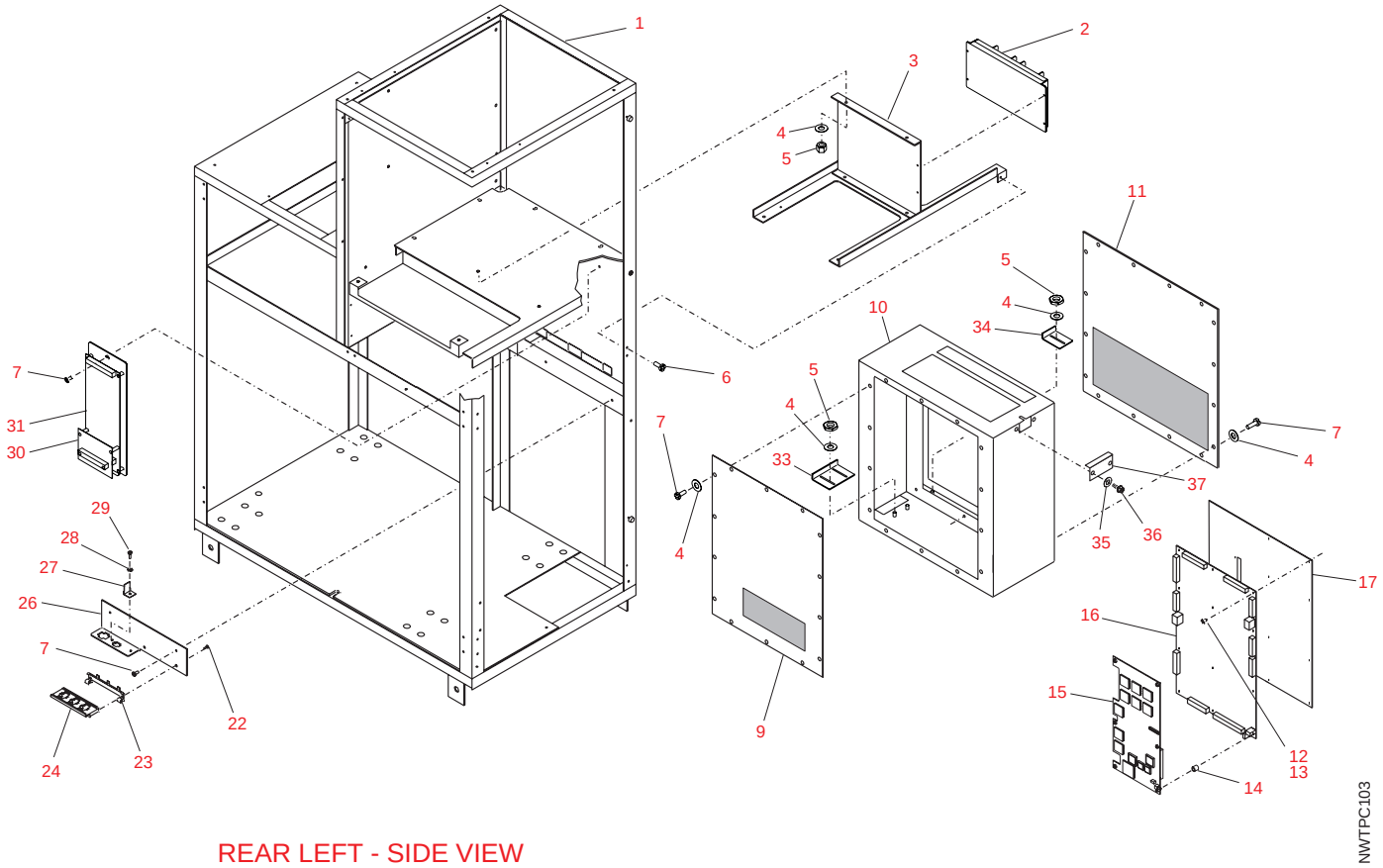


Asm–Index	Part Number	Units	Description
42–			Control Unit Service Access Covers, MIC Card, and PQE Card (Sheet 1 of 6)
–			***IR1/2 and IR3/4 Models only***
–1A		NP	
–2A	25F9401	1	Tailgate
–3A		NP	
–4A	1622304	35	Washer
–5A	1622403	3	Nut
–6A	30H3100	10	Screw, M5 X 10
–7A	53F1665	38	Screw, M4 X 8
–8A	30H6702	4	Memory Card (IR1/IR2)
–8A	90H2627	2	Memory Card (IR3/IR4)
–9A		NP	
–10A		NP	
–11A		NP	
–12A	89H9835	24	Nut
–13A	1622303	24	Washer, Flat
–14A	0338169	24	Washer, Star
–15A	30H2817	24	Standoff
–16A	0438551	24	Screw
–17A	90H2539	1	Card, PQE (IR1/IR2)
–17A	02N6400	1	Card, PQE (IR3/IR4)
–18A	30H6782	1	Plate, Mounting
–21A	90H1150	1	Card, MIC (IR1/IR2)
–21A	89H9831	1	Card, MIC (IR3/IR4)
–22A	53F1663	2	Screw
–23A	4586927	1	Spring
–24A	85X6837	1	Retainer, Remote BUS TAG



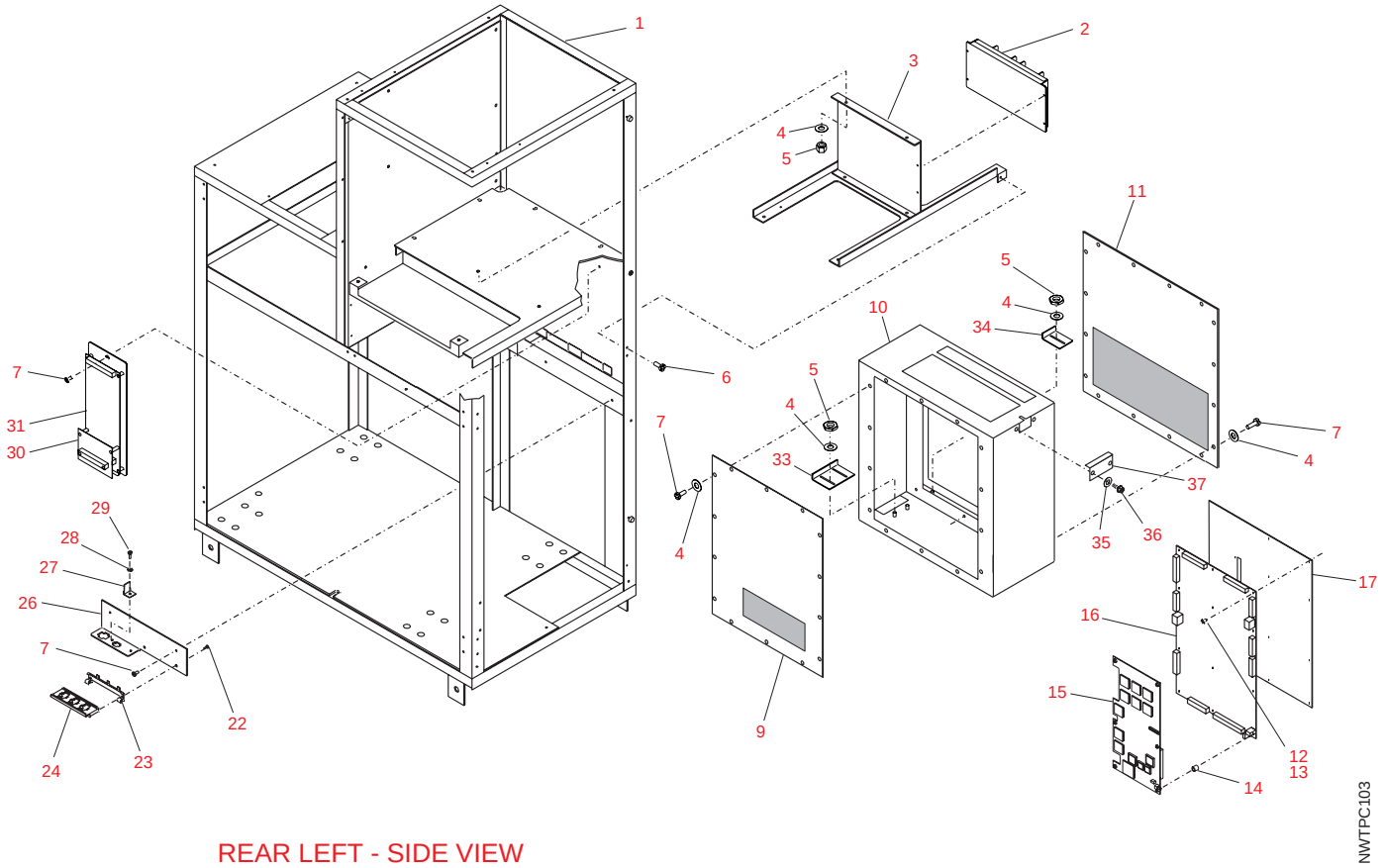
REAR LEFT - SIDE VIEW

Asm–Index	Part Number	Units	Description
42–			Control Unit Service Access Covers, MIC Card, and PQE Card (Sheet 2 of 6)
–25A		NP	
–26A	30H6837	1	Bracket
–27A		NP	
–28A		NP	
–29A		NP	
–30A	45G2098	1	Card, Coupled Interface (YUCC) (Coupled to CGIC for 4710 Feature only)
–31A	49G6111	1	Card, Common Ground Isolation (CGIC) (For 4710 feature when coupled to the YUCC; for 4720 feature when not coupled to the YUCC).(IRx Models only)
–32A		NP	
–33A	30H6798	1	Bracket, Cable
–34A	30H6799	1	Bracket, Cable
–35A	89H9762	1	Cable Adapter, 90° (Not Shown)



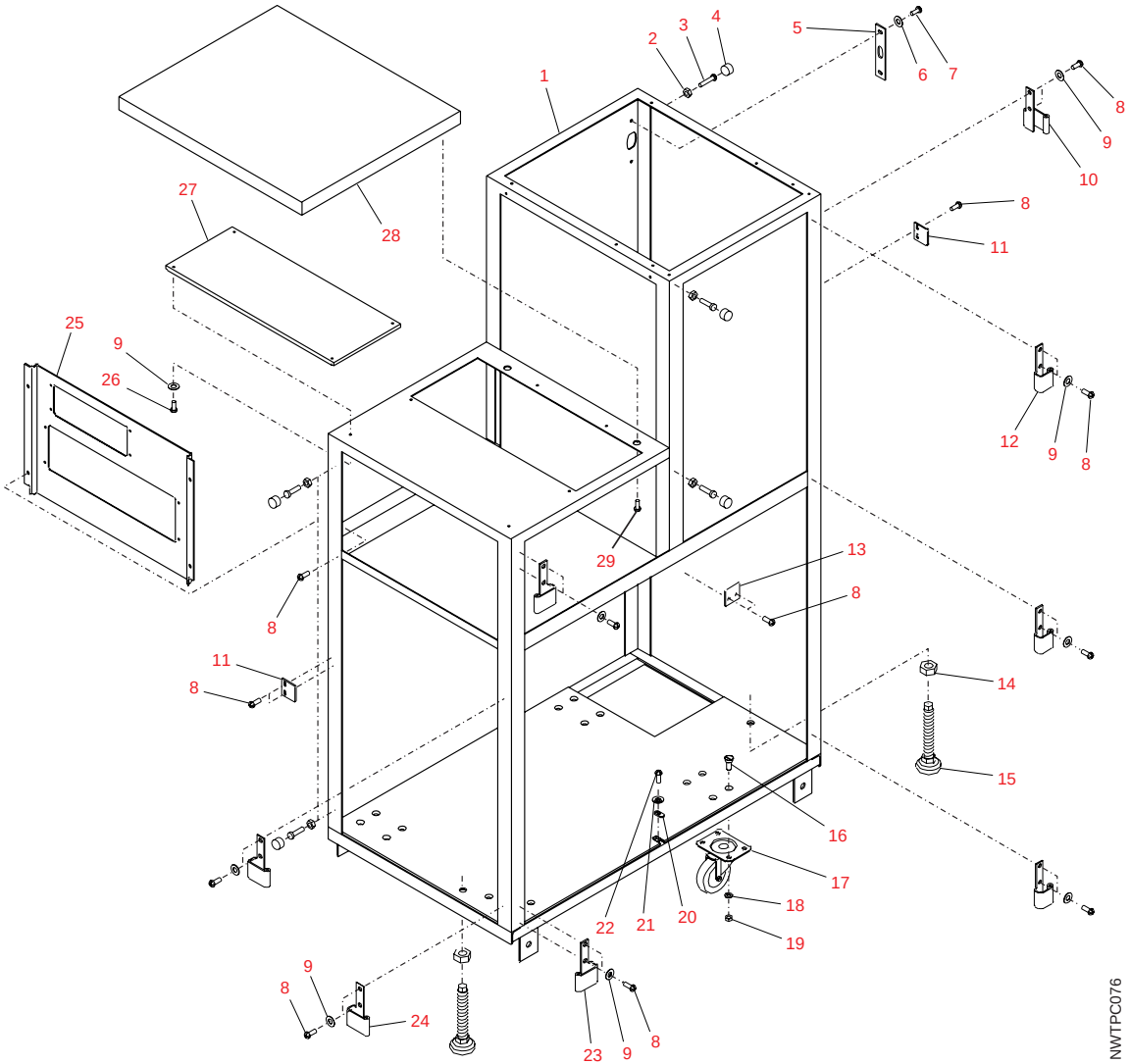
REAR LEFT - SIDE VIEW

Asm–Index	Part Number	Units	Description
42–			Control Unit Service Access Covers, MIC Card, and PQE Card (Sheet 3 of 6)
–			***ISx and IDx Models***
–1B		NP	
–2B	25F9401	1	Tailgate
–3B		NP	
–4B	1622304	35	Washer
–5B	1622403	3	Nut
–6B	30H3100	10	Screw, M5 X 10
–7B	53F1665	38	Screw, M4 X 8
–9B		NP	
–10		NP	
–11B		NP	
–12B	53F1672	12	Screw
–13B	1622303	12	Washer, Flat
–14B	57G6482	6	Standoff
–15B	04H0760	1	Card, PQE (IS1, ID1/ID2 single-beam printhead)
–15B	24H8038	1	Card, PQE (IS1, ID1/ID2 with two-beam printhead)
–15B	04H0761	1	Card, PQE (IS2 @ 310 PPM)
–15B	11L6201	1	Card, PQE (ID3/ID4, IS2 @ 324 PPM)
–16B	90H0987	1	Card, MIC (IS1, ID1/ID2 with two-beam printhead)
–16B	04H0693	1	Card, MIC (IS1, ID1/ID2 with single-beam printhead)
–16B	90H1315	1	Card, MIC (IS2 @ 310 PPM)
–16B	11L6149	1	Card, MIC (ID3/ID4, IS2 @ 324 PPM)
–22B	53F1663	2	Screw
–23B	4586927	1	Spring
–24B	85X6837	1	Retainer, Remote BUS TAG



REAR LEFT - SIDE VIEW

Asm–Index	Part Number	Units	Description
42–			Control Unit Service Access Covers, MIC Card, and PQE Card (Sheet 4 of 6)
–			***ISx and IDx Models***
–25B		NP	
–26B	30H6837	1	Bracket
–27B		NP	
–28B		NP	
–29B		NP	
–30B	45G2098	1	Card, Coupled Interface (YUCC) (Coupled to the CGIC for 4710 feature only)
–31B	49G6111	1	Card, Common Ground Isolation (CGIC) (For 4710 feature when coupled to the YUCC; for 4720 feature when not coupled to the YUCC).
–31B	57G6762	1	Card, CGUC (For 4710 feature only) (Stand-alone card — not coupled to the YUCC)
–32B		NP	
–33B	30H6798	1	Bracket, Cable
–34B	30H6799	1	Bracket, Cable
–35B	1622303	2	Washer, Flat
–36B	53F1665	2	Screw, M4 X 8
–37B		NP	
–38B	89H9762	1	Cable Adapter, 90° (Not Shown)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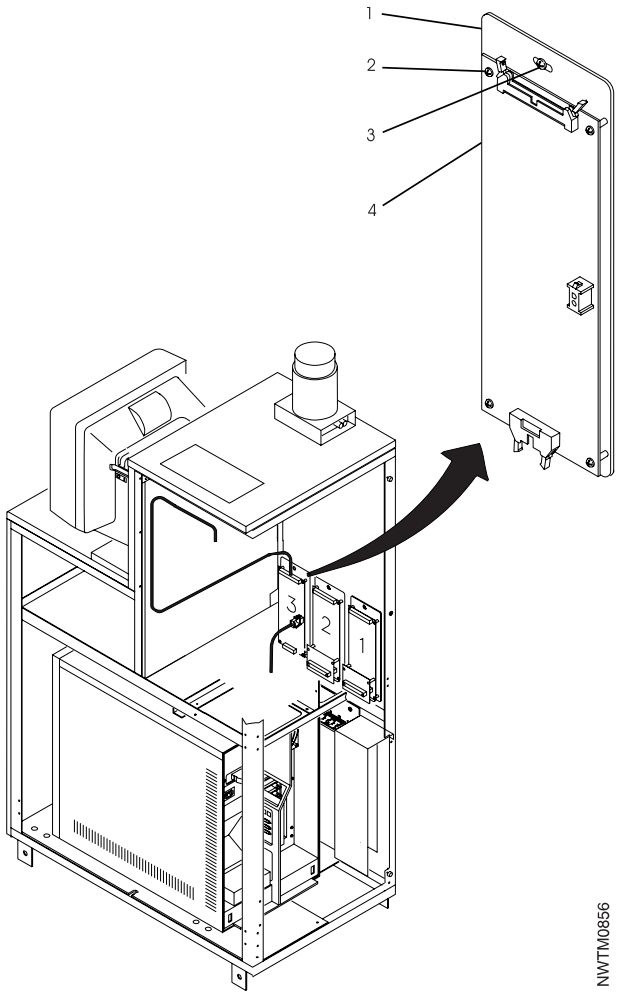
Asm–Index	Part Number	Units	Description
42–		NP	Control Unit Hardware (Sheet 5 of 6)
–1C		NP	
–2C	1622403	6	Nut
–3C	45G2064	6	Screw, M4 X 15
–4C	45G2063	6	Bumper
–5C	30H3033	3	Plate, Mounting
–6C	1622306	6	Washer
–7C	1621594	6	Screw, Hex Head M6 X 10
–8C	30H3100	26	Screw, M5 X 10
–9C	1622276	20	Washer
–10C	30H2957	3	Hinge, Rear
–11C	30H2985	1	Plate, Latch
–12C	30H2959	3	Hinge, Right Side
–13C	30H2986	1	Plate, Side Latch
–14C	1622408	2	Nut, M12
–15C	53F1678	2	Screw, Jack
–16C	1621342	16	Screw, M6 X 20
–17C	81X0280	4	Caster
–18C	1622321	16	Washer
–19C	1622437	16	Nut
–20C	30H3075	1	Bracket, Door Stop
–21C	1622304	1	Washer
–22C	53F1665	1	Screw
–23C	30H2958	2	Hinge, Left Side
–24C	30H2956	2	Hinge, Front
–25C		NP	
–26C	1622276	4	Screw, M5 X 12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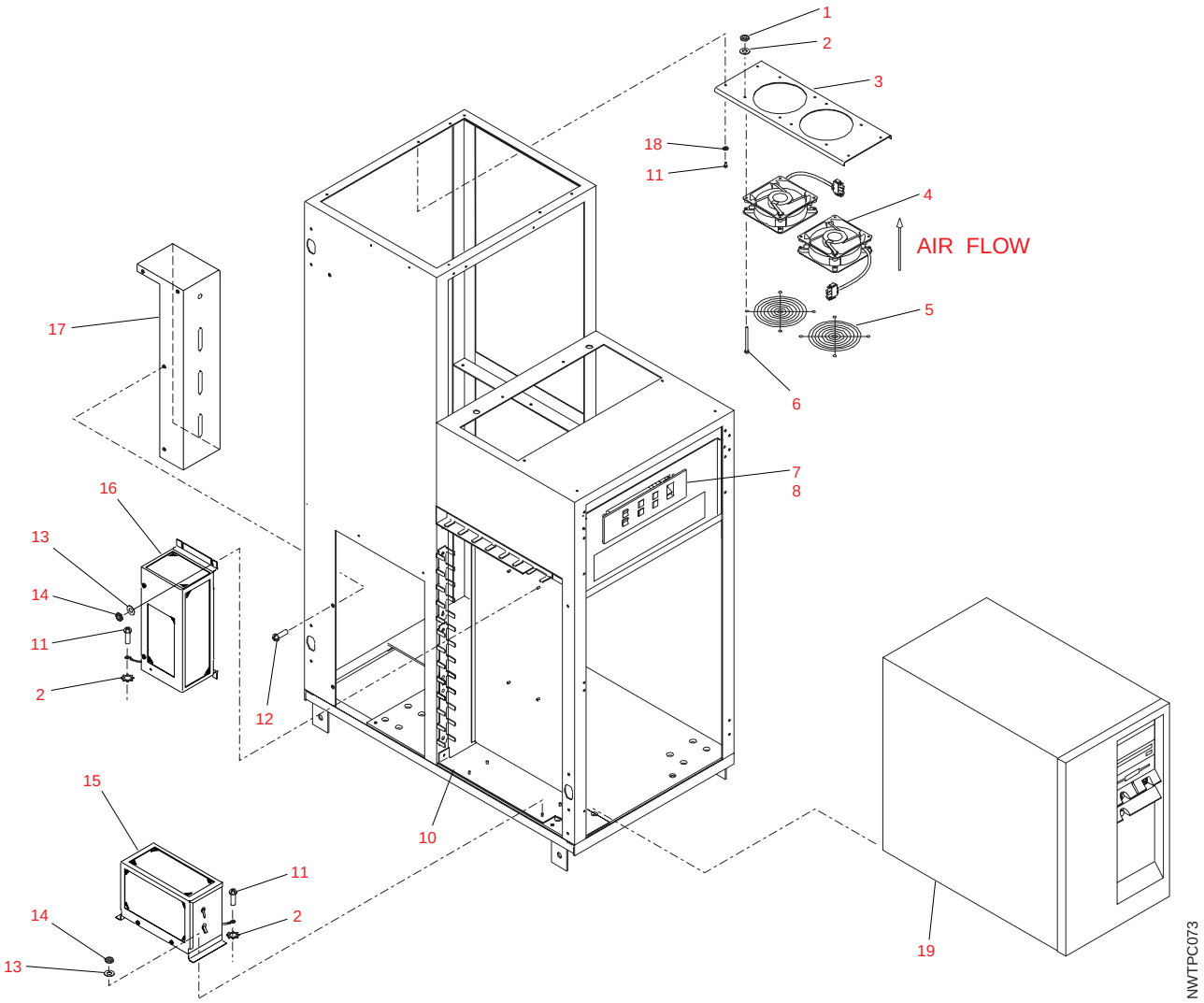
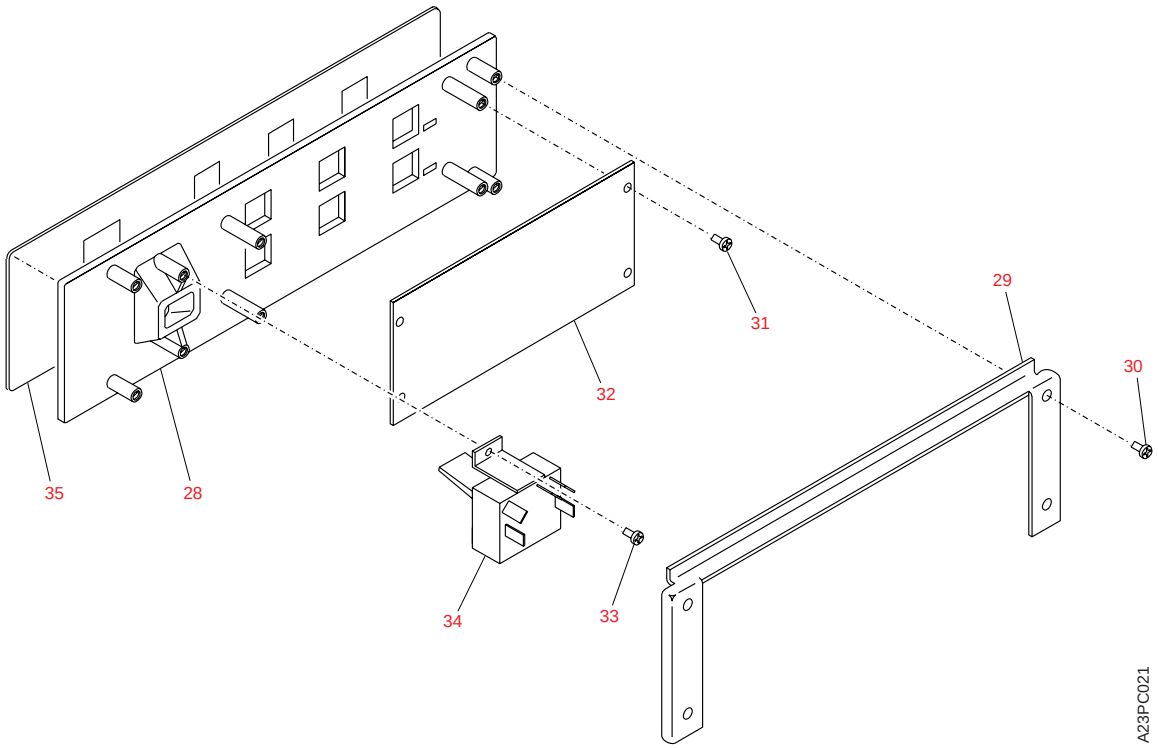
Asm–Index	Part Number	Units	Description
42–		NP	Control Unit Hardware (Sheet 6 of 6)
––			***Side 1/Side 2 Verification Hardware***
–1S		NP	Plate, Card Mounting, Side1/Side 2
–2S	06F0402	4	Screw, Phillips Pan Head M3x8 PP
–3S	53F1665	1	Screw, Phillips Pan Head M4x8
–4S	24H8141	1	Card, Side 1/Side 2 Verification Control (All duplex printers except ID4)
–4S	11L5278	1	Card, Side 1/Side 2 Verification Control (ID4)

Assembly 43: Control Unit AC, DC Power Supply Fans

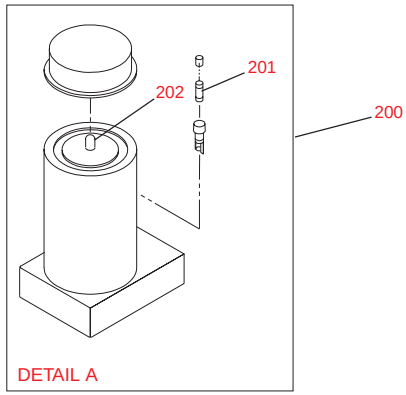


Asm–Index	Part Number	Units	Description
43–		NP	Control Unit AC, DC Power Supply, and Fans
–1A	1622403	1	Nut
–2A	1622346	1	Washer
–3A		NP	
–4A	2179914	2	Fan
–5A	4511305	2	Guard
–6A	1621071	8	Screw, M4 X 60
–7A	30H3190	1	Power Control Asm
–8A	0091610	4	Screw, Mounting
–9A		NP	
–10A		NP	
–11A	53F1665	8	Screw, M4 X 8
–12A		NP	
–13A	1622305	4	Washer
–14A	1622404	1	Nut
–15A	30H6719	1	Power Supply, AC Asm
–16A	30H2868	1	Power Supply, DC Asm
–17A		NP	
–18A	1622304	1	Washer
–19A		REF	Controller

Assembly 44: Control Unit Power Control Asm, Attention Lamp



Asm–Index	Part Number	Units	Description
44–		NP	Control Unit Power Control Panel (Sheet 1 of 2)
–28	45G1751	1	Bezel
–29		NP	
–30	91610	4	Screw
–31	91610	4	Screw
–32	45G1741	1	Card, Power Control
–33	91610	2	Screw
–34	8492368	1	Switch, UEPO
–35	45G1753	1	Overlay, English
–35	45G1755	1	Overlay, French
–35	45G1757	1	Overlay, German
–35	45G1759	1	Overlay, Italian
–35	45G1761	1	Overlay, Spanish
–35	30H2974	1	Overlay, Portuguese Brazil
–35	30H6654	1	Overlay, Chinese Traditional
–35	30H6656	1	Overlay, Chinese Simplified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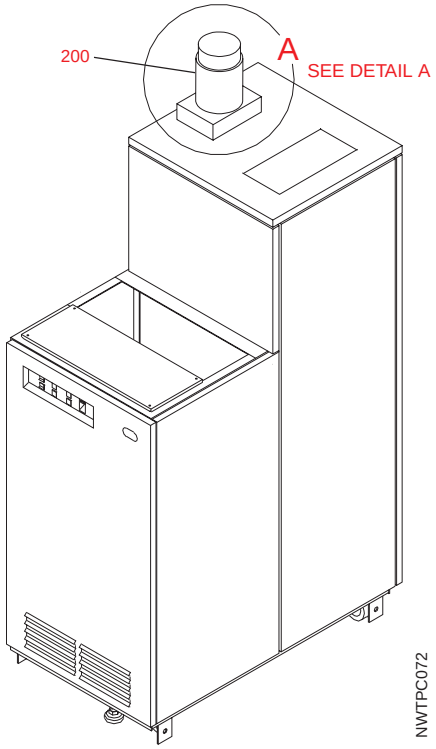
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Asm–Index	Part Number	Units	Description
44–		NP	Control Unit Attention Lamp (Sheet 2 of 2)
–200	88F3689	1	Light, Attention Asm
–201	855251	1	Fuse, 5A
–202	2129665	1	Bulb

Assembly 45: No Assembly 45 for this Printer

Asm–Index	Part Number	Units	Description
45–			Not Used

Assembly 46: No Assembly 46 for this Printer

Asm–Index	Part Number	Units	Description
46–			Not Used

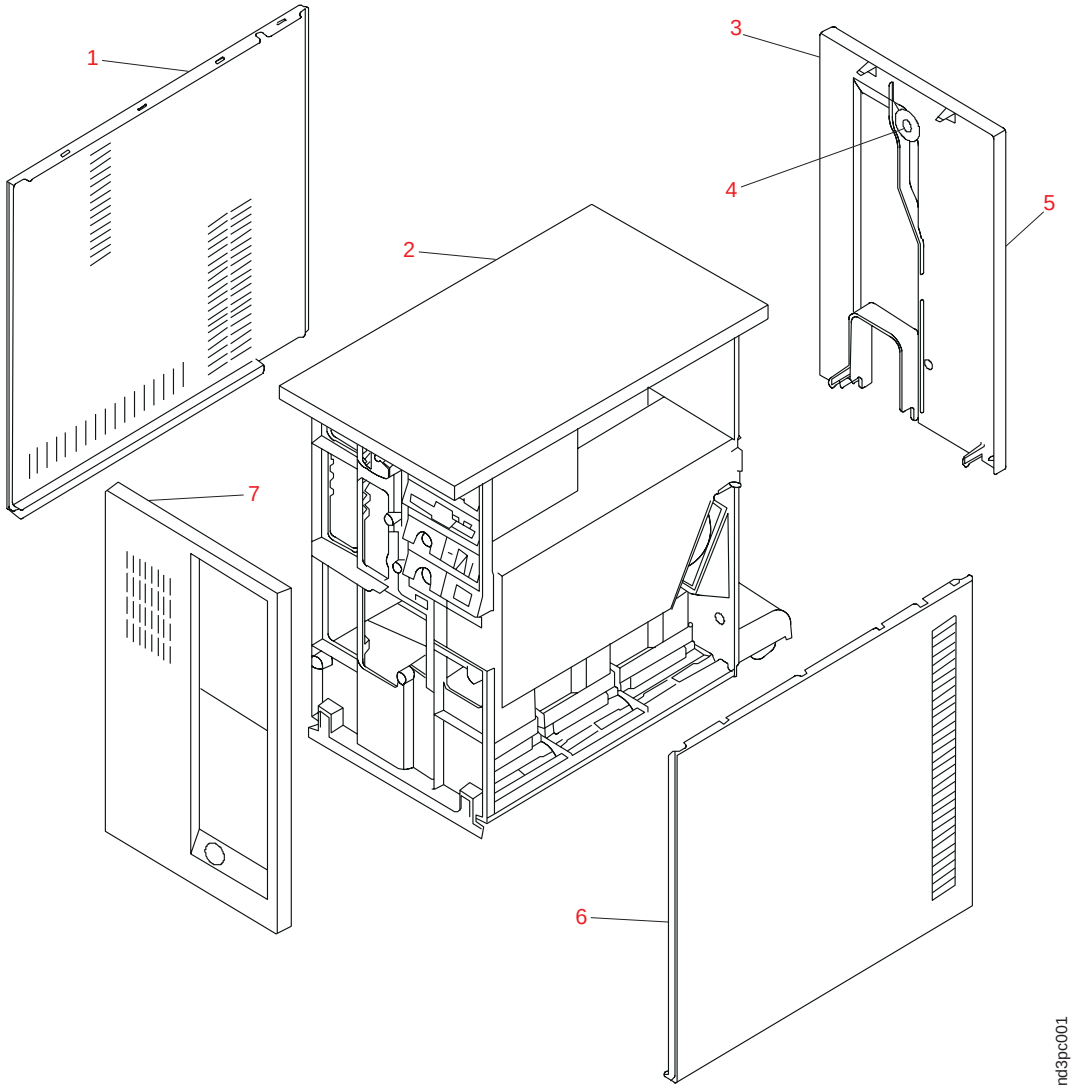
Assembly 47: No Assembly 47 for this Printer

Asm–Index	Part Number	Units	Description
47–			Not Used

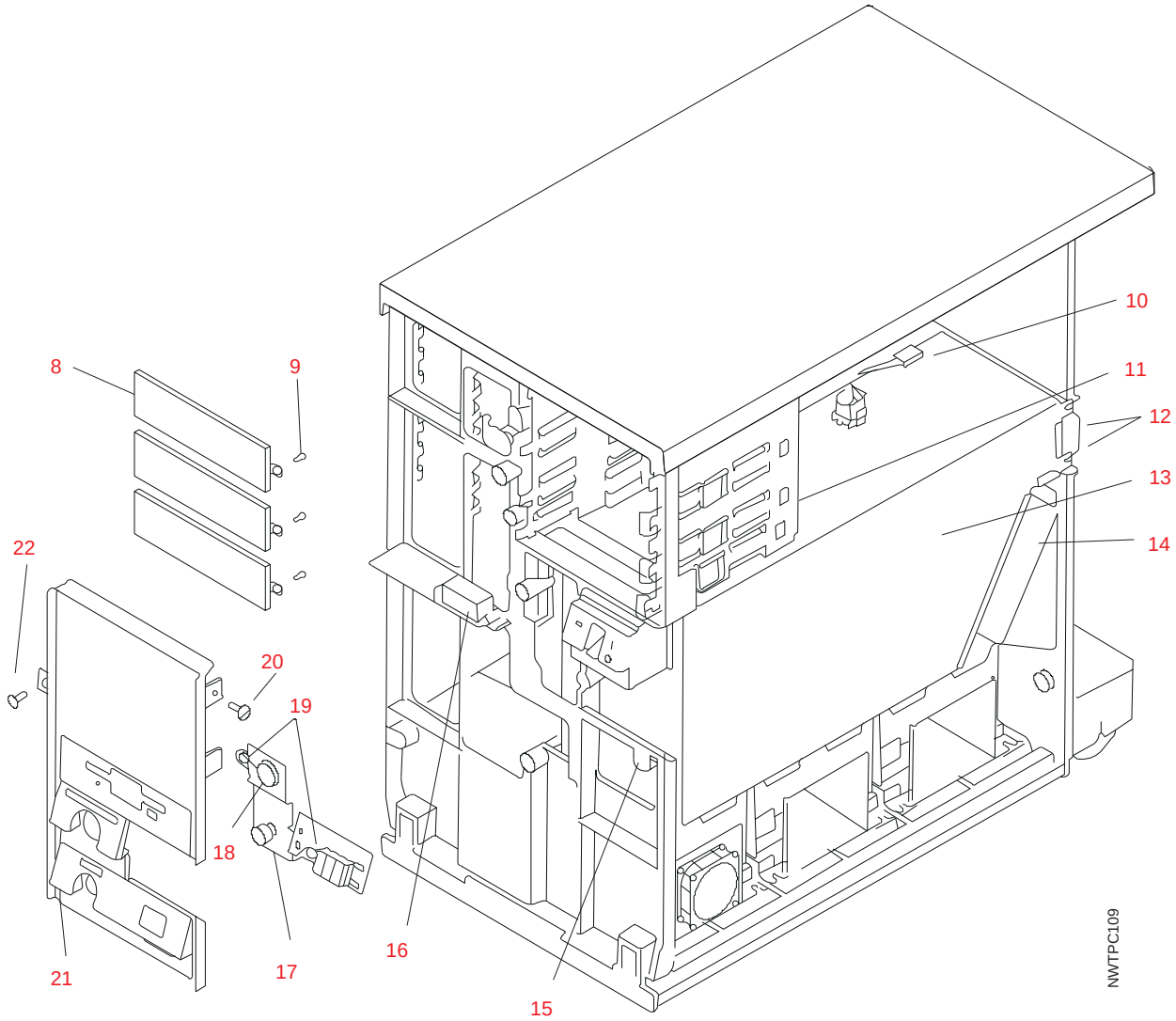
Assembly 48: No Assembly 48 for this Printer

Asm–Index	Part Number	Units	Description
48–			Not Used

Assembly 49: Controller 7013 Model 595



Asm–Index	Part Number	Units	Description
49–		1	Controller 7013 Model 595 (Sheet 1 of 5)
–1	51G9702	1	Cover, Left side
–2	51G9701	1	Cover, Top
–3	00G3524	1	Cover, Rear
–4	51G9876	1	Keylock
–5	70F9921	1	Logo, Rear
–6	51G9703	1	Cover, Right Side
–7	51G9700	1	Cover, Front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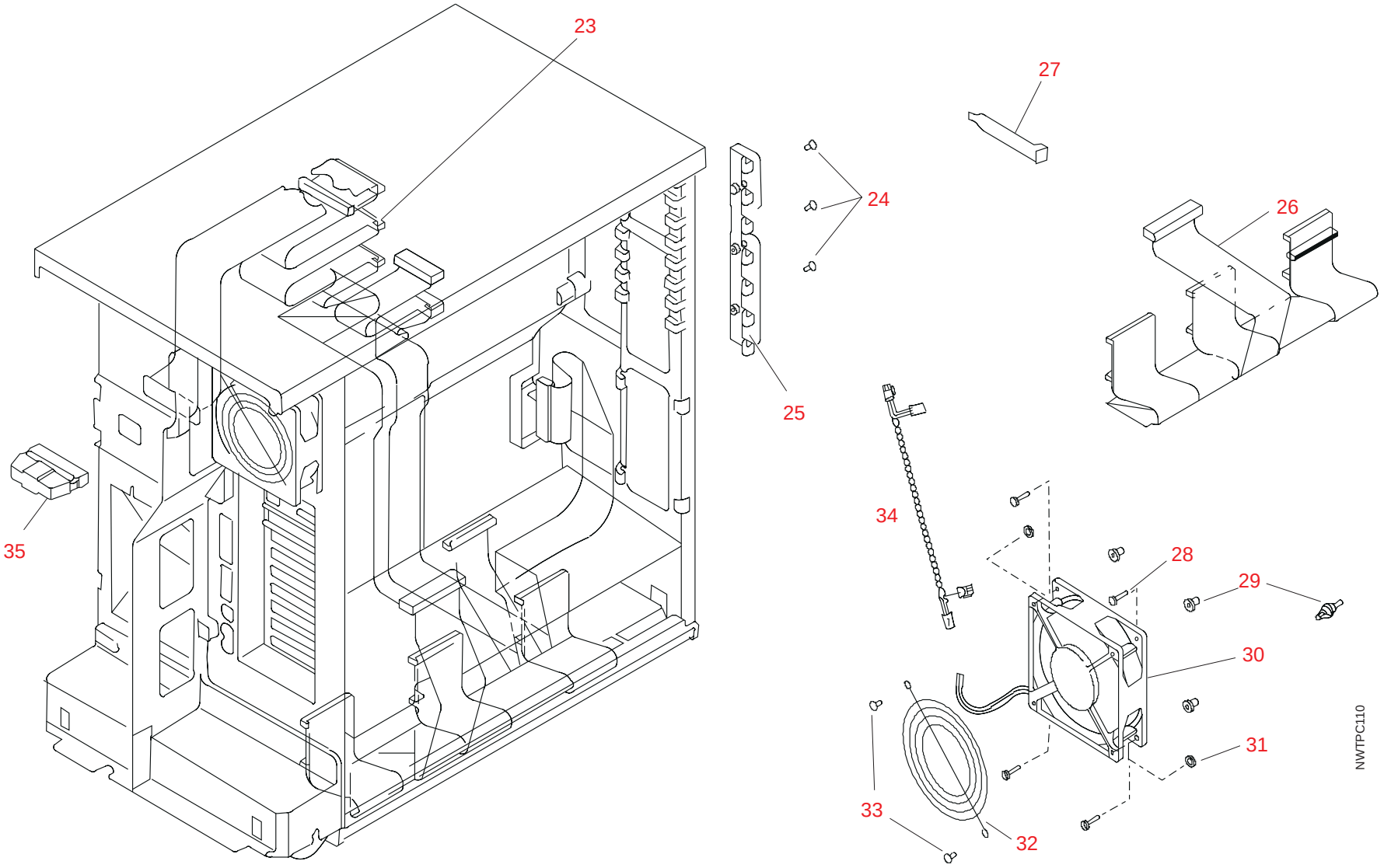
Asm–Index	Part Number	Units	Description
49–		1	Controller 7013 Model 595 (Sheet 2 of 5)
–8	41F0636	3	Bezel, Blank
–9	1621844	6	screw
–11	42F6510	1	Assembly, Cage
–11	1621211	4	Screw, Cage Assembly
–12	1622302	2	Washer, Power Supply
–13	8184794	1	Power Supply
–14	42F7434	1	Fan Assembly, Power Supply
–14	1621193	4	Screw, Fan
–14	1622346	4	Washer, Fan
–14	1622403	4	Nut, Fan
–14	2597855	4	Isolator
–15	1621217	1	Screw, Power Supply
–16	23F0168	1	Battery
–17	94F3592	1	Operator Panel and Switch Asm
–18	51G9876	1	Keylock - With Nut and Washer
–		NP	Spring, EMI (Not Shown)
–19	1621192	2	Screw, Operator Panel and Switch Asm
–19	65G1918	2	Screw, Shoulder
–19	1622346	2	Washer, Operator Panel and Switch Asm
–20	1621198	1	Screw, Bezel
–21	00G3283	1	Bezel
–22	1621211	1	Screw, Bezel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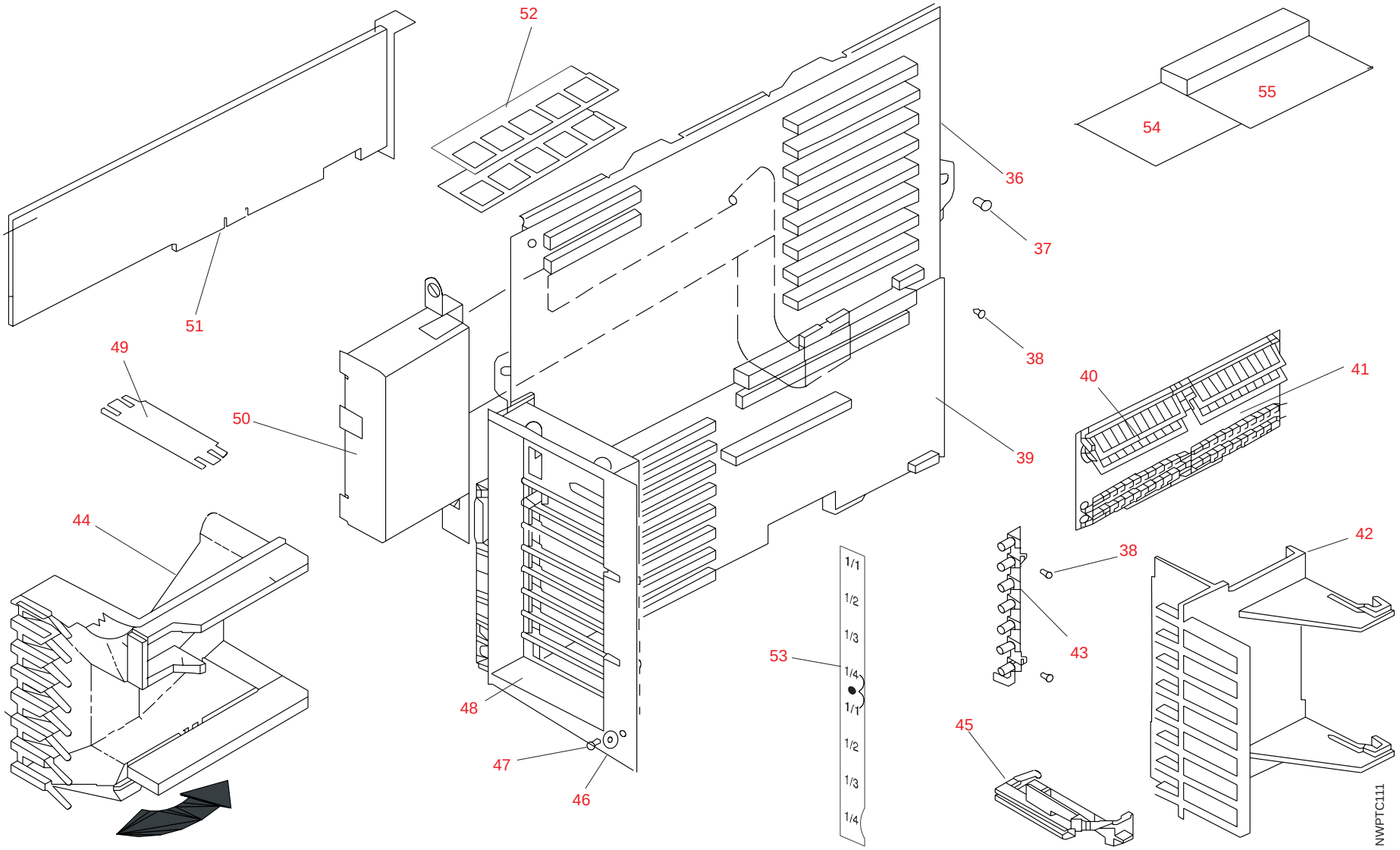
Asm–Index	Part Number	Units	Description
49–		1	Controller 7013 Model 595 (Sheet 3 of 5)
–23	39H9274	1	Cable Asm, SCSI
–24	1621173	3	Screw, M3 x 12
–25	91F1066	1	Retainer, Memory Card
–26	52G4430	1	Cable Asm, Second SCSI, 6-drop, (16 bit)
–27	6279235	5	Bracket, I/O Slots
–28	1621174	4	Screw, M3 x 16
–29	60X5703	4	Isolator, (Requires Screws)
–29	81F7977	4	Isolator, (Does Not Require Screws)
–30	22F9685	1	Fan
–31	1622403	2	Nut
–32	2546641	1	Fan Guard
–33	1621192	2	Screw, M4 x 12
–34	39H8835	1	Cable, Fan Speed Control
–35	00G2223	1	Terminator, SCSI
–	61X7052	1	Jumper, Disk Drive (Not Shown)
–	59F4088	2	Cover, Optic (Not Shown)
–	71F0902	1	Bumper (Not Shown)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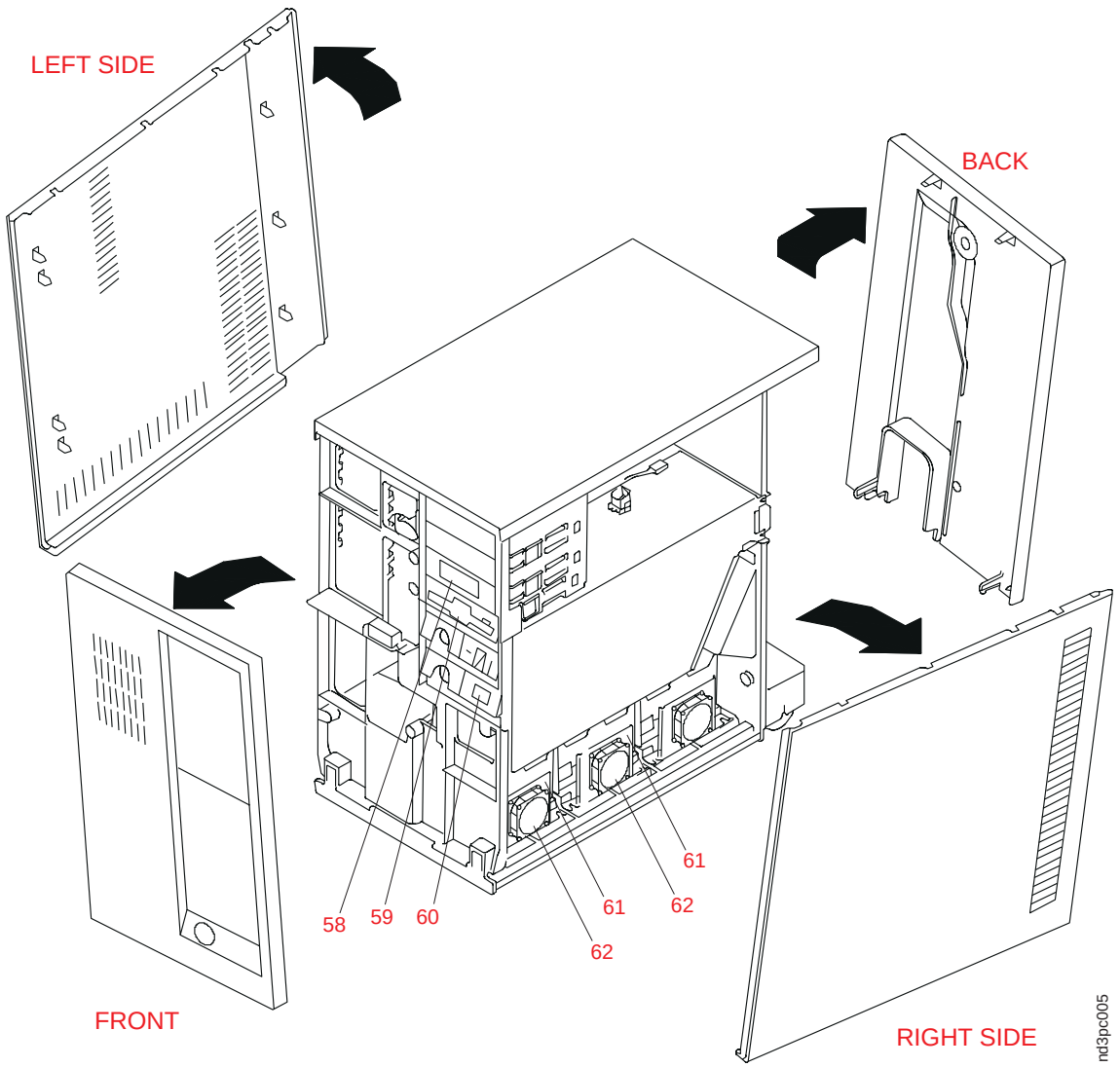
Asm–Index	Part Number	Units	Description
49–		1	Controller 7013 Model 595 (Sheet 4 of 5)
–36	39H9164	1	CPU Planar
–37	1621211	2	Screw
–38	78X8993	18	Screw
–39	40H7517	1	I/O Planar
–42	39H8925	AR	SIMM, 8MB (AR=As Required)
–40	43G1796	AR	SIMM, 16MB
–41	12H1331	2	Memory Card
–42	43G0538	1	Card Support
–43	22F9503	1	Ground Strip
–44	73H4288	1	Air Deflector
–45	59F4089	AR	Card Latch
–46	1622305	5	Washer
–47	1621192	5	Screw
–48	51G9869	1	Bulkhead
–49	59F2977	1	Cable Support
–50	8184811	1	I/O Flex Circuit
–51	86H2123	1	Card, Token-Ring, (in adapter slot 0/2 or 0/4)
–51	00G3368	1	Card, Ethernet TCP/IP, (in adapter slot 0/2 or 0/4)
–51	31G9211	1	Card, Block Multiplexer Channel, (in adapter slot 0/2 or 0/4)
–51	57G6657	1	Card, ESCON Channel, (in adapter slot 0/2 or 0/4)
–51	90H2444	1	Card, Display, (in adapter slot 0/3)
–51	52G3380	2	SCSI-2, Enhanced Diff Fast Wide Adaptor (in adapter slot 0/1 and 1/4)
–52	88G3894	2	Cache, L2, .5MB (Install in pairs.)
–53	73H2588	2	Label, I/O Slots
–54	39H9272	1	Bracket, DC-DC Converter
–55	40H7442	1	DC-DC Converter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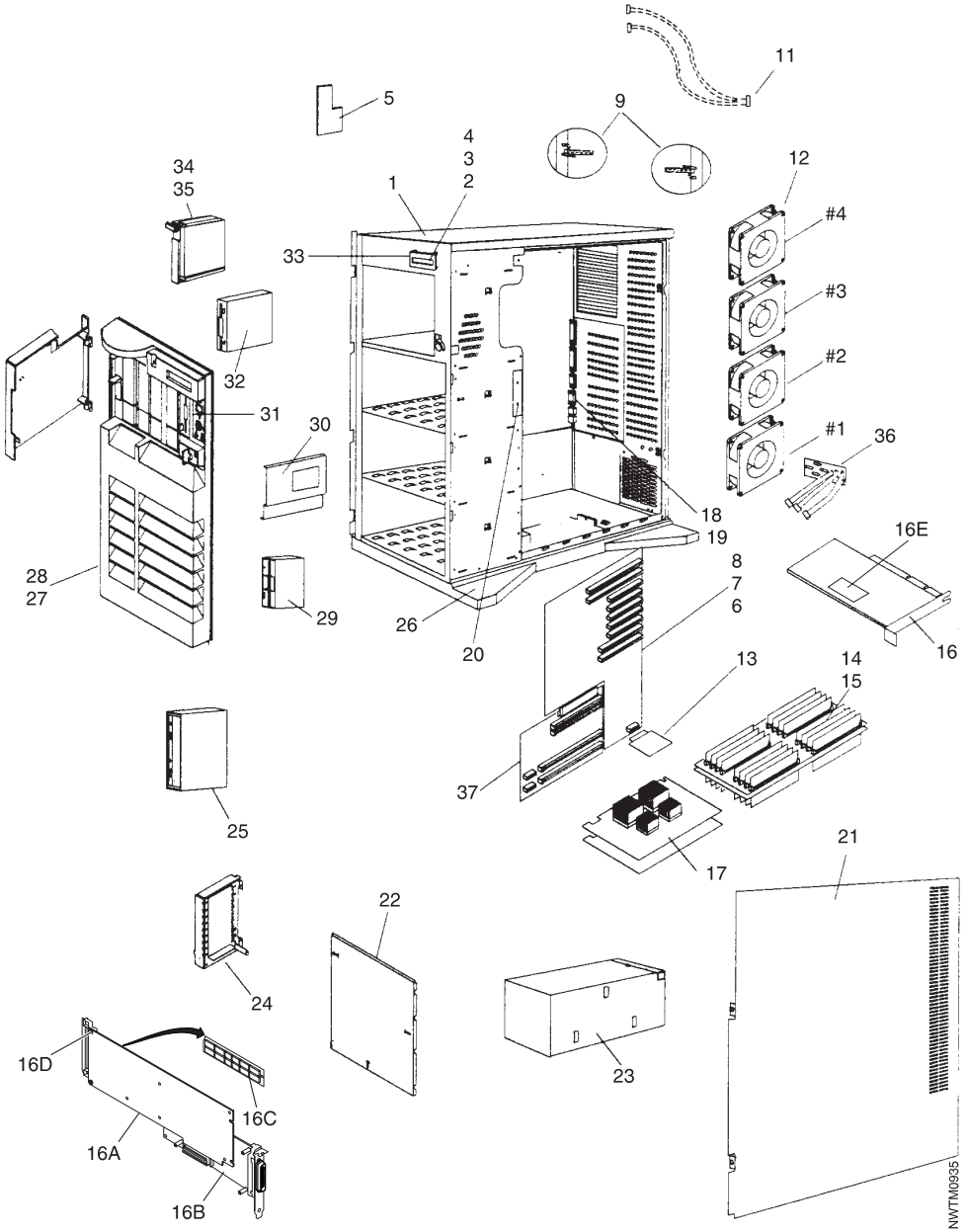
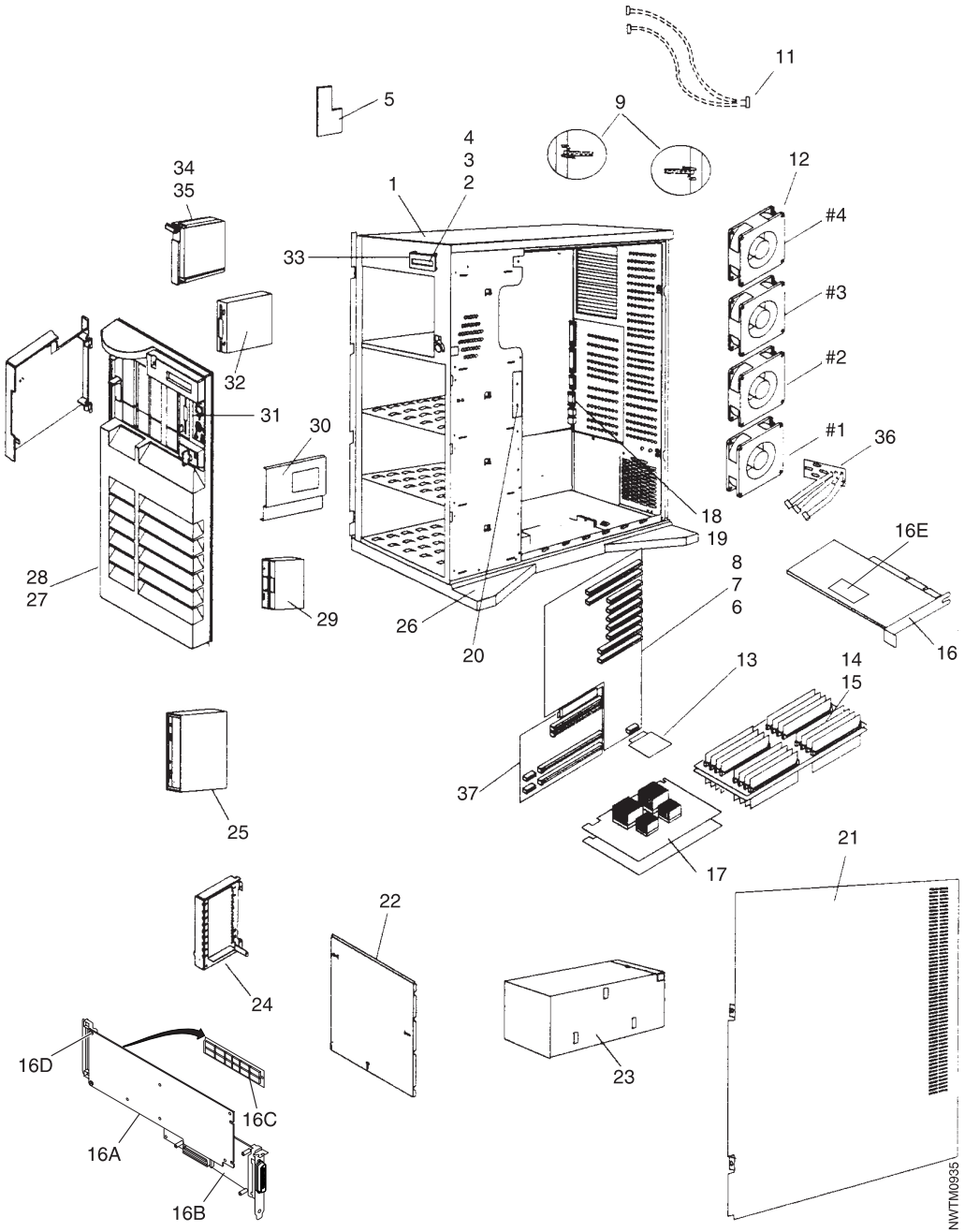
Asm–Index	Part Number	Units	Description
49–		1	Controller 7013 Model 595 (Sheet 5 of 5)
–58	73H1513	1	CD ROM, Quad Speed
–59	88G4768	1	Diskette Drive, 1.44 MB 3.5 inch
–60		1	Operator Panel (See item 17 on Sheet 2 of 5)
–61	00G3277	2	Fan Asm, DASD Bay
–62		1	Drive Asm, (With Microcode) Check Hard Drive for FRU number. The FRU number on the Hard Drive is required to receive the correct code.
–	31F4217	1	Switch, Non-locking, (Not Shown)
–	76H5084	1	Mouse, 3 button (Not Shown)

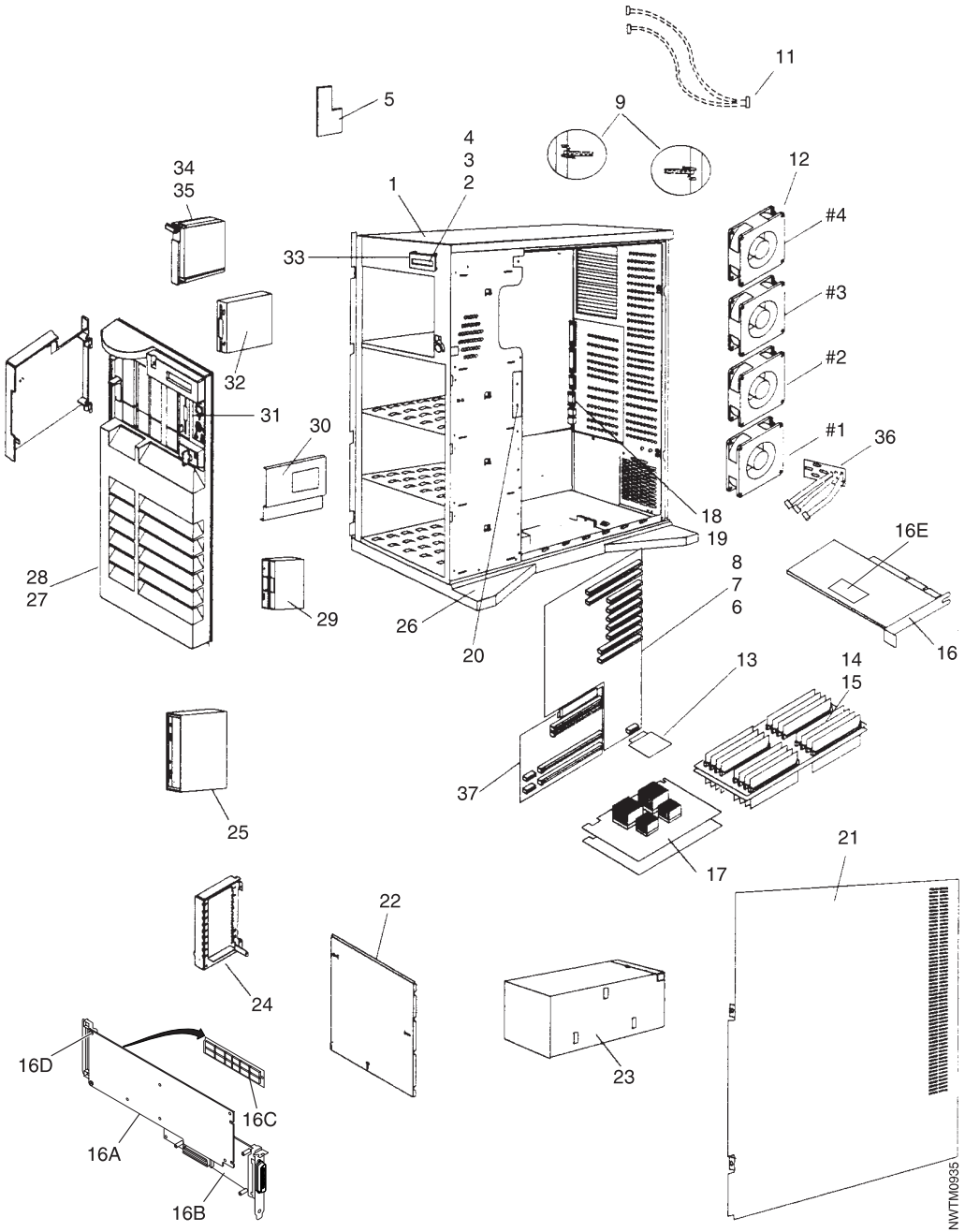
Assembly 50: Controller 7025 Model F50



Asm–Index	Part Number	Units	Description
50–		1	Controller 7025 Model F50 (Sheet 1 of 3)
–1		NP	Chassis Asm
–2	73H0898	1	EMC Clip
–3	06H7082	1	Display Panel
–4	93H1816	1	Cable, display
–5	93H2922	1	Operator Panel Control Asm
–6	73H4746	1	Planar, I/O
–7	06H7697	13	Standoff
–8	33F8354	1	Battery
–9	73H3520	1	CPU Lever
–9	73H3525	1	Lever, front
–9	73H3529	1	Lever, rear
–10		NP	Brace
–10	73H3531	1	Card Guide
–11	93H6280	1	Cable, EPO
–12	73H3577	1	Fan, #1
–12	40H1424	1	Fan, #2
–12	40H1433	2	Fan, #3 and #4
–13	93H4214	1	Service Processor
–14	93H2641	1	Memory Card (Quantity of 2 on field converted IR3/IR4)
–15	93H4700	16	32MB Memory Modules (IR1/IR2 and IR3/IR4 that are field converted)
–15	93H4702	8	128MB Memory Modules (IR3/IR4 only) (Quantity of 8 for factory built IR3/IR4 — quantity of 4 for IR3/IR4 that are field converted)
–16	94H1038	1	Card, Token Ring (Slot 6 or 8)
–16	73H3405	1	Card, FDDI (Slot 6 or 8)
–16	93H2534	1	Card, GXT110P Graphics Adapter (Slot 3)
–16	73H3568	2	Card, SCSI Adapter (Slot 1 and 9) (IR1/IR2 only)
–16	93H8407	2	Card, SCSI Adapter (Slot 1 and 9) (ID2 and ID4 only)
–16	09L2061	3	Card, SSA Adapter (Slot 1, 4, and 9) (IR3/IR4 only)


11
5
9
4
3
2
1
34
35
12
#4
33
#3
#2
32
31
30
#1
36
18
19
16E
28
27
29
26
20
8
7
6
16
13
14
15
37
25
17
21
22
24
23
16D
16C
16A
16B
NWTM0935

Asm–Index	Part Number	Units	Description
50–		1	Controller 7025 Model F50 (Sheet 2 of 3)
–16A	39H8084	1	Card, ARTIC Coprocessor (Plugs into the ESCON or parallel channel adapter)
–16B	38L1525	1	Card, ESCON Adapter (Slot 6 or 8) (For microcode level v9.615 or higher)
–16B	08J6472	1	Card, parallel channel Adapter (Slot 6 or 8)
–16B	94H0823	1	Card, 10/100BaseT Ethnernet Adapter (Slot 6 or 8)
–16C	70F9973	1	SIMM, 4 MB (Memory for ARTIC Coprocessor Card)
–16D		NP	Retainer, ESCON Coprocessor Card
–16E	89H5651	6	DRAM, 16 MB (Only installed on SSA adapter card) (IR3/IR4 only)
–17	73H4768	2	CPU Card (2–w) (IR1/IR2 only)
–17	93H6321	2	CPU Card, 332 MHZ (2–w) (IR3/IR4 only)
–17	93H9018	1	CPU Card, 332 MHZ (1–w) (ID2 and ID4 only)
–18	93H3144	1	EMC Gasket, I/O Connectors
–19	93H3145	1	EMC Gasket, Ext SCSI Connectors
–20	93H2166	1	SCSI Backplane (IR1/IR2 and ID2 only)
–20	93H6321	1	SSA Backplane (IR3/IR4 only)
–21		NP	Door, right side
–22		NP	Cover, Planar
–23	93H6809	1	Power Supply
–24		NP	Bracket, Adapter Card
–25	93H8055	1	CD ROM

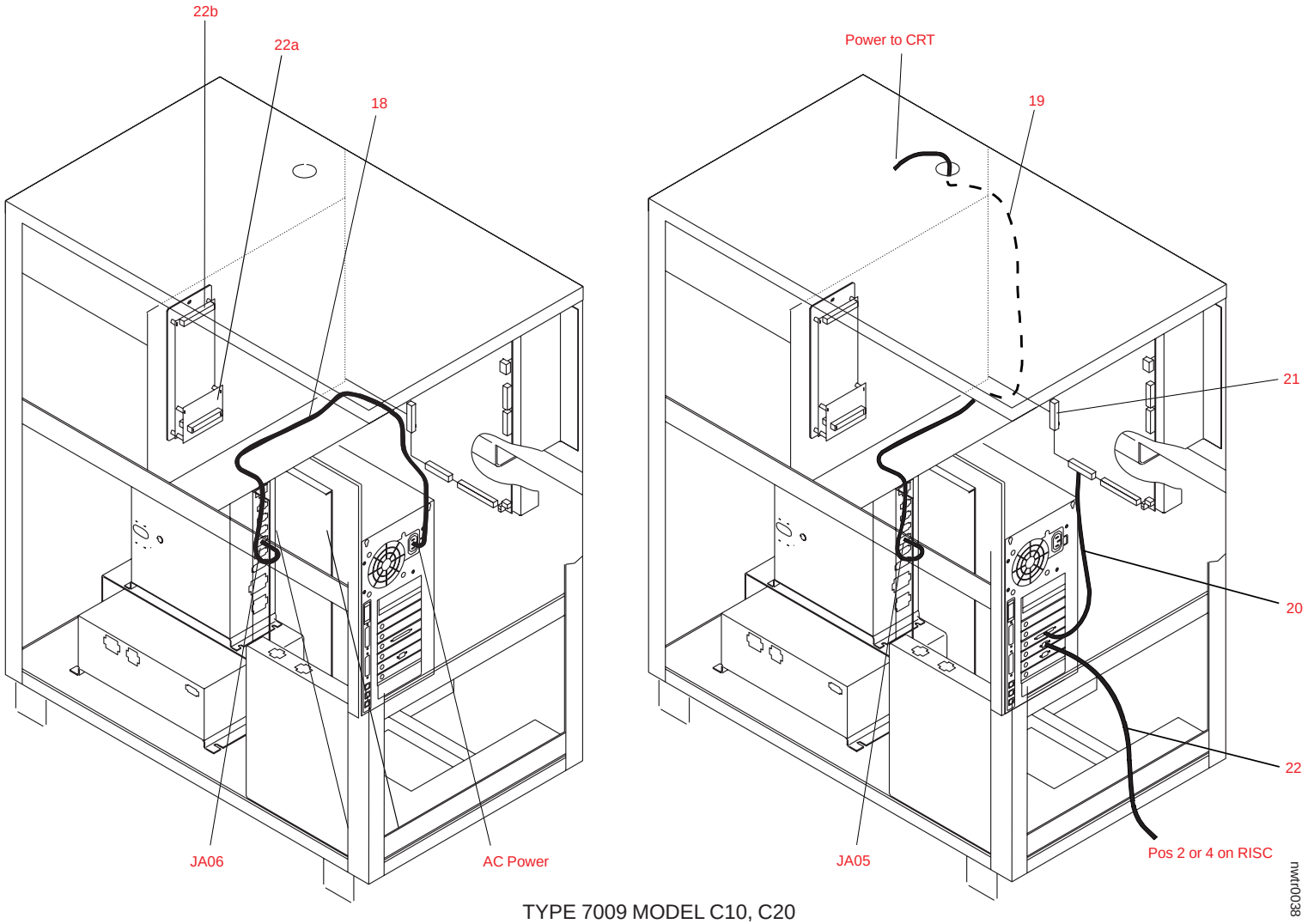

11
5
9
4
3
2
1
12
#4
#3
#2
#1
36
34
35
33
32
31
30
18
19
16E
28
27
29
26
20
8
7
6
16
13
14
15
37
25
17
21
22
24
23
16D
16C
16A
16B
NWTM0935

Asm–Index	Part Number	Units	Description
50–		1	Controller 7025 Model F50 (Sheet 3 of 3)
–26	11H8156	1	Pedestal and Wheel
–27	73H1881	1	Cover, Front
–	60G1066	1	Cable, token ring adapter (RJ to D-shell)
–	53F3930	1	Cable, token ring (20 foot)
–28	93H4297	1	Logo
–29	93F2361	1	Diskette Drive
–30	06H2792	1	Plate Assembly
–31	73H0870	1	Bezel, Op Panel
–32	21H5172	1	Tape Drive, 4mm
–33	40H3126	1	Bracket, Display Panel
–34		1	Disk Drive, SCSI (Goes in Bank C, Bay 1 for IR1/IR2 and ID2/ID4) (Goes in media bay 1 for IR3/IR4) (With microcode) * * Check Hard Drive for FRU number. The FRU number on the Hard Drive is required to receive the correct code.
–34	76H2697	3	Disk Drive, SCSI (IR1/IR2 only) (Goes in Bank C, Bay 2, 3, and 4)(Without microcode)
–34	59H6259	4	Disk Drive, SSA (IR3/IR4 only) (Goes in Bank C, Bay 1, 2, 3, and 4)
–34	59H7210	2	Disk Drive spacers, SSA (IR3/IR4 only) (Goes in Bank C, Bay 5, and 6)
–35	06H8631	4	Disk Drive Carrier (IR1/IR2 only)
–36		NP	Card and Cables, Serial/Parallel
–37	73H1925	1	Card, System
–	82G3278	1	Keyboard (Not Shown)

Assembly 51: No Assembly 51 for this Printer

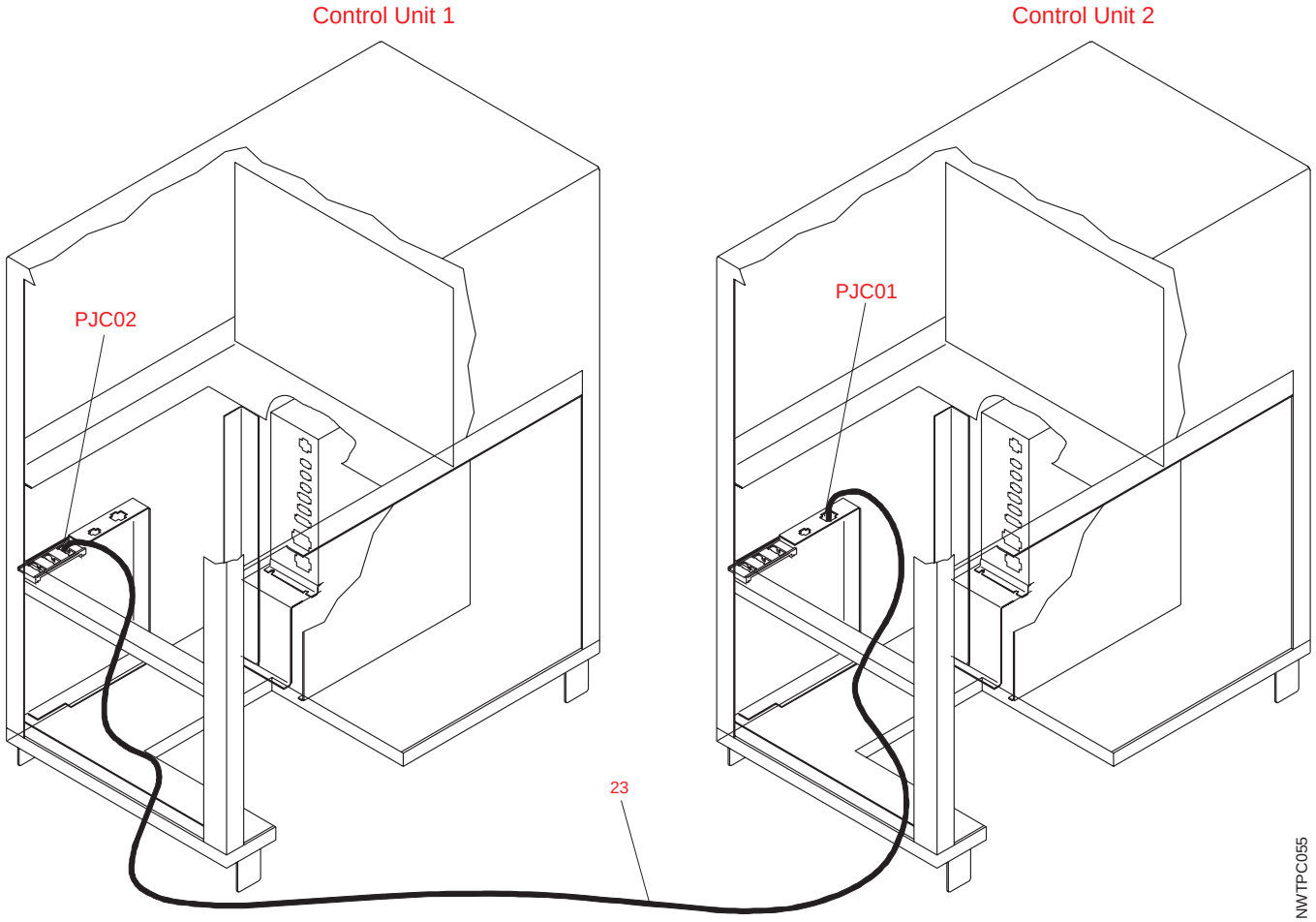
Asm–Index	Part Number	Units	Description
51–			Not Used

Assembly 52: Control Unit Cables

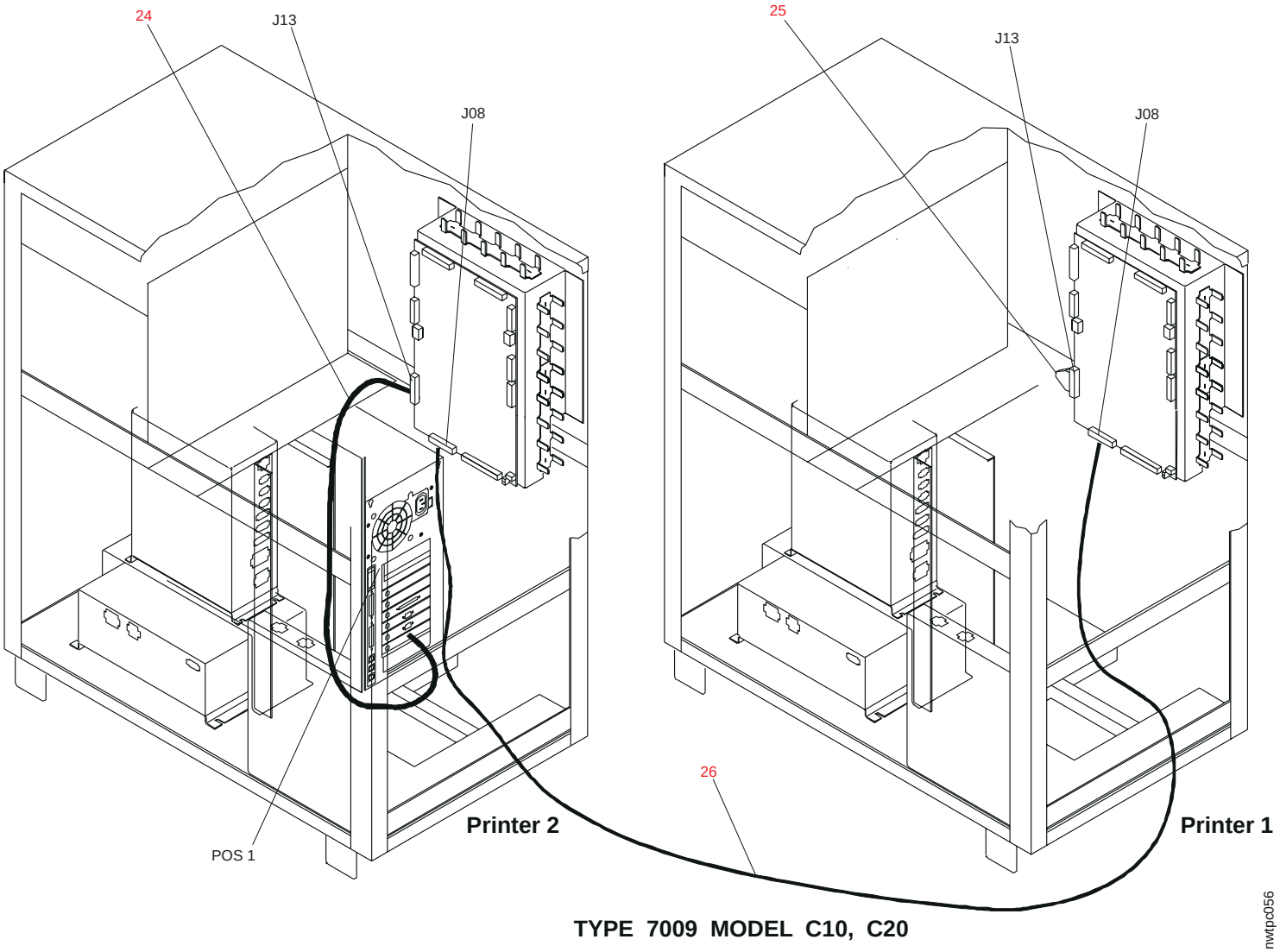


TYPE 7009 MODEL C10, C20

Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 1 of 13)
–			**For controller Type 7009 Model C20 only**
–18	45G1729	1	Cable
–19	45G1728	1	Cable, Display/Touch Screen Power
–20	30H2756	1	Cable, SCSI (For all single-beam printheads only)
–20	52G4337	1	Cable, Fast/Wide SCSI (310 PPM only)
–20	24H8118	1	Cable, Fast/Wide SCSI (InfoPrint 4000 two-beam printheads only)
–21	57G5997	1	Terminator, SCSI (For single-beam printheads only)
–21	08H7757	1	Terminator, Fast/Wide SCSI (For all two-beam printheads only)
–22	53F3930	1	Cable, Token Ring
–22A	45G2098	1	Card, Coupled Interface (YUCC)
–22B	49G6111	1	Card, Common Ground Isolation (CGIC)

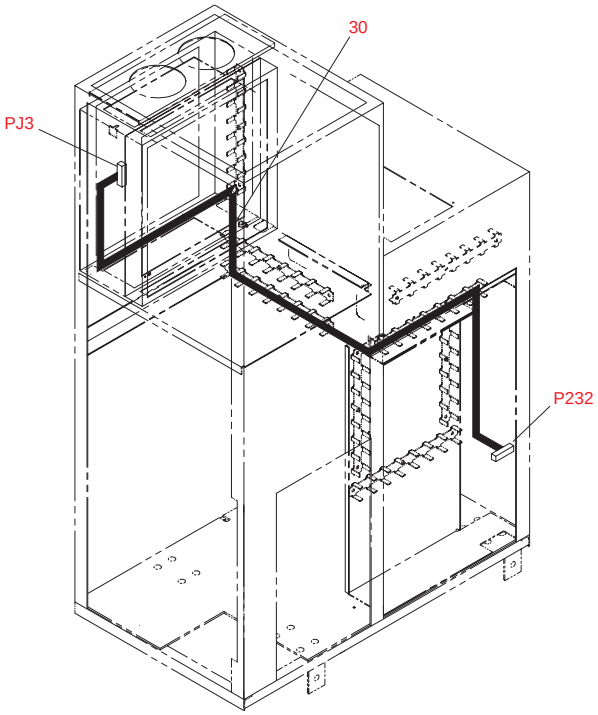

Control Unit 1
Control Unit 2
PJC02
PJC01
23
NWTPC055

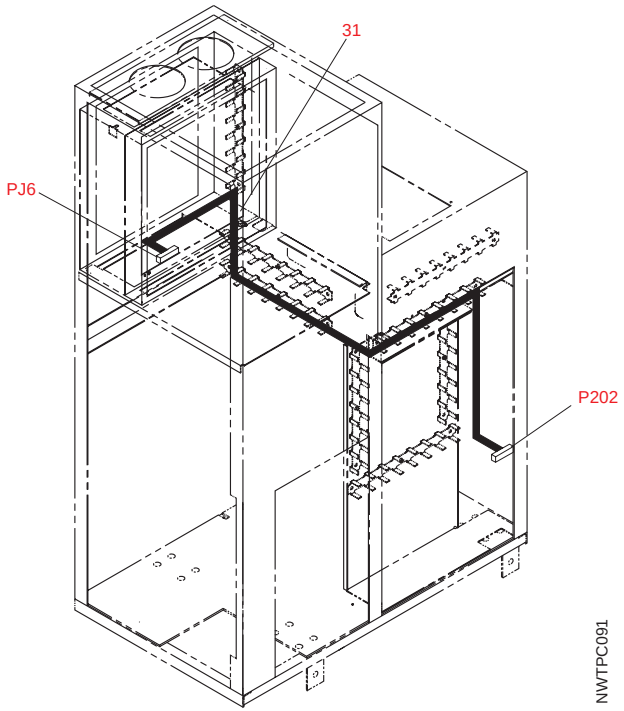
Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 2 of 13)
–			**For duplex printing systems**
–23	45G1727	1	Cable, Remote Power



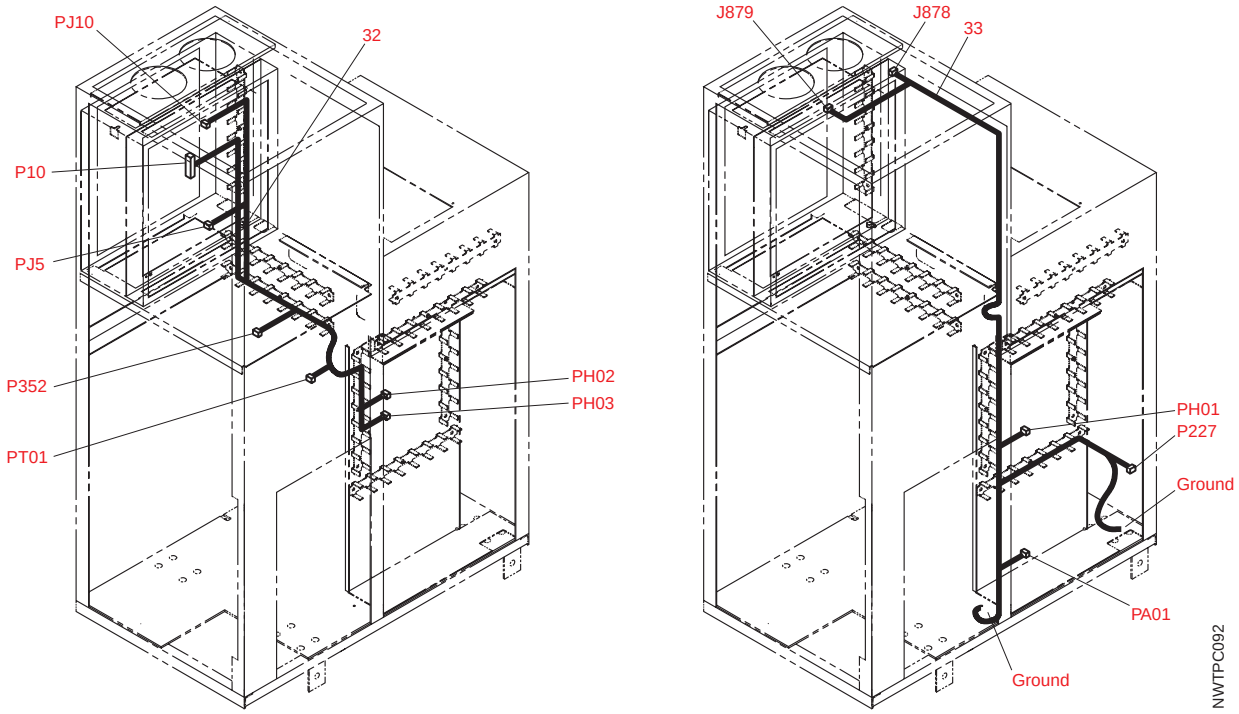
TYPE 7009 MODEL C10, C20

Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 3 of 13)
–			**For all Duplex Printing Systems using Controller Type 7009 Model C20 only**
–24	30H2756	1	Cable, SCSI, RISC to MIC (For single-beam printhead only)
–24	24H8118	1	Cable, SCSI, RISC to MIC (For two-beam printheads)
–25	57G5997	1	Terminator, SCSI (For single-beam printhead)
–25	08H7757	1	Terminator, SCSI Fast/Wide (For two-beam printheads)
–26	45G1718	1	Cable, SCSI MIC printer 1 to MIC printer 2 (For single-beam printheads)
–26	30H2752	1	Cable, SCSI MIC printer 1 to MIC printer 2 (For two-beam printheads)

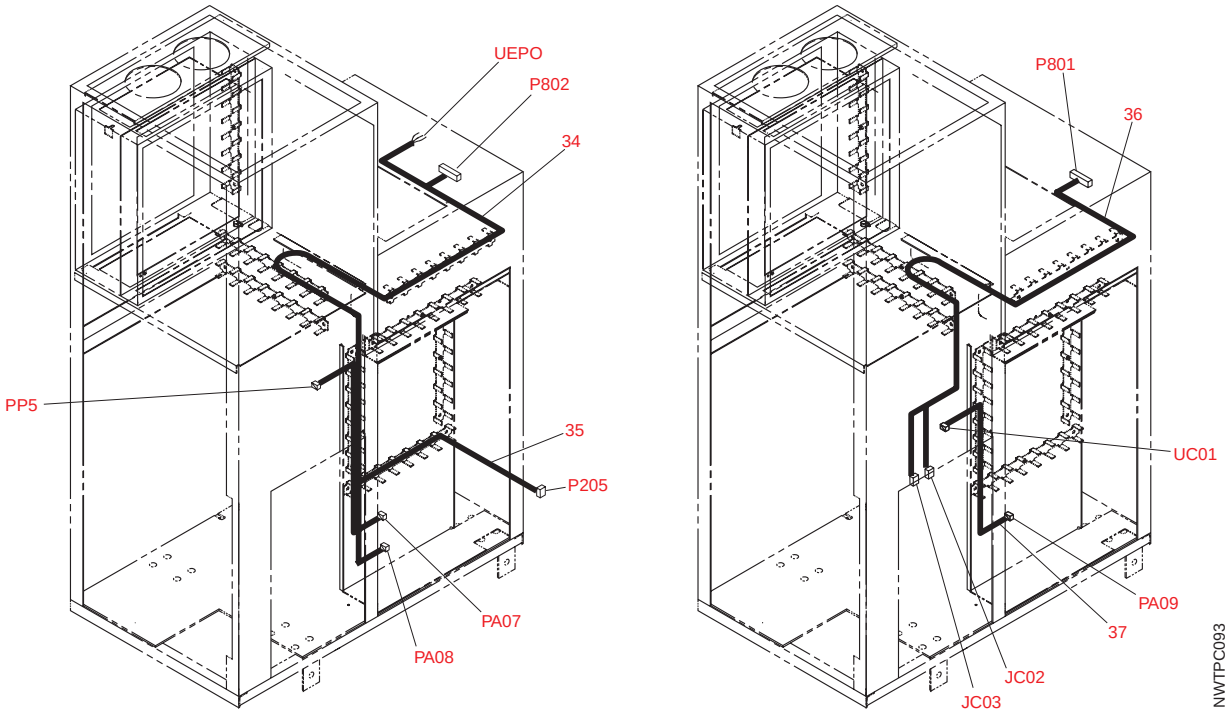

30
PJ3
P232


31
PJ6
P202
NWTPC091

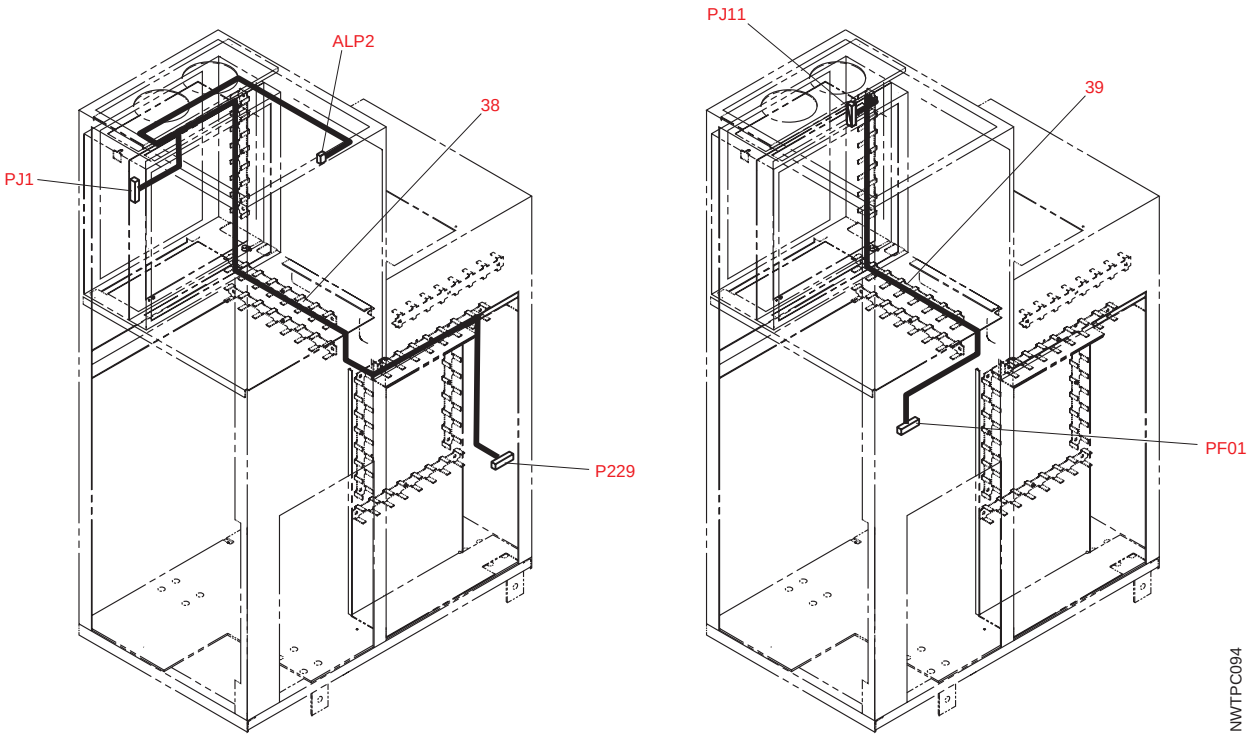
Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 4 of 13)
–30	30H6940	1	Cable, Operator Panel
–31	30H6939	1	Cable, Printer Interface


PJ10
32
P10
PJ5
P352
PT01
PH02
PH03
J879
J878
33
PH01
P227
Ground
PA01
Ground
NWTPC092

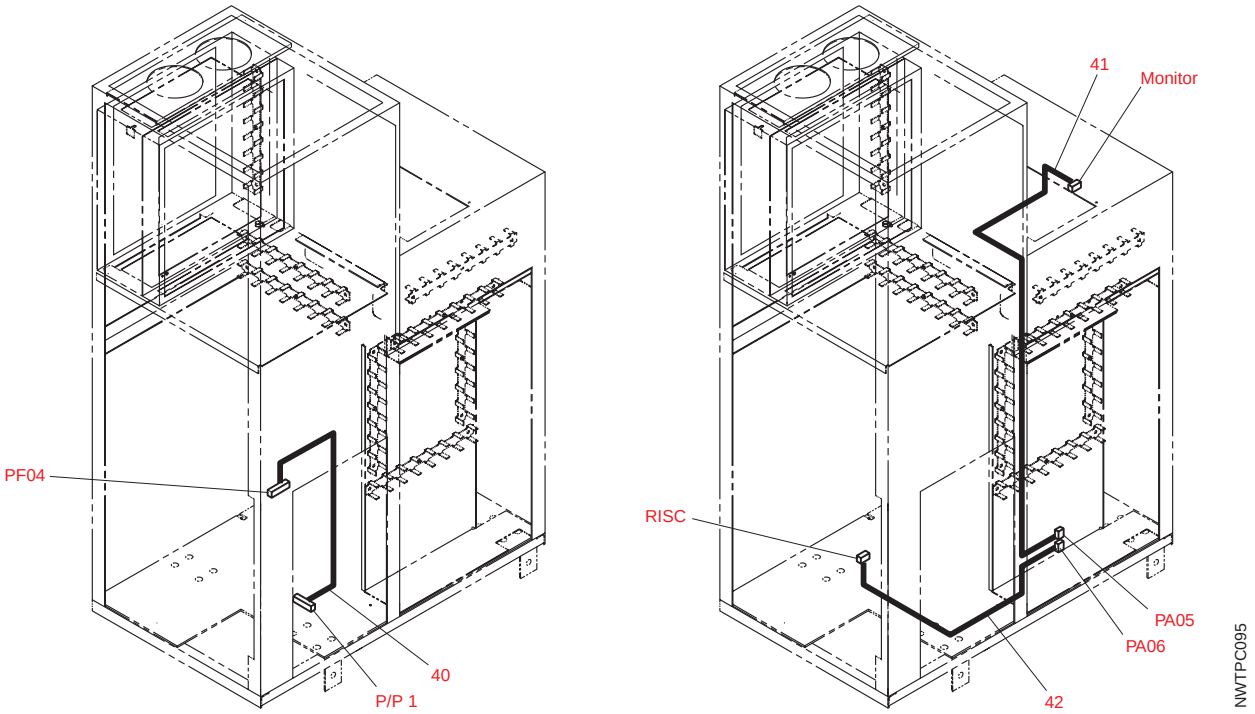
Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 5 of 13)
–32	30H6942	1	Cable, DC Power (For 480/600 DPI only)
–32	90H0878	1	Cable, DC Power (For 240/300 DPI and some upgrades)
–33	30H6937	1	Cable, AC Power


UEPO
P802
34
PP5
35
P205
PA07
PA08
P801
36
UC01
PA09
37
JC02
JC03
NWTPC093

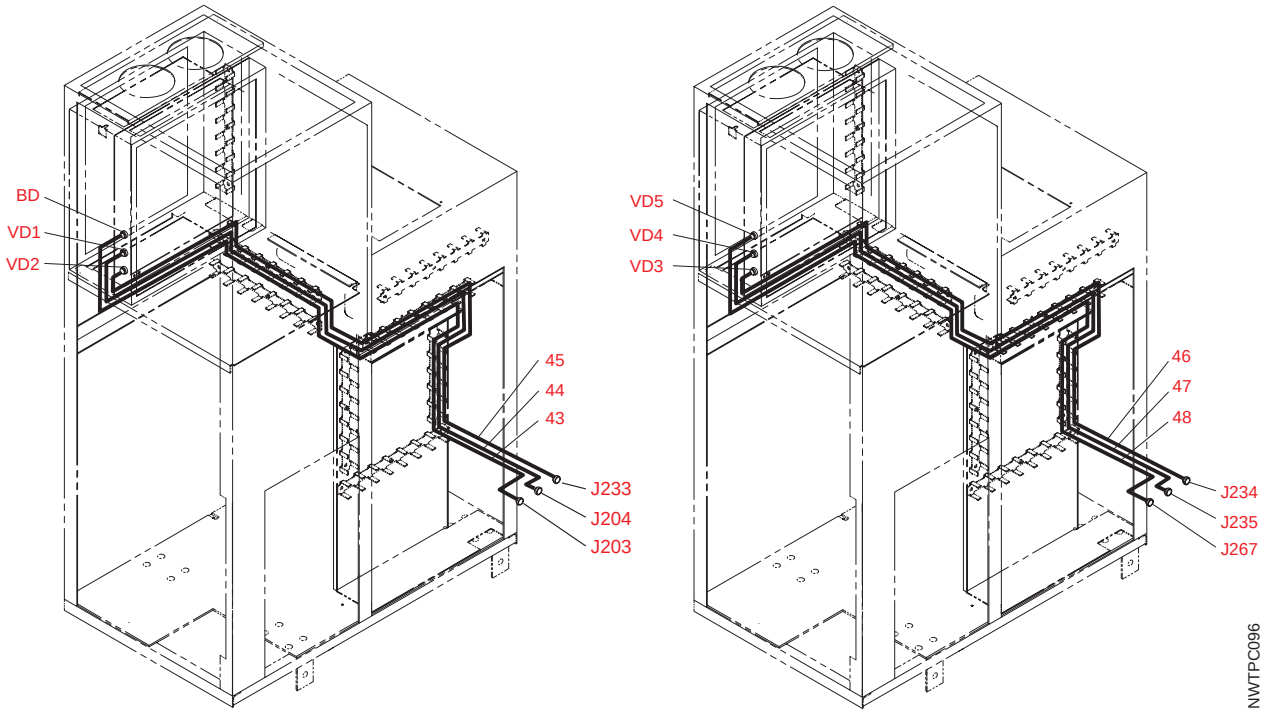
Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 6 of 13)
–34	30H6935	1	Cable, UEPO
–35	30H6936	1	Cable, Power Control
–36	30H6938	1	Cable, Power Control
–37	30H6944	1	Cable, Power Control


ALP2
38
PJ1
P229
PJ11
39
PF01
NWTPC094

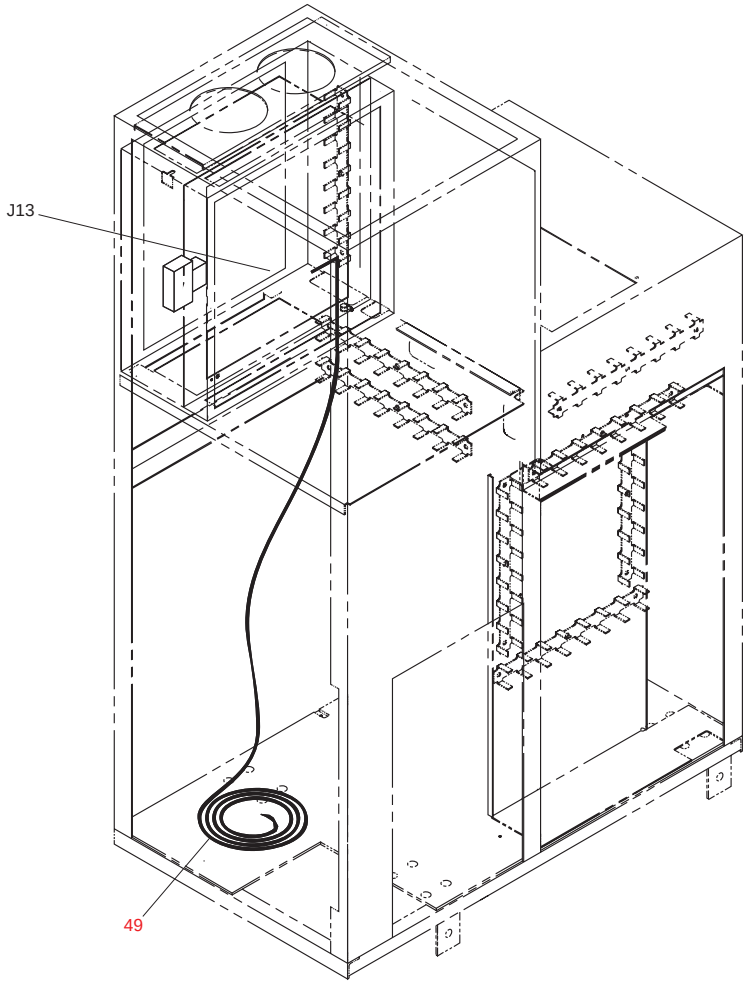
Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 7 of 13)
–38	30H6943	1	Cable, Operator Alert
–39	30H6941	1	Cable, Pre/postprocessor to MIC


PF04
40
P/P 1
41
Monitor
RISC
PA05
PA06
42
NWTPC095

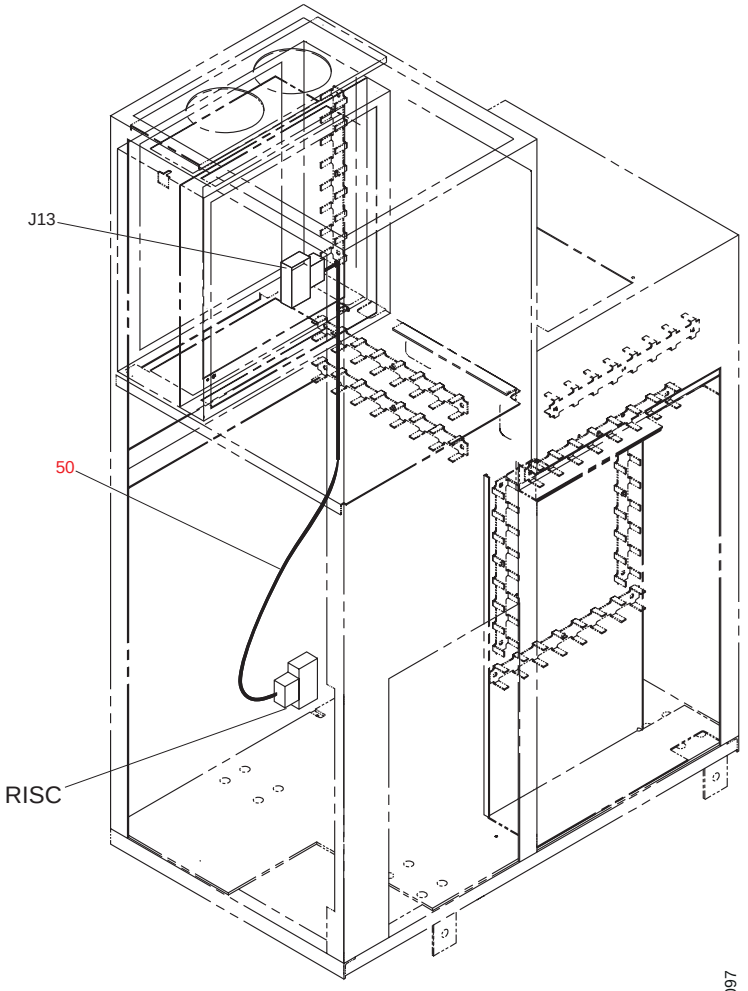
Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 8 of 13)
–40	30H6947	1	Cable, Pre/post to Tailgate
–41	45G1728	1	Cable, Display/Touch Screen Power
–42	24H8004	1	Cable, AC Power to RISC


BD
VD1
VD2
45
44
43
J233
J204
J203
VD5
VD4
VD3
46
47
48
J234
J235
J267
NWTPC096

Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 9 of 13)
–43	89H9938	1	Cable, Beam Detect Coax
–44	89H9933	1	Cable, VD1 Coax
–45	89H9934	1	Cable, VD2 Coax
–46	89H9935	1	Cable, VD3 Coax (Four- and five-beam only)
–47	89H9936	1	Cable, VD4 Coax (Four- and five-beam only)
–48	89H9937	1	Cable, VD5 Coax (Five-Beam only)
–	63H6643	6	Ferrite -Toroid (Coax cables for Five-Beam Printheads only)



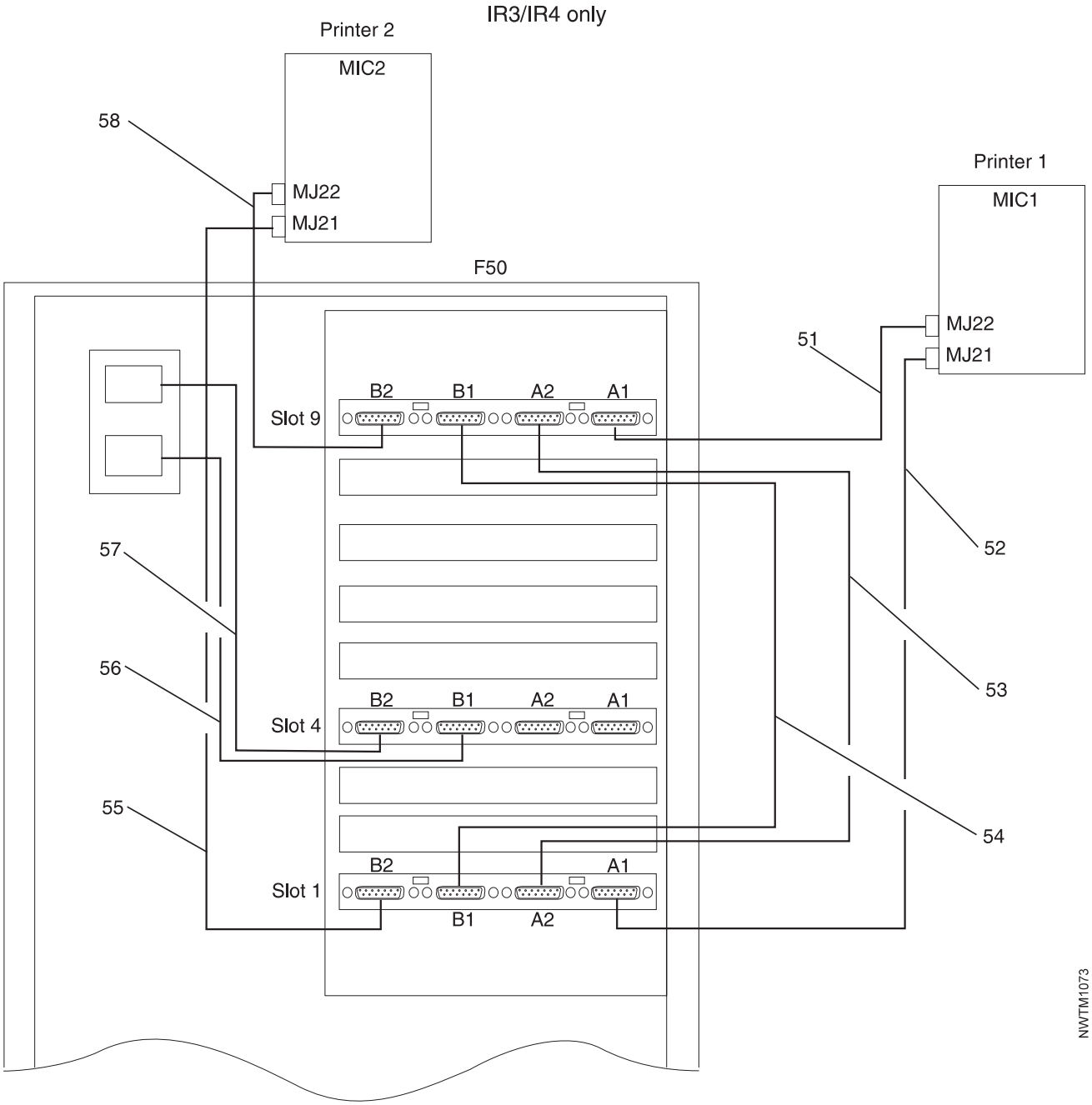
Printer 1



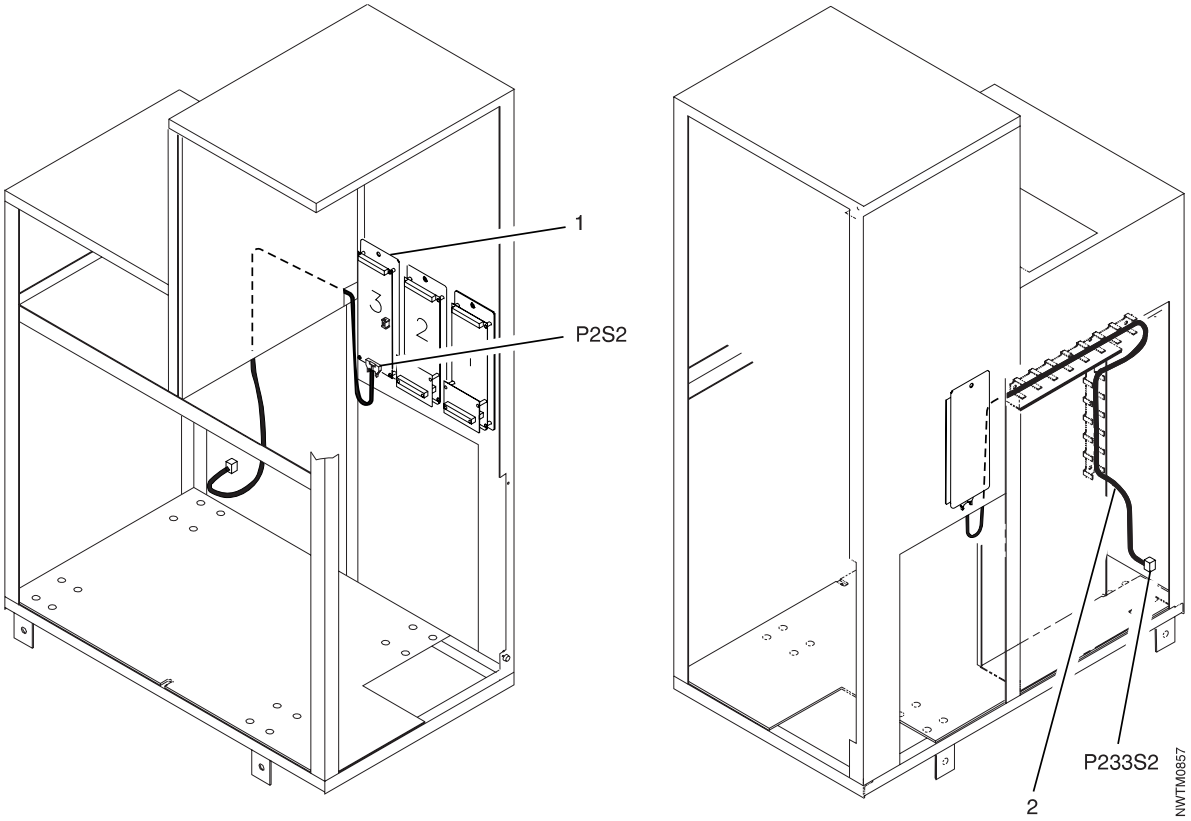
Printer 2

nwtpc097

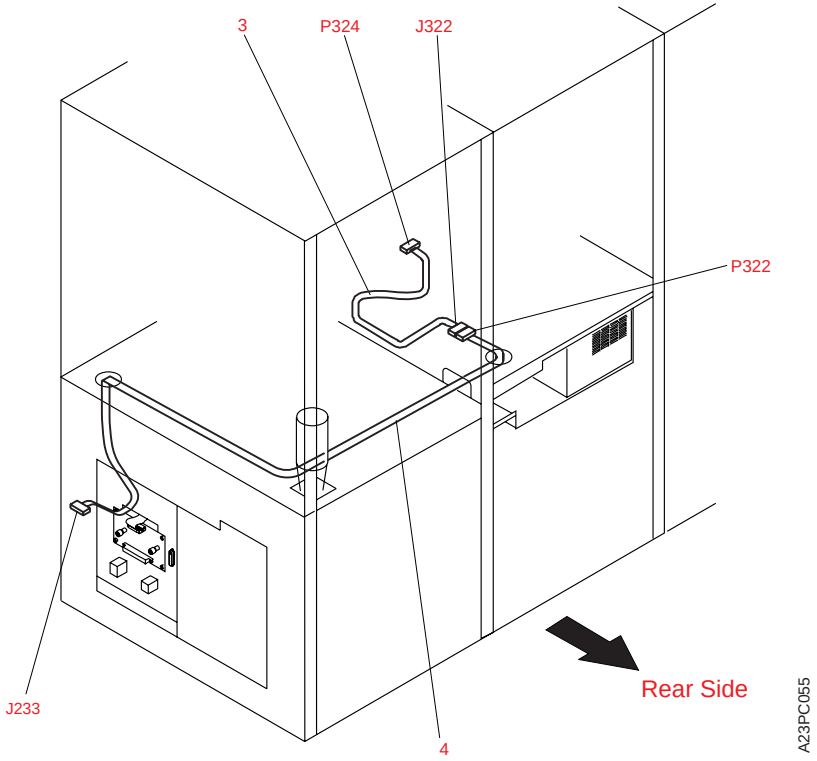
Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 10 of 13)
–			**For Controller Type 7013 Model 591/595 (ID3/ID4), and Type 7025 Model F50 (ID1/ID2, ID3/ID4, and IR1/IR2)**
–49	30H2751	1	Cable, SCSI, RISC Printer 2 to Printer 1 MIC (Model **591** and 595)
–49	88G5747	1	Cable, SCSI, RISC Printer 2 to Printer 1 MIC (Model F50 only)
–50	24H8118	1	Cable, SCSI RISC to printer 2 MIC (Model **591** and 595)
–50	88G5750	1	Cable, SCSI RISC to printer 2 MIC (Model F50 only)
–	08H7757	2	Terminator, wide/fast SCSI (J8) (Not Shown)


IR3/IR4 only
Printer 2
MIC2
58
MJ22
MJ21
Printer 1
MIC1
F50
51
MJ22
MJ21
B2
B1
A2
A1
Slot 9
57
52
56
53
Slot 4
55
54
Slot 1
NWTM1073

Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 11 of 13)
–			**For Controller Type 7025 Model F50 (IR3/IR4)**
–51	32H1466	1	Cable (10 m), SSA , RISC Printer 2 to Printer 1 MIC MJ22
–52	32H1466	1	Cable (10 m), SSA , RISC Printer 2 to Printer 1 MIC MJ21
–53	93H4340	1	Cable (.6 m), SSA , slot 1 to slot 9
–54	93H4340	1	Cable (.6 m), SSA , slot 1 to slot 9
–55	34H1465	1	Cable (2.5 m), SSA, RISC slot 1 to MIC MJ21
–56	93H4340	1	Cable (.6 m), SSA , slot 4 to lower SSA connector
–57	93H4340	1	Cable (.6 m), SSA , slot 4 to upper SSA connector
–58	34H1465	1	Cable (2.5 m), SSA, RISC slot 9 to MIC MJ22

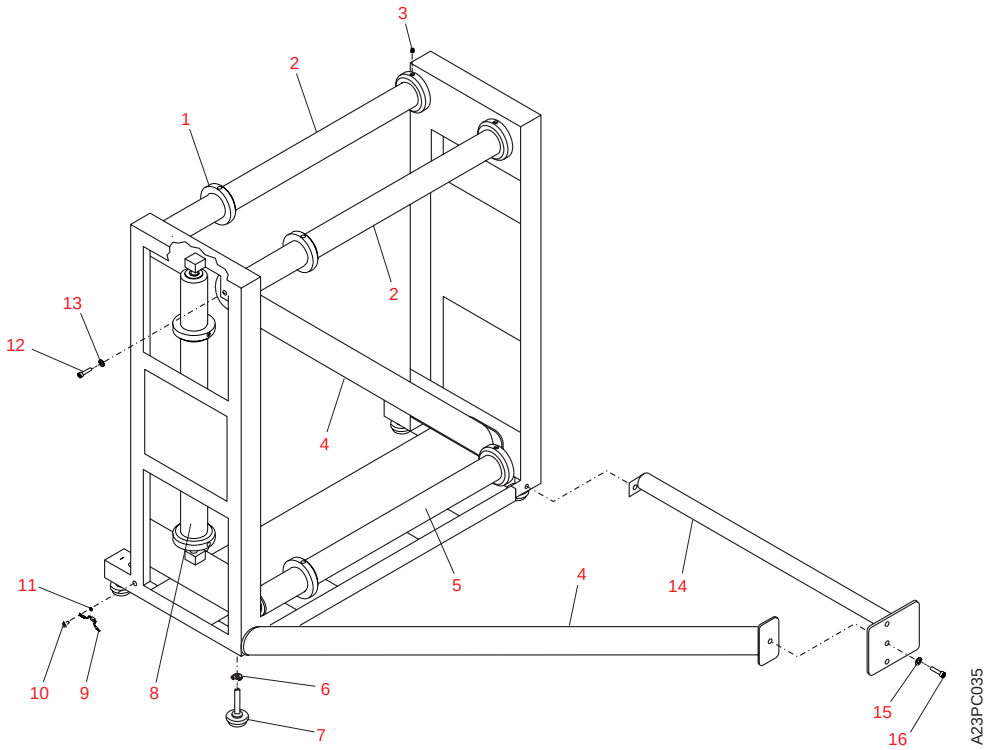

1
P2S2
P233S2
2
NWTM0857

Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 12 of 13)
–			**Side 1/Side 2 Verification Control Unit Cables**
–1S		NP	Plate, Card Mounting
–2S	89H9838	1	Cable, P2S2 to P233S2

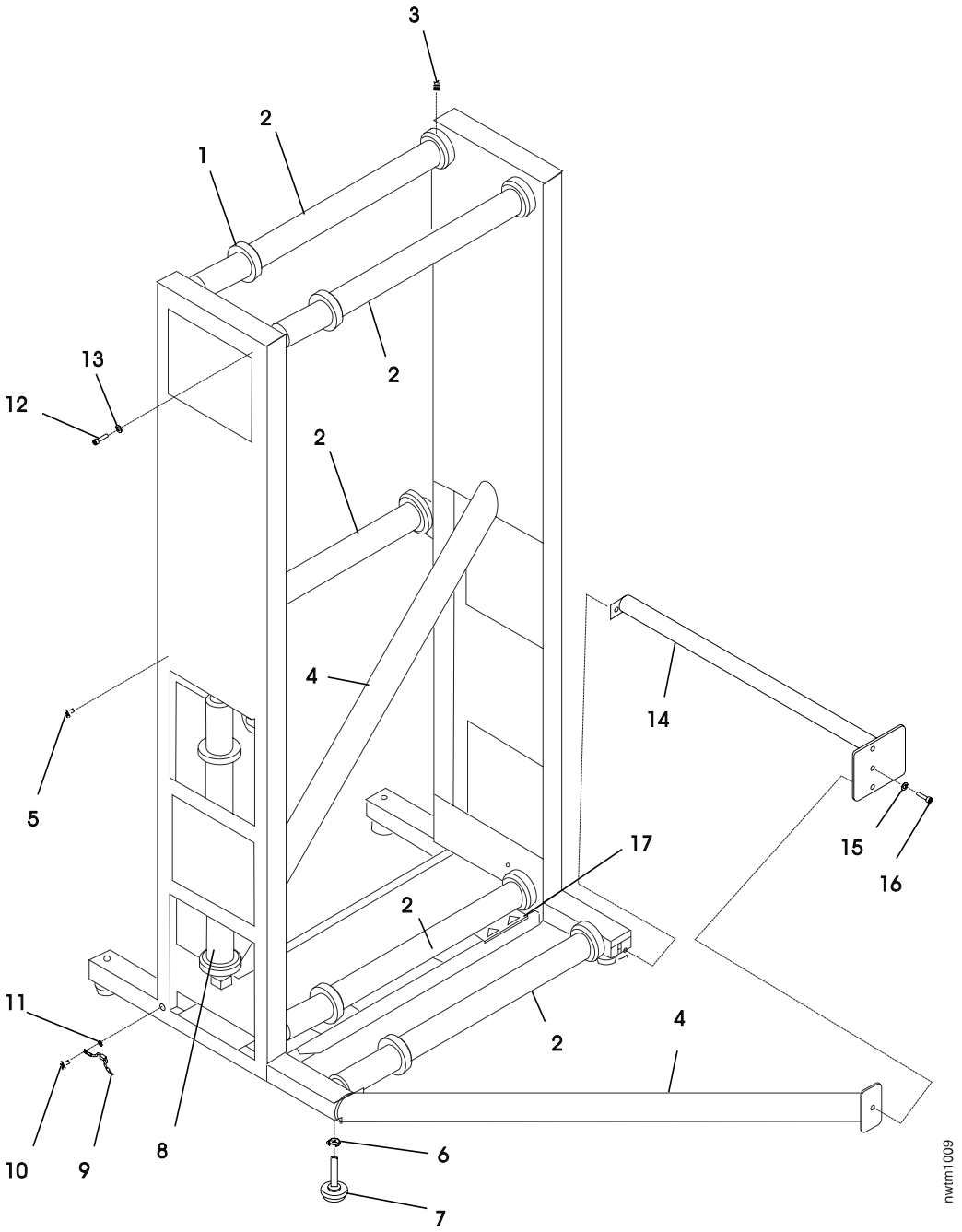

3
P324
J322
P322
J233
4
Rear Side
A23PC055

Asm–Index	Part Number	Units	Description
52–		NP	Control Unit Cables (Sheet 13 of 13)
–			**Side 1/Side 2 Verification Cables Inside the Printer Engine**
–3S	04H0574	1	Cable, J322S2 to P324S2
–4S	04H0572	1	Cable, P233S2 to P322S2

Assembly 53: Buffer/Flipper



Asm–Index	Part Number	Units	Description
53–			Buffer Flipper (Sheet 1 of 2)
–			**Except 324 PPM**
–	45G2026	1	Buffer Flipper Asm
–1	45G2047	8	Collar, Roller
–2	45G2049	2	Bar, Cross
–3	45G2059	8	Screw, Set
–4	45G2043	2	Tube Weldment
–5	45G2053	1	Roller, Horizontal Asm
–6	24107	4	Nut, Lock
–7	45G2048	4	Screw, Leveling Jack
–8	45G2051	1	Roller, Vertical Asm
–9	45G2045	1	Cable, Safety Ground Asm
–10	53F1663	1	Screw
–11	1622347	1	Washer, Helical Spring
–12	1621519	12	Screw, Socket Head Cap M5 X 12
–13	1622319	12	Washer, Lock
–14	57G6598	1	Support Bar
–15	1622319	1	Washer, Lock
–16	1621519	1	Screw, Socket Head Cap M5 X 12


3
2
1
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13
12
2
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14
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17
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16
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4
10
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8
6
7
nwtm1009

Asm–Index	Part Number	Units	Description
53–			Buffer Flipper (Sheet 2 of 2)
–			**For 324 PPM Duplex Printing Systems**
–	90H1562	1	Buffer Flipper Asm
–1	45G2047	12	Collar, Roller
–2	45G2049	2	Bar, Cross
–3	45G2059	12	Screw, Set
–4	45G2043	2	Tube Weldment
–5	45G2053	5	Roller, Horizontal Asm
–5A	1621519	4	Screw, Socket Head Cap M5 X 12
–6	24107	4	Nut, Lock
–7	45G2048	4	Screw, Leveling Jack
–8	45G2051	1	Roller, Vertical Asm
–9	45G2045	1	Cable, Safety Ground Asm
–10	53F1663	1	Screw
–11	1622347	1	Washer, Helical Spring
–12	1621519	17	Screw, Socket Head Cap M5 X 12
–13	1622319	17	Washer, Lock
–14	57G6598	1	Support Bar
–15	1622319	1	Washer, Lock
–16	1621519	1	Screw, Socket Head Cap M5 X 12

Assembly 54: Kits and Their Quantities

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 1 of 15)
–	06F0401	10	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 6
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 10
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 12
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 16
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 25
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 10
–		20	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 12 This part can also be ordered in Kit 06F0420
–		10	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 16
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 25
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 40
–	06F0411	20	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 This part can also be ordered in Kit 06F0420
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 10
–		20	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 This part can also be ordered in Kit 06F0420
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 16
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 25
–		5	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 40
–		5	Screw, Phillips Pan Hd with Star Wshr M4 X 45

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 2 of 15)
–	06F0402	3	Screw, Phillips Pan Hd M3 X 5
–		3	Screw, Phillips Pan Hd M3 X 6
–		3	Screw, Phillips Pan Hd M3 X 8
–		3	Screw, Phillips Pan Hd M3 X 10
–		3	Screw, Phillips Pan Hd M3 X 12
–		3	Screw, Phillips Pan Hd M3 X 14
–		3	Screw, Phillips Pan Hd M3 X 16
–		3	Screw, Phillips Pan Hd M3 X 28
–		3	Screw, Phillips Pan Hd M3 X 35
–		3	Screw, Phillips Pan Hd M4 X 5
–		3	Screw, Phillips Pan Hd M4 X 10
–		3	Screw, Phillips Pan Hd M4 X 12
–		3	Screw, Phillips Pan Hd M4 X 14
–		3	Screw, Phillips Pan Hd M4 X 16
–		3	Screw, Phillips Pan Hd M4 X 30
–		3	Screw, Phillips Pan Hd M4 X 35
–		3	Screw, Phillips Pan Hd M4 X 60
–		3	Screw, Phillips Pan Hd M5 X 10
–		3	Screw, Phillips Pan Hd M5 X 30
–		3	Screw, Phillips Pan Hd M5 X 60
–		3	Screw, Phillips Pan Hd M6 X 50

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 3 of 15)
–	06F0412	3	Screw, Phillips Flat Hd M1.6 X 3
–		3	Screw, Phillips Flat Hd M3 X 4
–		3	Screw, Phillips Flat Hd M3 X 6
–		3	Screw, Phillips Flat Hd M3 X 8
–		3	Screw, Phillips Flat Hd M3 X 10
–		3	Screw, Phillips Flat Hd M3 X 12
–		3	Screw, Phillips Flat Hd M4 X 6
–		3	Screw, Phillips Flat Hd M4 X 8
–		3	Screw, Phillips Flat Hd M4 X 10
–		3	Screw, Phillips Flat Hd M4 X 12
–		3	Screw, Phillips Flat Hd M5 X 8
–		3	Screw, Phillips Flat Hd M5 X 12
–	06F0413	3	Screw, Phillips Bind Hd M3 X 6
–		3	Screw, Phillips Bind Hd M3 X 8
–		3	Screw, Phillips Bind Hd M3 X 10
–		3	Screw, Phillips Bind Hd M3 X 12
–		3	Screw, Phillips Bind Hd M3 X 16
–		3	Screw, Phillips Bind Hd M3 X 20
–		3	Screw, Phillips Bind Hd M4 X 6
–		3	Screw, Phillips Bind Hd M4 X 8
–		3	Screw, Phillips Bind Hd M4 X 10
–		3	Screw, Phillips Bind Hd M4 X 12
–		3	Screw, Phillips Bind Hd M4 X 14
–		3	Screw, Phillips Bind Hd M4 X 16
–		3	Screw, Phillips Bind Hd M4 X 20
–		3	Screw, Phillips Bind Hd M4 X 40
–		3	Screw, Phillips Bind Hd M4 X 45
–		3	Screw, Phillips Bind Hd M4 X 50
–		3	Screw, Phillips Bind Hd M5 X 8
–		3	Screw, Phillips Bind Hd M5 X 10
–		3	Screw, Phillips Bind Hd M5 X 12
–		3	Screw, Phillips Bind Hd M6 X 14

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 4 of 15)
–	06F0403	3	Bolt, Socket Hd M3 X 8
–		3	Bolt, Socket Hd M3 X 12
–		3	Bolt, Socket Hd M3 X 16
–		3	Bolt, Socket Hd M3 X 20
–		3	Bolt, Socket Hd M3 X 25
–		3	Bolt, Socket Hd M4 X 8
–		3	Bolt, Socket Hd M4 X 10
–		3	Bolt, Socket Hd M4 X 12
–		3	Bolt, Socket Hd M4 X 16
–		3	Bolt, Socket Hd M4 X 20
–		3	Bolt, Socket Hd M4 X 30
–		3	Bolt, Socket Hd M5 X 8
–		3	Bolt, Socket Hd M5 X 10
–		3	Bolt, Socket Hd M5 X 12
–		3	Bolt, Socket Hd M5 X 20
–		3	Bolt, Socket Hd M5 X 25
–		3	Bolt, Socket Hd M5 X 30
–		3	Bolt, Socket Hd M5 X 35
–		3	Bolt, Socket Hd M5 X 38
–		3	Bolt, Socket Hd M5 X 45

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 5 of 15)
–	06F0414	3	Bolt, Socket Hd M6 X 12
–		3	Bolt, Socket Hd M6 X 14
–		3	Bolt, Socket Hd M6 X 20
–		3	Bolt, Socket Hd M6 X 25
–		3	Bolt, Socket Hd M6 X 30
–		3	Bolt, Socket Hd M6 X 40
–		3	Bolt, Socket Hd M6 X 60
–		3	Bolt, Socket Hd M8 X 20
–		3	Bolt, Socket Hd M8 X 25
–		3	Bolt, Socket Hd M8 X 30
–		3	Bolt, Socket Hd M8 X 40
–	06F0415	5	Bolt, Socket Hd with Star Wshr M4 X 12
–		5	Bolt, Socket Hd with Star Wshr M4 X 18
–		5	Bolt, Socket Hd with Star Wshr M4 X 20
–		5	Bolt, Socket Hd with Star Wshr M5 X 12
–		10	Bolt, Socket Hd with Star Wshr M5 X 16
–		5	Bolt, Socket Hd with Star Wshr & Wshr M4 X 10
–		5	Bolt, Socket Hd with Star Wshr & Wshr M4 X 16
–		5	Bolt, Socket Hd with Star Wshr & Wshr M5 X 12
–		5	Bolt, Socket Hd with Star Wshr & Wshr M5 X 16
–		5	Bolt, Socket Hd with Star Wshr & Wshr M5 X 20
–		5	Bolt, Socket Hd with Star Wshr & Wshr M5 X 30

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 6 of 15)
–	06F0416	10	Screw, Set M3 X 5
–		5	Screw, Set M4 X 4
–		5	Screw, Set M4 X 5
–		5	Screw, Set M4 X 6
–		5	Screw, Set M4 X 8
–		5	Screw, Set M4 X 10
–		5	Screw, Set M4 X 12
–		10	Screw, Set M4 X 16
–		10	Screw, Set M5 X 8
–	06F0404	5	Screw, Pan Head Brass M3 X 5
–		5	Screw, Pan Head Brass M4 X 8
–		5	Screw, Pan Head Brass M4 X 10
–		5	Screw, Pan Head Brass M5 X 8
–		5	Screw, Bind Head Stainless M3 X 4
–		5	Screw, Shoulder M3 X 4
–		5	Bolt, Wing M5 X 15
–		5	Screw, Knurling M5 X 15
–		5	Bolt Socket Head Stainless M4 X 8
–		5	Bolt Socket Head Stainless M4 X 12
–		5	Bolt Socket Head Stainless M5 X 12
–		5	Bolt Socket Head Stainless M5 X 16
–		5	Screw, Fixing
–		5	Screw, Sum

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 7 of 15)
–	06F0405	5	Washer, Plane D3
–		15	Washer, Plane D4
–		15	Washer, Plane D5
–		10	Washer, Plane D6
–		5	Washer, Plane D8
–		5	Washer, Plane D10
–		5	Washer, Plane D12
–		10	Washer, Spring D3
–		10	Washer, Spring D4
–		10	Washer, Spring D5
–		5	Washer, Spring D6
–		5	Washer, Spring D8
–		5	Washer, Spring D10
–	06F0406	5	Washer, Plane Brass D3
–		5	Washer, Plane Brass D4
–		5	Washer, Plane Brass D5
–		5	Washer, Plane Stainless D3
–		5	Washer, Toothed Outer D3
–		5	Washer, Toothed Outer Zinc Plated D4
–		10	Washer, Toothed Outer D4
–		10	Washer, Toothed Outer D5
–		5	Washer, Toothed Outer D6
–		5	Washer, Toothed Inner D3
–		5	Washer, FP (No. 1)
–		5	Washer, FP (No. 5)
–		5	Washer, Special

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 8 of 15)
–	06F0417	5	Washer, Press (No. 1)
–		20	Washer, Press (No. 2) This part can also be ordered in Kit 06F0420
–		5	Washer, VF
–		10	Washer
–		5	Washer, Shaft Clamp
–		5	Washer, Opt
–		5	Washer, BR
–		5	Washer, Wave
–		5	Spring, Cone
–		5	Washer, Polyester
–		1	Washer, A
–		1	Washer, Shaft Clamp
–		1	Washer, Thrust
–		1	Washer, BB
–	06F0407	5	Nut, M3
–		5	Nut, M4
–		5	Nut, M5
–		5	Nut, M6
–		5	Nut, M10
–		5	Nut, Lock M3
–		5	Nut, Lock M4
–		5	Nut, Lock M5
–		5	Nut, Lock M6
–		5	Nut, Lock M8
–		5	Nut, Lock M10
–		5	Nut, Flange M3
–		5	Nut, Flange M4
–	06F0408	5	Key 2.5 X 8
–		5	Key 3 X 3 X 10
–		5	Key 3 X 3 X 12
–		5	Key 4 X 4 X 10

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 9 of 15)
–	06F0409	5	Ring, Retaining D6
–		5	Ring, Retaining D8
–		5	Ring, Retaining D10
–		5	Ring, Retaining D12
–		5	Ring, Retaining D22
–		5	Ring, Retaining D26
–		5	Ring, Retaining D28
–		5	Ring, Retaining D30
–		5	Ring, Retaining D32
–		5	Ring, Retaining D35
–		5	Ring, Retaining D42
–	06F0418	5	Ring, Retaining D3
–		5	Ring, Retaining D4
–		5	Ring, Retaining D5
–		10	Ring, Retaining D6
–		5	Ring, Retaining D7
–		5	Ring, Retaining D8
–		5	Ring, Retaining D9
–		5	Ring, Retaining D10
–		5	Ring, Retaining D11
–		5	Ring, Retaining D13
–		5	Ring, Retaining D16
–		5	Ring, Retaining Zinc Plated D7-9

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 10 of 15)
–	06F0410	5	Clip, Nylon No. 3N
–		5	Clip, Nylon No. 4N
–		5	Clip, Nylon No. 5N
–		5	Clip, Nylon No. 6N
–		5	Clip, Nylon No. 7N
–		5	Clip, Nylon No. 8N
–		5	Clip, Nylon No. 9N
–		5	Clip, Nylon No. 10N
–		5	Clip, Nylon No. 11N
–		5	Clip, Nylon No. 12N
–		5	Clip, Nylon No. 18N
–		5	Stand
–		5	Retainer
–		5	Receptacle
–		5	Spring
–		5	Head
–		5	Eyelet
–	06F0419	10	Clamp, Cable No. 05
–		5	Clamp, Cable No. 10
–		5	Clamp, Cable No. 15
–		5	Clamp, Cable No. 20
–		5	Clamp, Cable No. 28
–		5	Clamp, Cable No. 05-L
–		5	Clamp, Cable No. 05-H
–		5	Clamp, Cable No. 07-H
–		20	Wrap, Tie No. 1
–		20	Wrap, Tie No. 2
–		5	Wrap, Tie No. 3

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 11 of 15)
–	06F0420	50	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 8 This part can also be ordered in Kit 06F0411
–		50	Screw, Phillips Pan Hd with Star Wshr & Wshr M4 X 12 This part can also be ordered in Kit 06F0411
–		50	Screw, Phillips Pan Hd with Star Wshr & Wshr M5 X 8 This part can also be ordered in Kit 06F0401
–		50	Washer, Press (No. 2) This part can also be ordered in Kit 06F0417
–	06F1031		Pins and Sockets 14–18, 18–22 AWG
–	06F1032		Contacts and Extraction Tool, for Amp Circular Connectors, Pins and Sockets 16–18, 20–24 AWG
–	06F1033		Contacts and Extraction Tool, for Amp Circular Connectors, Pins and Sockets 10–12, 14–20, 18–24 AWG
–	06F1034		Contacts and Extraction Tool, for Amp Mic Connectors, Sockets 0.5–0.27mm AWG
–	06F1035		Contacts, for Amp EI Connectors, Sockets 18–24 AWG
–	06F1036		Contacts, for Berg Connectors, PV Terminals 18–20, 22–26 AWG
–	06F1037		Contacts, for Berg Connectors, Mini PV Terminals 22–26 AWG
–	06F1038		Contacts and Extraction Tool, for Elco Connectors, Sockets 22–28 AWG
–	06F1039		Fasteners, for Amp Fasteners Terminals 18, 20–24, 10–12, 14, 18–22 AWG, Adapters and Sleeves
–	06F0429		Terminals, 0.2–0.5mm Through 2.63–6.64mm AWG

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 12 of 15)
–	88F1626	1	Bolt, Hexagon Socket Hd M3 X 6
–		1	Screw, Phillips Flat Hd M3 X 6
–		1	Bolt, Hexagon Socket Hd M3 X 10
–		1	Screw, Phillips Bind Hd M3 X 4
–		1	Screw, Phillips Flat Hd M3 X 16
–		1	Bolt, Hexagon Socket Hd M3 X 16
–		1	Bolt, Hexagon Socket Hd M3 X 18
–		1	Screw, Phillips Pan Hd with Star Wshr & Wshr M3 X 8
–		1	Bolt, Hexagon Socket Hd M4 X 38
–		2	Pan Hd M4 X 6
–		1	Pan Hd M4 X 8
–		1	Pan Hd M4 X 40
–		1	Screw, Phillips Bind Hd M4 X 25
–		1	Screw, Set, Hexagon Socket Hd M4 X 8
–		1	Pan Hd M4 X 6
–		1	Pan Hd M4 X 18
–		1	Screw, Phillips Pan Hd M5 X 8
–		2	Bolt, Hexagon Socket Hd with Star Wshr & Wshr M5 X 10
–		1	Bolt, Hexagon Socket Hd M5 X 40
–		1	Screw, Phillips Bind Hd M5 X 6
–		1	Screw, Phillips Bind Hd M5 X 20
–		1	Bolt, Hexagon Socket Hd M5 X 10
–		2	Bolt, Hexagon Socket Hd M5 X 16
–		1	Screw, Phillips Flat Hd M5 X 10
–		1	Bolt, Hexagon Socket Hd M5 X 18
–		1	Screw, Phillips Pan Hd M6 X 16
–		1	Screw, Phillips Bind Hd M6 X 16
–		1	Screw, Phillips Pan Hd with Star Wshr & Wshr M6 X 12
–		1	Bolt, Hexagon Socket Hd M6 X 16
–		1	Bolt, Hexagon Socket Hd M8 X 32
–		1	Bolt, Hexagon Socket Hd M10 X 16
–		1	Screw, Set, Hexagon Socket Hd M5 X 16

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 13 of 15)
–	88F1627	1	Nut, Flange
–		2	Ring, Retaining
–		2	E-Clip
–		1	E-Ring
–		1	Nut, M8
–		1	Nut, Brass M4
–		1	Screw, Phillips Pan Hd., Brass M5 X 10
–		1	Pin, D3 X 14
–		1	Key, 3 X 3 X 8
–		1	Key, 4 X 4 X 15

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 14 of 15)
–	88F3569	2	Screw, M3 X 30
–		2	Screw, M3 X 16
–		2	Screw, M3 X 20
–		2	Screw, M4 X 8 Flat Hd
–		5	Washer, Flat M3
–		5	Washer, Flat M4
–		5	Washer, Lock M3
–		5	Washer, Lock M4
–		5	Washer, Star M4
–		2	Nut, M3
–		5	Screw, M5 X 8
–		5	Screw, M4 X 6
–		5	Screw, M4 X 8
–		2	Screw, M4 X 45
–		5	Screw, M3 X 8
–		5	Screw, 6/32 X .5 in.
–		2	Nut, M4Sims
–		1	Bolt, Hexagon Socket Head M3 X 12
–		2	Bolt, Hexagon Socket Head M4 X 10
–		2	Screw, Phillips Pan Head M3 X 13
–		2	Screw, Phillips Pan Head M4 X 16
–		2	Screw, Phillips Pan Head M4 X 12
–		1	Washer, Flat
–		1	Washer, Lock

Asm–Index	Part Number	Units	Description
54–			Kits and Their Quantities (Sheet 15 of 15)
–	30H2769		310 PPM Feature
–		1	Nylon Clip (5N)
–		3	Nylon Clip (6N)
–		5	M4 X 12 Phillips Pan HD Screw With Star Wshr & Wshr
–		2	M3 X 12 Phillips Pan HD Screw With Star Wshr & Wshr
–		3	Bundling Band (Cable Tie)
–		2	Shaft Clamper
–		2	M4 X 25 Phillips Pan HD. Screw With Star Wshr & Wshr
–		2	M3 X 6 Phillips Pan HD. Screw With Star Wshr & Wshr
–		1	M5 X 12 Phillips Pan HD. Screw With Star Wshr & Wshr
–		1	M5 X 12 Hexagon Socket HD. Bolt With Star Wshr & Wshr
–		4	M4 X 10 Hexagon Socket HD. Bolt With Star Wshr & Wshr
–		1	Shaft Clamp Washer
–		1	Special Washer
–		1	Cable Clamp
–		2	M5 X 16 Phillips Pan HD. Screw with Star Wshr & Wshr
–		2	Shoulder Screws

Assembly 55: No Assembly 55 for this Printer

Asm–Index	Part Number	Units	Description
55–		1	Not Used

Assembly 56: Installation Kit

Asm–Index	Part Number	Units	Description
56–		NP	Installation Kit
–	845762	AR	Label, This Machine Wired for _____ V
–	5756324	AR	Label, Channel Address
–	6226855	AR	Label, Phase Rotation
–	65F6243	AR	Label, Laser Radiation
–	65F6252	AR	Label, Do Not Reuse Waste Toner
–	65F6254	AR	Label, Paper Weight in Stacker Can Exceed 20 Kg
–	88F1192	AR	Label, Hazard-Area Trained Service Personnel only
–	88F1194	AR	Label, Fast-Moving Paper
–	88F1196	AR	Label, Laser Power (20 mw)
–	90H2651	AR	Label, Laser Power (30 mw)
–	1621544	AR	Bolt, M8 X 16
–	81X0068	AR	Stud
–	65F6190	AR	Knob
–	5756348	AR	Holder
–	57G4379	AR	Filter, Oil Tank
–	57G4395	AR	Label, Toner/Developer (Purple)
–	90H2449	AR	Label, Toner/Developer (Blue)
–	57G6582	AR	Nut, CU Attach
–	57G6591	AR	Label, Toner Fill Cap (Purple)
–	90H2451	AR	Label, Toner Fill Cap (Blue)
–	7320140	AR	Washer
			For procedures, see “Installation, Relocation, and Discontinuance Procedure.”

Chapter 7. Preventive Maintenance

Types of Preventive Maintenance 3618
Operator Maintenance 3619
Service Maintenance 3620
Entering the CE Mode 3622
Using the PM Log 3623
Service Tasks – PM Procedures 3625
1.5 Mft Procedure. 3627
3 Mft Procedure. 3629
6 Mft Procedure. 3631
9 Mft Procedure. 3633
12 Mft Procedure 3635
18 Mft Procedure 3637
Specially Tracked Parts. 3638
PM Checklist 3639

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Types of Preventive Maintenance

Two types of scheduled preventive maintenance (PM) are performed on the Printer:

- *Operator Maintenance* – tasks, which the operator performs.
- *Service Maintenance* – tasks, which the service representative performs at regular intervals, that are based on the number of feet of forms printed. Usually called preventive maintenance (PM).

Operator Maintenance

Operators are responsible for cleaning printer parts, replacing printer supplies, and checking print quality. These tasks are summarized below and are described in more detail in the *Operator's Guide*.

Cleaning Tasks

The operator is responsible for cleaning:

- The corona wires each shift.
- The forms path and forms input bin on a daily basis.
- The oiler belt on a weekly basis.

Print Quality Check

The operator is responsible for checking the print quality regularly. Each day, the operator should do the following.

1. Check for the following defects:
   - Background
   - Black spots
   - Poor fusing (such as the print rubbing off)
   - Print streaks
   - Uneven print
   - Voids.
2. Perform simple corrective actions see the *Operator's Guide*.
3. Save any print-quality-defect samples for the service representative.

Replacement Tasks

The customer is responsible for ordering and replacing the following supply items at the indicated intervals. A message appears on the Display/Touch Screen when replacement is necessary.

Developer mix	1.4 Mft at 229 PPM (pages per minute)
	1.0 Mft at 150 PPM
Fine filter	3.5 Mft (average)
	In the scheduled maintenance procedures, 1 kft is 1000 linear feet of printed forms, and 1 Mft is 1000000 linear feet of printed forms.
Forms	As required
Fuser oil	700 kft per liter (average)
Oiler belt	Approximately every 1.5 Mft at 229 PPM
	Approximately every 1.3 Mft at 150 PPM
Toner	As required
Toner-collector bag	After every eight pressings of the Toner Supply Pushbutton.

Service Maintenance

Table 929. Service Maintenance Fast Path

Follow these steps when you perform preventive (service) maintenance:

1. Determine which PM procedures are due (Service Tasks – PM Procedures).
2. Order parts if necessary.
3. Do the procedure (Table 933).
4. Reset the counter (Changing a PM Counter).

Each step is explained at the section indicated.

You, the service representative, are responsible for performing preventive maintenance (PM) on the printer at regular intervals. The purpose of PM is to avoid sudden failures of mechanical parts and print-quality problems that are not detected by the machine.

Preventive maintenance consists of the following.

- Replacing parts that are predicted to wear out after a specified amount of use
- Cleaning and checking other heavy-use areas of the printer
- Looking for worn or damaged parts.

Usage of the printer, or of a part, is measured by the number of feet of forms that are passed through the printer. Counters that you can reset individually when you replace a part or perform scheduled maintenance, record this usage.

You should schedule various maintenance procedures according to total usage and the estimated life of parts. As the counters approach preselected usage levels or the end-of-life estimates for parts, a reminder of preventive maintenance due appears on the Preventive Maintenance Log window. The reminder appears when you enter the CE (service) mode.

You should perform preventive maintenance within ±150 kft of the scheduled interval or end-of-life estimate for a part. For example, you should perform the first set of preventive maintenance tasks when the usage level reaches 1.5 Mft. Therefore, you will see a PM reminder when the usage counter reaches 1.35 Mft (1.5 Mft minus 150 kft).

PM Schedule

Table 930 shows the cycle of preventive maintenance procedures for 36 Mft of machine usage. This schedule of procedures repeats every 36 Mft.

Table 941 shows the cycle that is repeated for 288 Mft of machine usage.

Performing PM On Schedule: **On schedule** is within ±150 kft of the scheduled intervals. Find the appropriate print count in first column of the table. Perform the procedures that are indicated by the Xs, in that row.

Performing PM Off Schedule: **Off schedule** means, at a usage level between two scheduled intervals. In this case, perform the procedures that are indicated by the later of the two intervals, even though one or more of the procedures are not actually due. This may require discarding a part that was recently installed. You may choose to leave that part alone, but you will have to replace it between scheduled procedures some time in the future.

Table 930. Preventive Maintenance Checklist

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft		Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
1.5	X							19.5	X					
3.0	X	X						21.0	X	X				
4.5	X							22.5	X					
6.0	X	X	X					24.0	X	X	X		X	
7.5	X							25.5	X					
9.0	X	X		X				27.0	X	X		X		
10.5	X							28.5	X					
12.0	X	X	X		X			30.0	X	X	X			
13.5	X							31.5	X					
15.0	X	X						33.0	X	X				
16.5	X							34.5	X					
18.0	X	X	X	X		X		36.0	X	X	X	X	X	X

Entering the CE Mode

Table 931. Entering CE Mode

To enter CE Mode

1. Select **Service Actions** on the **Analyze** pull down menu.
   a. On the menu bar of the Display/Touch Screen main window, select **Analyze**.
   b. Select **Service Actions** on the pull down menu that appears.
   c. A **Password Keypad** window appears. Enter the current CE password, and select the **OK** key. When your password is accepted, the **Service Actions** window appears.

      If preventive maintenance is due, the **Preventive Maintenance Log** window also appears with a pop-up **PM Due** window. This pop-up window indicates which services are due. Select the **Cancel** button to close the **PM Due** window.

      If preventive maintenance is not due, but you wish to perform a preventive maintenance procedure or to change the PM Log, see Using the PM Log.
2. You may now do the following:
   a. Select an action in the **Service Actions** window.
   b. To close the **Service Actions** window, select the **Logoff** button in the **Service Actions** window.

   To change the CE level password, see page 1558.

Using the PM Log

Table 932. Using the Preventive Maintenance Log

The preventive maintenance (PM) log is a cumulative indicator of printer usage (rolls, brushes, and so on) with projections of when PM is due. You can use the log to do the following:

- Check the usage of various printer areas
- Anticipate when PM will be due
- Set the PM counters for special situations, such as the installation of a new part
- Record completed PM.

To use the PM log, do the following:

1. Select **Logs** on the Service Actions menu bar.
2. Select **PM Logs** on the menu that appears. The Preventive Maintenance Log window appears with the following information:
   - Item (for example, “3 Mft,” “Hot Roll”)
   - Units
     - Used
     - Remaining
     - % Remaining
   - Days Left (estimated)
3. Use this information to identify printer areas that need planned maintenance or parts that need replacement.

Changing a PM Counter

To change a PM counter, do the following:

1. Select the item in the log window.
2. Select the **Change** button. The Change Preventive Maintenance Data window shows the PM counter values for that item. These are the values when the last change occurred.
3. Select the counter you want to change. A numeric key pad appears along with function keys to control the position of the cursor in the pad’s data field:

Counter	Description
Interval	Time between PMs – available for specially tracked parts.
Interval Warning	Controls when a PM due warning message appears.
Units PM Performed On	Adjusts the “Feet Used” field – do not use.

4. Select the new PM value to appear in the data field.
5. Select the **OK** key. The Change Preventive Maintenance Data window reappears with the new value.
6. If the new value is correct, select the **OK** button. The Preventive Maintenance Log window reappears. If the new value is not correct, repeat steps 1 to 6.

(continued on next page)

Table 932. Using the Preventive Maintenance Log (continued)

Recording the Completed PM

To record that preventive maintenance is completed, do the following.

Note: Selecting the **Completed** button resets the “Feet Used” counter to zero for the items.

1. Select the item in the log window.
2. Select the **Completed** button.

Selecting OK

If you select the **OK** button, the window closes, and any PM changes you have made are accepted.

Selecting Cancel

If you select the **Cancel** button, the window is closed without accepting any changes.

Service Tasks – PM Procedures

This section contains the steps for performing the following:

- 1.5 Mft Procedure
- 3 Mft Procedure
- 6 Mft Procedure
- 9 Mft Procedure
- 12 Mft Procedure
- 18 Mft Procedure

See Table 933 for a list of the tasks you will be performing at each of the PM intervals.

General Instructions

Keep the following items in mind as you do the PM procedures:

- Always use clean materials to clean around the photoconductor (PC) drum, developer, cleaner, or coronas.
- Use a clean, lint-free cloth and water for cleaning the coronas.
- Handle the PC drum with extreme care; avoid touching the surface of the PC with your skin or hands.
- Some PM procedures require a vacuum cleaner that is approved for use with toner.
- Some PM procedures ask you to use the maintenance panel to check the operation of the printer sensors. See Exerciser Routines (Position 3).

Note: If your customer uses Postprocessing equipment, stacker parts such as finger belts and static brushes do not require replacement. In this case, do NOT order stacker parts. Order only what your printer requires.

In addition to the replacement of PM parts there are Specially Tracked Parts. Refer to this section for additional service tasks.

Table 933. Service PM Tasks by Interval

	Check	Clean	Replace
1.5 Mft Procedure	Corona Asm (all) Developer Front & Rear Seals	Charge Corona Asm Developer Doctor Blade Primary & Secondary Erase Lamp Filters Preheat Platen Manifold Distribution Filter Developer Front & Rear Seals	Cleaner Brush
3 Mft Procedure	Stacker Finger Belts Path Modifier Spring	Corona Asm (all) Optical Sensors (all)	
6 Mft Procedure	Sensor Margin Transfer Station Discharge Brush Laser Current Meter Cooling Fan Operation	AC power Supply Cooling Filter	Fuser Filter Path Modifier Spring
9 Mft Procedure	Scuff Pressure Rollers Scuff Roll Drive Belt	B1 Logic Gate Filter Printhead Fan Filter	Scuff Roll Tire Rubbers Stacker Finger Belts Corona Wires
12 Mft Procedure		**Clean & Lubricate** Hot Roll Bearings Hot Roll Drive Gears	Hot Roll Front Collar Hot Roll Drive Collar Ozone Filter (if feat 911 installed) Pendulum Static Brushes Hot Roll Lamps
18 Mft Procedure			Scuff Pressure Rollers Primary & Secondary Erase Lamps

1.5 Mft Procedure

Table 934. 1.5 Mft Preventive Maintenance

Part	Check	Clean	Replace
Cleaner Brush			X
Charge Corona Asm		X	
Corona Assemblies (all)	X		
Developer, including Doctor Blade		X	
Developer Front and Back Seals	X	X	
Primary & Secondary Erase Lamp Filters		X	
Preheat Platen		X	
Manifold Distribution Filter		X	

(continued on next page)

Estimated Time Required:

- 1.5 hours

Parts to Order:

- Cleaner Brush

Special Tools and Supplies Required:

- Cleaner housing brush (P/N 06F1027)
- Cleaning solvent (P/N 57G2493)
- Corona Brush (P/N 06F0423)
- Isopropyl alcohol (P/N 2200200)
- Lint-free cloth (P/N 2108930)
- Preheat Platen Scraper (P/N 06F1028)
- Vacuum cleaner (P/N 9900735)

1.5 Mft Preventive Maintenance (continued)

Do the following:

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Open the fuser cover and oiler gate. Allow the printer to cool for 20 minutes, or more, before you work in the fuser area.
4. Perform the PC Drum Removal procedure and store it in a protective bag.
5. Remove the Cleaner Brush and discard it. Perform the Cleaner Housing Cleaning procedure.
6. Clean loose toner and dust from the Primary & and Secondary Erase Lamp filters with a clean dry cloth.
7. Remove the Charge Corona assembly.
8. Use a cloth that is moistened with water to clean the charge corona housing and wires. Ensure that the housing is dry before reinstalling the corona in the printer.
9. Check the Transfer, Preclean, and Precharge Coronas. Clean if necessary. See Coronas & High Voltage Power Supply.
10. Clean loose toner and mix from the exterior of the developer, from the doctor blade, and from the lower seal. See Developer.
11. Inspect and clean the developer front and rear seals.
12. Use a vacuum cleaner to clean the manifold distribution housing, filter, and hose inlet. Ensure that all forms dust has been vacuumed from the manifold distribution filter.
13. When the fuser area is sufficiently cool: use the preheat platen scraper to clean the grooves in the preheat platen. Cleaning this grooves is important to maintaining good fusing. **Be careful not to scratch the preheat platen.** Debris in these grooves prevents the forms from being held down uniformly by the vacuum, and they will not be correctly heated as they move over the platen.

    If necessary, use a small pointed object to remove forms dust or debris from the inlet holes on the vacuum plate.

    If necessary, use a cloth moistened with Isopropyl alcohol or cleaning solvent to clean toner from the preheat platen.
14. Install a new Cleaner Brush.
15. Carefully reinstall the drum.
16. Power on the printer.
17. Reset the 1.5 Mft PM counter to 0 (See Recording the Completed PM).
18. Print a set of print samples:
    a. Select **Print** on the Service Actions menu bar.
    b. Select **Print Log** on the menu that appears.
    c. Select **Print Pack** on the menu that appears.
    d. Select the **Print** button.

    Check the print samples for print-quality problems. Save these prints for reference during the next PM.
19. Reset the error log bookmark.
    a. Select **Logs** on the Service Actions menu bar.
    b. Select **Error Log** on the menu that appears.
    c. Select the top error line in the error log.
    d. Select **Bookmark**.

3 Mft Procedure

Table 935. 3 Mft Preventive Maintenance

Part	Check	Clean	Replace
Corona Assemblies (all)		X	
Optical Sensors (all)		X	
Stacker Finger Belts	X		
Path Modifier Spring	X		

(continued on next page)

Estimated Time Required:

- 1.0 hour

Parts to Order:

- None

Special Tools and Supplies Required:

- Corona brush (P/N 06F0423)
- Lint-free cloth (P/N 2108930)
- Vacuum cleaner (P/N 9900735)

3 Mft Preventive Maintenance (continued)

Do the following:

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Set the forms length to 14 inches.
3. Lower the stacker table.
4. Shutdown and power off the printer.
5. Remove the coronas. (See 2312).
6. Clean the corona assemblies and wires using the corona brush.
7. Use a cloth that is moistened with water to clean the corona housings.
8. Soak the tip of a lint-free cloth with water and wipe the corona wires with the cloth.
9. Reinstall the coronas when the housings are dry.
10. Check the path modifier spring for unusual wear or sharp edges, and ensure that the spring protrudes from each path modifier hole. (See 3051.)
11. Check the Stacker Left Finger Belts and Right Finger Belts for wear. Replace them if necessary.
12. Use a lint-free cloth and vacuum cleaner to clean all optical sensors:
    - Erase lamp sensors (2492 & 2495)
    - Pendulum position sensor (3007)
    - Skew sensor (2604)
    - Stacker height detect sensors (2970 & 2973)
    - Stacker jam sensor (2978)
    - Upper and lower EOF sensor and lamps (2619)
    - Upper and lower Tractor jam sensors. (3152)
13. Power on the printer.
14. Reset the 3Mft PM counter to 0 (See Recording the Completed PM).
15. Print a set of print samples:
    a. Select **Print** on the Service Actions menu bar.
    b. Select **Print Log** on the menu that appears.
    c. Select **Print Pack** on the menu that appears.
    d. Select the **Print** button.

    Check the print samples for print-quality problems. Save these prints for reference during the next PM.
16. Reset the error log bookmark.
    a. Select **Logs** on the Service Actions menu bar.
    b. Select **Error Log** on the menu that appears.
    c. Select the top error line in the error log.
    d. Select **Bookmark**.

6 Mft Procedure

Table 936. 6 Mft Preventive Maintenance

Part	Check	Clean	Replace
AC Power Supply Cooling Filter		X	
Fuser Filter			X
Sensor Margin	X		
Transfer Station Discharge Brush	X		
Path Modifier Spring			X
Laser Current Meter	X		

(continued on next page)

Estimated Time Required:

- 2.0 hours

Parts to Order:

- Path modifier spring
- Fuser filter

Special Tools and Supplies Required:

- Vacuum cleaner (P/N 9900735).
- Path modifier guage (P/N 88F1609

6 Mft Preventive Maintenance (continued)

Do the following:

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Clean the filter for the ac power supply cooling fan. (2088)
4. Replace the fuser filter.
5. Check the Transfer Station Discharge Brush for damage. Replace it on a future call if necessary.
6. Replace the path modifier spring. (See page 3051.)
7. Power on the printer.
8. Perform the Optical Sensor Margin Tests (Position 9).
9. Verify that the following fans are working correctly:
   - AC power supply cooling B501 (2088)
   - Developer: Right front B110 and rear B111 (2070)
   - Printer logic: B1 board B403 (2057)
   - B401 and B402
   - Front printhead B201 (2094)
   - Printhead pressurizing B202 (2094)
   - Upper rear fuser B605 (2076)
   - High Voltage Power Supply Fan B604 (2059)
   - Rear power supply B102
   - Front stacker cooling fans B704, and B705 (2120)
   - Rear stacker cooling fan B603 (2057)
   - Vacuum blower M105 (2063)
10. Run driver routine 32 with Run Option E0 - Change Loop Count set to FF for continuous operation.Ensure that the following fans are working correctly:
    - Paper cooling B623, B624, B625, and B626 (2073)
11. Reset the 6 Mft PM counter to 0 (See Recording the Completed PM).
12. When you run print samples, check the laser current meter. If the reading is greater then 12.0A, schedule a PM call to install a new laser.
13. Print a set of print samples:
    a. Select **Print** on the Service Actions menu bar.
    b. Select **Print Log** on the menu that appears.
    c. Select **Print Pack** on the menu that appears.
    d. Select the **Print** button.

    Check the print samples for print-quality problems. Save these prints for reference during the next PM.
14. Reset the error log bookmark.
    a. Select **Logs** on the Service Actions menu bar.
    b. Select **Error Log** on the menu that appears.
    c. Select the top error line in the error log.
    d. Select **Bookmark**.

9 Mft Procedure

Table 937. 9 Mft Preventive Maintenance

Part	Check	Clean	Replace
Scuff Pressure Rollers	X		
Scuff Roll Drive Belt	X		
Corona Wires			X
Scuff Roll Tire Rubbers			X
B1 Logic Gate Filter		X	
Printhead Fan Filter		X	
Stacker Finger Belts			X

(continued on next page)

Estimated Time Required:

- 2.0 hours

Parts to Order:

- Scuff roll tire rubbers
- Stacker finger belts
- Corona wires

Special Tools and Supplies Required:

- None

9 Mft Preventive Maintenance (continued)

Do the following:

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Set the forms length to 14 inches.
3. Lower the stacker table.
4. Shutdown and power off the printer.
5. Check the Scuff Roll Drive Motor (M704) and Belt.
6. Check the Scuff Pressure Rollers for unusual wear or toner buildup.
7. Install new Scuff Roll tire rubbers.
8. Replace the Stacker Left Finger Belts and Right Finger Belts.
9. Vacuum the B1 logic gate cover.
   a. Remove the rear B1 logic gate cover.
   b. Remove the filter holder from underneath the B1 gate by pulling it to the rear of the printer.
   c. Remove the filter by sliding it toward the left side of the printer.
10. Vacuum the printhead pressurizing fan (B202) filter. (2094)
11. Remove the coronas (2312)
12. Remove the wires in the transfer, charge, precharge, and preclean coronas.
13. Use a cloth moistened with water to clean the corona housings.
14. Install new corona wires.
15. Reinstall the coronas when the housings are dry.
16. Power on the printer.
17. Reset the 9 Mft PM counter to 0 (See Recording the Completed PM).
18. Print a set of print samples:
    a. Select **Print** on the Service Actions menu bar.
    b. Select **Print Log** on the menu that appears.
    c. Select **Print Pack** on the menu that appears.
    d. Select the **Print** button.

    Check the print samples for print-quality problems. Save these prints for reference during the next PM.
19. Reset the error log bookmark.
    a. Select **Logs** on the Service Actions menu bar.
    b. Select **Error Log** on the menu that appears.
    c. Select the top error line in the error log.
    d. Select **Bookmark**.

12 Mft Procedure

Table 938. 12 Mft Preventive Maintenance

Part	Check	Clean & Lubricate	Replace
Hot Roll Bearings		X	
Hot Roll Front Collar			X
Hot Roll Drive Collar			X
Hot Roll Drive Gears		X	
Hot Roll Lamps			X
Ozone Filter (if feature 9911 is installed)			X
Pendulum Static Brushes			X

(continued on next page)

Estimated Time Required:

- 3.0 hours

Parts to Order:

- Hot Roll Front Collar
- Hot Roll Drive Collar
- Ozone Filter (If feature 9911 is installed)
- Pendulum Static Brush
- Hot Roll Lamps

Special Tools and Supplies Required:

- Krytox 238AC grease (65F6223)
- IBM SBB grease no.3 (P/N 1665927)

12 Mft Preventive Maintenance (continued)

Do the following:

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.

   CAUTION:
   High-temperature. Let parts cool at least 30 minutes in this area before handling.
3. To cool the fuser:
   a. Open the stacker end cover.
   b. Open and lock the fuser oiler-belt gate.

   Attention: Oil and other contaminants from the fuser oiler belt can damage clothing. While you work in this area, place used forms over the oiler-belt gate.
4. Install new Pendulum Static Discharge Brush.

Do steps 5 through 7 when the fuser area is cool enough to work on.

For detailed instructions on performing steps 5 and 6, see Hot Roll Drive Assembly and Lubrication.

5. **Attention:** Do not mix the Krytox grease and the IBM grease in the next two steps. Mixing them reduces the effectiveness of the lubricants.
   Lubricate the following hot roll components with Krytox 283AC grease:
   - Rear hot roll hub and bearing assembly
   - Rear flange and bearing assembly.
6. Lubricate the hot roll drive gears with IBM SBB grease number 3.
7. Reassemble the hot roll drive and install the following new parts:
   a. Hot roll drive collar (2537)
   b. Hot roll front collar.
   c. Hot roll lamps. (2550)
8. Replace the Ozone Filter (Feature 9911) (if installed).
9. Power on the printer.
10. Reset the 12 Mft PM counter to 0 (See Recording the Completed PM).
11. Print a set of print samples:
    a. Select **Print** on the Service Actions menu bar.
    b. Select **Print Log** on the menu that appears.
    c. Select **Print Pack** on the menu that appears.
    d. Select the **Print** button.

    Check the print samples for print-quality problems. Save these prints for reference during the next PM.
12. Reset the error log bookmark.
    a. Select **Logs** on the Service Actions menu bar.
    b. Select **Error Log** on the menu that appears.
    c. Select the top error line in the error log.
    d. Select **Bookmark**.

18 Mft Procedure

Table 939. 18 Mft Preventive Maintenance

Part	Check	Clean	Replace
Scuff Pressure Rollers			X
Primary and Secondary Erase Lamps			X

Estimated Time Required:

- 1.0 hour

Parts to Order:

- Scuff pressure rollers
- Primary and secondary erase lamps

Special Tools and Supplies Required

- None

Do the following:

1. Request that the system operator stop activity on the printer. Disable all host attachments.
2. Shutdown and power off the printer.
3. Install the following new parts:
   a. Scuff Pressure Rollers.
   b. Primary Erase Lamp (PL102).
   c. Secondary Erase Lamp (PL101).
4. Power on the printer.
5. Reset the 18Mft PM counter to 0 (See Recording the Completed PM).
6. Print a set of print samples:
   a. Select **Print** on the Service Actions menu bar.
   b. Select **Print Log** on the menu that appears.
   c. Select **Print Pack** on the men that appears.
   d. Select the **Print** button.

   Check the print samples for print-quality problems. Save these prints for reference during the next PM.
7. Reset the error log bookmark.
   a. Select **Logs** on the Service Actions menu bar.
   b. Select **Error Log** on the menu that appears.
   c. Select the top error line in the error log.
   d. Select **Bookmark**.

Specially Tracked Parts

In addition to the parts checked, cleaned, and replaced at regular PM intervals, some parts are specially tracked. Table 940 lists those parts and the optimum PM interval for each. See the Parts Catalog for the correct part numbers.

Table 940. Service Tasks for Specially Tracked Parts

Hot Roll

PM Schedule: 3 Mft

Estimated Time Required: 1.0 hour

Activity: Replace

See Hot Roll and Collars for details on how to install the hot roll.

Hot Roll Motor Brushes

PM Schedule: 60 Mft

Estimated Time Required: 1.0 hour

Activity: Replace

See Hot Roll Drive Motor (M607) for details on how to install the hot roll motor brushes.

Reset the PM counter to 0 (See Recording the Completed PM).

Backup Roll

PM Schedule: 6 Mft

Estimated Time Required: 0.5 hour

Activity: Replace

Install a new Backup Roll.

Check the Backup Roll Discharge Brush for damage; replace it on a future call if necessary.

Backup Idler Roll

PM Schedule: 18 Mft

Estimated Time Required: 0.5 hour

Activity: Replace

Install a new Backup Idler Roll.

Reset the PM counter to 0 (See Recording the Completed PM).

PM Checklist

Table 941. Preventive Maintenance Checklist

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
1.5	X					
3.0	X	X				
4.5	X					
6.0	X	X	X			
7.5	X					
9.0	X	X		X		
10.5	X					
12.0	X	X	X		X	
13.5	X					
15.0	X	X				
16.5	X					
18.0	X	X	X	X		X
19.5	X					
21.0	X	X				
22.5	X					
24.0	X	X	X		X	
25.5	X					
27.0	X	X		X		

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
28.5	X					
30.0	X	X	X			
31.5	X					
33.0	X	X				
34.5	X					
36.0	X	X	X	X	X	X
37.5	X					
39.0	X	X				
40.5	X					
42.0	X	X	X			
43.5	X					
45.0	X	X		X		
46.5	X					
48.0	X	X	X		X	
49.5	X					
51.0	X	X				
52.5	X					
54.0	X	X	X	X		X
55.5	X					
57.0	X	X				

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
58.5	X					
60.0	X	X	X		X	
61.5	X					
63.0	X	X		X		
64.5	X					
66.0	X	X	X			
67.5	X					
69.0	X	X				
70.5	X					
72.0	X	X	X	X	X	X
73.5	X					
75.0	X	X				
76.5	X					
78.0	X	X	X			
79.5	X					
81.0	X	X		X		
82.5	X					
84.0	X	X	X		X	
85.5	X					
87.0	X	X				

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
88.5	X					
90.0	X	X	X	X		X
91.5	X					
93.0	X	X				
94.5	X					
96.0	X	X	X		X	
97.5	X					
99.0	X	X		X		
100.5	X					
102.0	X	X	X			
103.5	X					
105.0	X	X				
106.5	X					
108.0	X	X	X	X	X	X
109.5	X					
111.0	X	X				
112.5	X					
114.0	X	X	X			
115.5	X					
117.0	X	X		X		

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
118.5	X					
120.0	X	X	X		X	
121.5	X					
123.0	X	X				
124.5	X					
126.0	X	X	X	X		X
127.5	X					
129.0	X	X				
130.5	X					
132.0	X	X	X		X	
133.5	X					
135.0	X	X		X		
136.5	X					
138.0	X	X	X			
139.5	X					
141.0	X	X				
142.5	X					
144.0	X	X	X	X	X	X
145.5	X					
147.0	X	X				

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
148.5	X					
150.0	X	X	X			
151.5	X					
153.0	X	X		X		
154.5	X					
156.0	X	X	X		X	
157.5	X					
159.0	X	X				
160.5	X					
162.0	X	X	X	X		X
163.5	X					
165.0	X	X				
166.5	X					
168.0	X	X		X		
169.5	X					
171.0	X	X		X		
172.5	X					
174.0	X	X	X			
175.5	X					
177.0	X	X				

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
178.5	X					
180.0	X	X	X	X	X	X
181.5	X					
183.0	X	X				
184.5	X					
186.0	X	X	X			
187.5	X					
189.0	X	X		X		
190.5	X					
192.0	X	X	X		X	
193.5	X					
195.0	X	X				
196.5	X					
198.0	X	X	X	X		X
199.5	X					
201.0	X	X				
202.5	X					
204.0	X	X	X		X	
205.5	X					
207.0	X	X		X		

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
208.5	X					
210.0	X	X	X			
211.5	X					
213.0	X	X				
214.5	X					
216.0	X	X	X	X	X	X
217.5	X					
219.0	X	X				
220.5	X					
222.0	X	X	X			
223.5	X					
225.0	X	X		X		
226.5	X					
228.0	X	X	X		X	
229.5	X					
231.0	X	X				
232.5	X					
234.0	X	X	X	X		X
235.5	X					
237.0	X	X				

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
238.5	X					
240.0	X	X	X		X	
241.5	X					
243.0	X	X		X		
244.5	X					
246.0	X	X	X			
247.5	X					
249.0	X	X				
250.5	X					
252.0	X	X	X	X	X	X
253.5	X					
255.0	X	X				
256.5	X					
258.0	X	X	X			
259.5	X					
261.0	X	X		X		
262.5	X					
264.0	X	X	X		X	
265.5	X					
267.0	X	X				

Table 941. Preventive Maintenance Checklist (continued)

Print Count (Mft)	1.5 Mft	3 Mft	6 Mft	9 Mft	12 Mft	18 Mft
268.5	X					
270.0	X	X	X	X		X
271.5	X					
273.0	X	X				
274.5	X					
276.0	X	X	X		X	
277.5	X					
279.0	X	X		X		
280.5	X					
282.0	X	X	X			
283.5	X					
285.0	X	X				
286.5	X					
288.0	X	X	X	X	X	X

Appendix A. Installation Procedures

Introduction 3652
How to Use the Installation Procedures Sections 3653
Installation Responsibilities 3654
Space Requirements 3658
Temperature and Humidity Requirements 3661
Power Requirements 3662
Branch Circuit CB Turned Off Check 3664
Branch Circuit CB Turned On Check 3665
Verify the Shipment 3665
Installing a Simplex Printer or Duplex System Printer 2 3666
Distinguishing Printer 1 from Printer 2 3666
Infoprint 4000 ID1/ID2 and ID3/ID4 3666
Check the Printer and Control Unit for Damage 3667
Remove the Packing Tape 3670
Remove Input Bin and Shipping Brace 3673
Connect the AC Power Cord 3674
Level the Printer 3679
DIP Switch Settings 3686
Check the Voltage Jumpers 3687
Install Preheat Control 3688
Install Stacker Switch Cover 3691
Install Side 1/Side 2 Verification Function 3695
Install Operator Panel 3696
Remove Printer Right Top Cover 3698
Install the Controller in the Control Unit 3699
7009 Controller Installation 3700
7012 Controller Installation 3704
7013 Controller Installation 3710

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7025 Controller Installation . . . 3715
7043 Controller Installation . . . 3716
Change the Fuser Oil Filter Screen . . . 3720
Install Labels and IBM Logo . . . 3721
Power On the Printer In Diagnostic Mode . . . 3725
Check the Drum Gaps and Install the PC Drum . . . 3729
Check the Printhead Alignment . . . 3735
Single Beam Printhead . . . 3735
Two Beam 240 Printhead . . . 3735
Two Beam 240/300 Printhead . . . 3735
Check Vacuum System . . . 3735
Check and Set NVS Memory . . . 3735
Check the Toner Control Program . . . 3735
Continue Installation Procedures . . . 3735
Install the Display/Touch Screen on the Control Unit . . . 3736
Install the Operator Alert Assembly on the Control Unit . . . 3740
Attach Control Unit Frame to Printer . . . 3743
Installing a Duplex System Printer 1 . . . 3749
Install Oil Pan . . . 3751
Installing Additional Duplex System Hardware . . . 3753
Install the Buffer/Flipper Unit . . . 3754
Adjust the Collars . . . 3758
Install the Urge Unit (Hinged-Top, Pearl White Unit Only) . . . 3761
Install the Urge Unit (Fixed-Top Black Unit Only) . . . 3764
Install the Remote Power Cable . . . 3765
Install MIC SCSI Cable . . . 3766
Configure and Test Printer/System Operations . . . 3767
Set the Power Switches and Power On the System . . . 3768
Install the Microcode . . . 3769
Special Features Passwords . . . 3769
Configuring the system . . . 3769

Configure the Printer - Duplex System 3770
Configure the Attachments 3774
Configure the Pre/Postprocessors 3774
Define Forms 3775
Configuration for Side 1/Side 2 Verification Checking 3776
Verify Printer Operation 3777
Save the Configuration Settings 3780
Test the Operator Alert Assembly 3781
Install the Host Attachment Cables 3782
Make the Printer System Ready for Use 3788
Install Features 3788
Complete the Installation 3788
Discontinue Use 3789
Relocate the Printer 3794
Reinstall the Printer 3796

Introduction

A duplex system (two printer engines and control units) may be either delivered from the factory or field converted from simplex printer models to duplex printing system models.

Be sure to read and understand all the information in this document.

DANGER

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

DANGER

<12> During an electrical storm, do not handle channel cables, connectors, or power cords.

How to Use the Installation Procedures Sections

Do the following:

1. Read the complete Introduction.
2. Complete section Installing a Simplex Printer or Duplex System Printer 2.
3. Complete section Installing a Duplex System Printer 1.
4. Complete section Installing Additional Duplex System Hardware.
5. Complete section Configure and Test Printer/System Operations.

Installation Responsibilities

Before and during the installation process you and the customer have activities you need to complete to ensure a smooth, timely installation. The following table lists the activities that must be performed and the party responsible for performing the activity, which are marked (**R**). The party responsible for verifying that the activity was completed correctly is marked (**V**).

Activity	Customer	Customer Engineer
Before Installation		
Complete a site planning worksheet [1]	R	
Review the Temperature and Humidity Requirements and Space Requirements for the printer	R	V
Ensure that the following conditions are met: • The receiving area and the route to the planned location for the printer must have no obstacles that might interfere with moving the printer • Halls and doorways must be wider than the printer: 930 mm (36.7 in.) • Hall corners and angles must be large enough to permit the printer to turn • Ramps must have an incline of no more than 10° • Elevators and elevator doors must be large enough to accommodate the printer and the people who are moving it • The floor where the printer is installed must be within 1° of level • The approved electrical outlet must have the correct power and must be accessible to the power cable • If the printer is to be installed on a raised floor, ensure that the access hole in the raised floor is adequate for both the host attachment cables and the power cable, and that the printer control unit can swing into the service position. **Attention:** The paper path must be clear of the following: – Any cables that come through the access hole – Cabling to or from Pre/Postprocessing devices	R	V
Ensure that a forklift is available at the site	R	
Complete the configuration worksheet	R	

Activity	Customer	Customer Engineer
Ensure that the correct software programs are installed on the host system	R	V
Ensure that supplies have been ordered	R	V
Ensure that the correct host attachment cables are available	R	V
Ensure that the printer and control unit are safely moved to the installation area	R	
Verify that the customer's electrical supply is compatible with the power supply for the simplex printer or duplex system		R
Ensure that the phases are correct for the AC power		R
Installation		
Verify that you have the tools required: • The printer tool kits, which include: – Level (P/N 4832403) – Line cord wrench (P/N 88F3334) (U.S./Canada only) – Appropriate laser power tool • Other special tools: – Leveling pad wrench (P/N 8309875) – Electrostatic voltmeter (ESV) (P/N 03F5634) – Wrap plugs/blocks for each host attachment type – Appropriate laser alignment target		R
Install the parts and supplies necessary for installation		R
Configure the controller microcode		R
Connect the coaxial cables, power control interface cable, interface signal cable, and the AC power cord.		R

Activity	Customer	Customer Engineer
Connect the host attachment cables to the control unit and to the host system		R
Install any features that were not installed in the factory, using the appropriate service codes: • Host Attachment features • Pre/Postprocessing Interface features • etc.		R
Verify that the customer has allowed sufficient service space at the planned location. See Space Requirements.		R
Verify that the Operator's Guide was included in the ship group.		R
Perform Operator Training		R

Notes:

1. The customer's responsibilities for pre-installation are covered in detail in the Infoprint 4000 and 3900 Advanced Function Printers Introduction and Planning Guide, G544-5427

Space Requirements

Verify that the customer has allowed enough service space at the planned location for the printer.

.

Notes:

1. All dimensions are the **minimum** that is required for service access.
2. For a duplex system, the distance between Printer 1 and 2 is limited by the length of the signal and power cables that connect the printers. Contact your next level of support if you have any questions.
3. The **power cable** for the printer requires a 152 mm (6 in.) square hole in the raised floor. The cable exit point from the printer is 533 mm (21 in.) from the right rear corner of the printer. (The distance of 533 mm (21 in.) does not include the control unit on the rear edge of the frame.)
4. The **cable access** cutout for the host attachment cables requires a 200 mm (8 in.) square hole in the raised floor. The access hole should be located as far as possible to the rear of the printer to allow enough clearance for the paper path that runs below the printer.

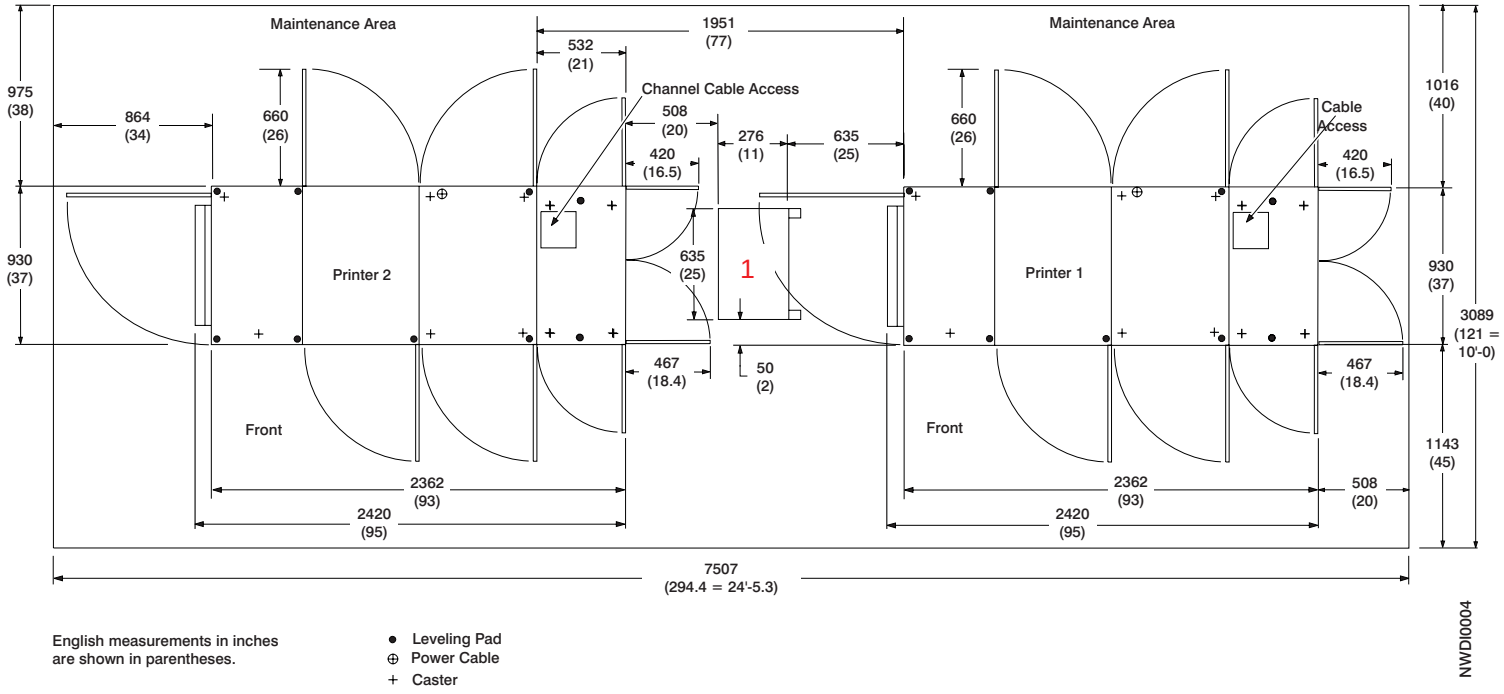


Figure 1. Service-Space Requirements - Duplex System Inline Configuration

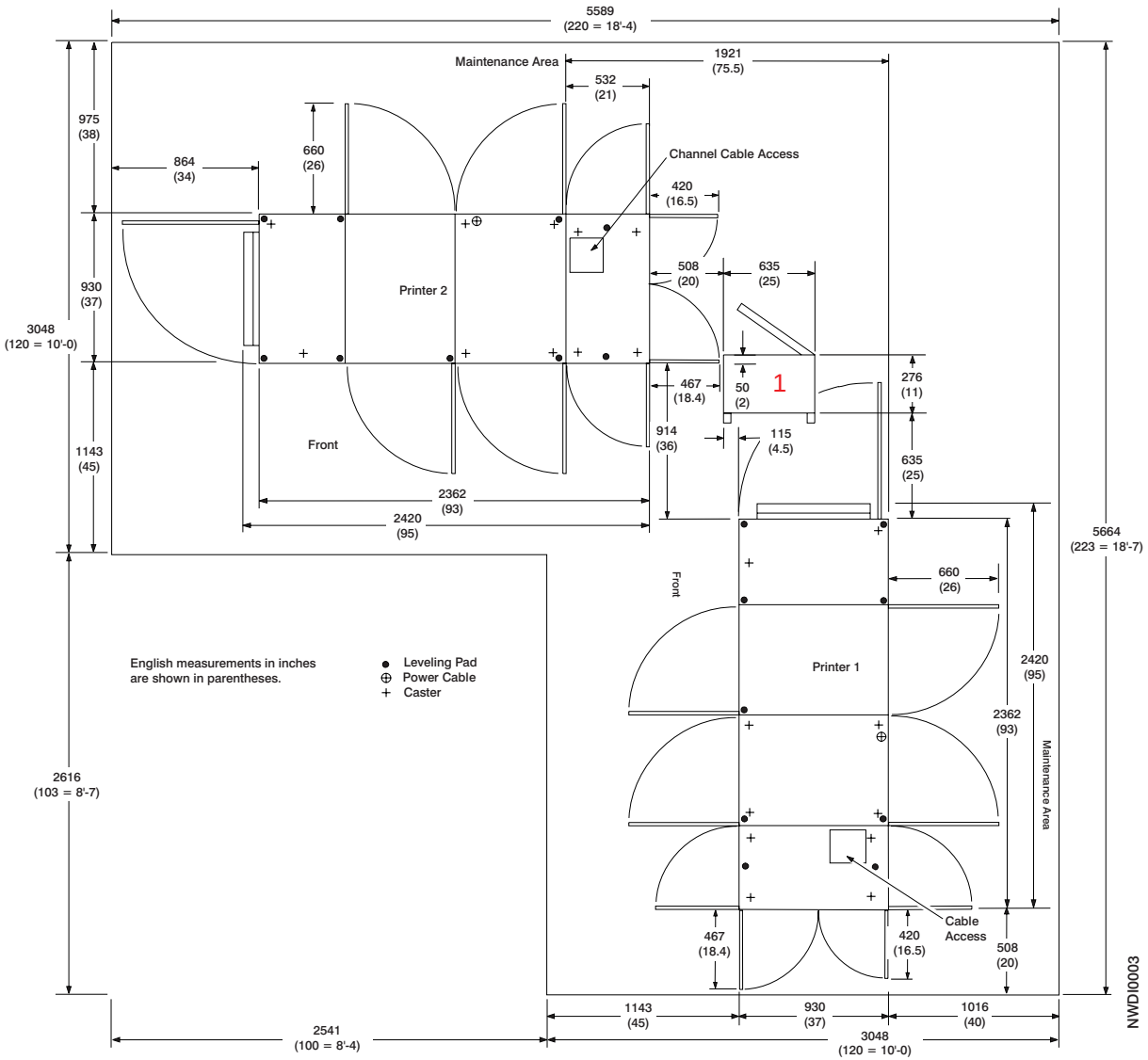


Figure 2. Service-Space Requirements - Duplex System Left Angle Configuration

Temperature and Humidity Requirements

Verify with the customer that the required environmental range has been considered during the installation planning.

The required operating environment is:

- Temperature: 18° to 24°C (65° to 75°F)
- Humidity: 40% to 60%

Ensure that the customer understands the possible reliability and service consequences of the following:

- Dust and other contamination may adversely affect printer performance.
- High or low extremes of temperature and relative humidity affect the paper. Paper exposed to these conditions, can cause paper jams and degraded print quality.
- High usage at high temperature may result in degraded print quality.

Power Requirements

The printer operates on 3-phase power, 50 or 60 Hz.

The customer installation must provide a means by which power to the printer(s) can be disconnected. The means of disconnection can be by either:

- An easily accessible, compatible plug and receptacle installed near the equipment
- A dedicated, readily accessible, circuit breaker that breaks all live poles.

Through internal wiring, it is possible to adapt the printer to the following 3-phase voltages (phase-to-phase):

60 Hz (±1.2 Hz) U.S., Canada requires a dedicated electrical outlet with 60-ampere service:

Phase to Phase		Phase to Ground/Neutral	
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**
208	187–229	120	108–132
220	198–242	127	114–140
230	207–252	133	120–147
240	216–264	140	126–154

50 Hz (±1.0 Hz) Europe, World Trade requires a dedicated electrical outlet with 25-ampere service:

Phase to Phase		Phase to Ground/Neutral	
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**
380	342–418	220	198–242
400	360–440	230	207–253
415	373–456	240	216–264

50/60 Hz (±1.0 Hz) Japan requires a dedicated electrical outlet with 60-ampere service:

Phase to Phase		Phase to Ground/Neutral	
Nominal Voltage	**Voltage Limits (±10%)**	**Nominal Voltage**	**Voltage Limits (±10%)**
200	180–220	115	100–130

Attention

Do not connect the printer to any 380-415 V, 50 Hz IT power distribution (impedance grounded neutral) system. Connection to an IT system with the present configuration may:

- Violate applicable national or international regulations
- Damage machine components.

Branch Circuit CB Turned Off Check

Complete the following **GROUNDED NEUTRAL VERIFICATION** test:

1. Verify that the *customer-supplied* printer power circuit breaker is **Off**. Ensure that the circuit breaker is rated at 60 ampere (25 A for 380/400/415 V).
2. Use a standard voltmeter to verify the following.
   - Phase-to-phase voltage at the printer connection point is **Off**.
   - Voltage from the safety ground (green wire) to the neutral connection is **zero** (or less than 1.0 V AC).
   - Impedance from the safety ground to the neutral connection is less than **1** Ω.

Only after the tests are verified and voltage ranges are safe, can the simplex printer or duplex system be connected to AC power and powered on.

Follow these electrical-safety procedures:

1. Have the customer turn off the branch circuit CB.
2. Check that the voltage from the power receptacle to the building ground is less than 1.0 V AC. (Start with the meter scale that is correct for normal line voltage checks.)

   If measured voltages are less than 1.0 V AC, the receptacle is safe to touch.
3. Measure the phase-to-phase voltage and the phase-to-ground voltage. Voltages should be less than 1.0 V AC.
4. Measure the phase-to-neutral voltage (if present) and the neutral-to-ground voltage (if present). Voltages should be less than 1.0 V AC.
5. If the power receptacle is mounted to a metal case, measure the resistance from the ground pin to the metal case. The resistance should be less than 1 ohm.

Branch Circuit CB Turned On Check

1. Have the customer turn on the CB that supplies voltage to the receptacle.
2. Measure the voltages from the receptacle to the ground pin. A voltage reading of less than 1.0 V AC shows a safe condition.
3. Measure the voltages from the ground pin and neutral pin (if present) to all phases, and measure the voltages from phase-to-phase. Ensure that the voltages agree with the tables on the Power Requirements.

Verify the Shipment

Before you proceed with unpacking and installing the printer, compare the shipping manifest to the sales order to verify that the correct printing system was delivered.

If the correct printing system was delivered to the customer, take an inventory of all the parts supplied.

Installing a Simplex Printer or Duplex System Printer 2

DANGER

<12> During an electrical storm, do not handle channel cables, connectors, or power cords.

This section covers the mechanical and electrical installation of a simplex printer or Printer 2 in a duplex system.

Distinguishing Printer 1 from Printer 2

If you are installing a duplex system, use the following information to distinguish between Printer 1 and Printer 2.

Continue with this chapter when you have determined from the process below which is printer 1 or printer 2:

Infoprint 4000 ID1/ID2 and ID3/ID4

There is no difference between Printer 1 and Printer 2. The DIP Switch S8 position must be correctly set. This will be done in section DIP Switch Settings.

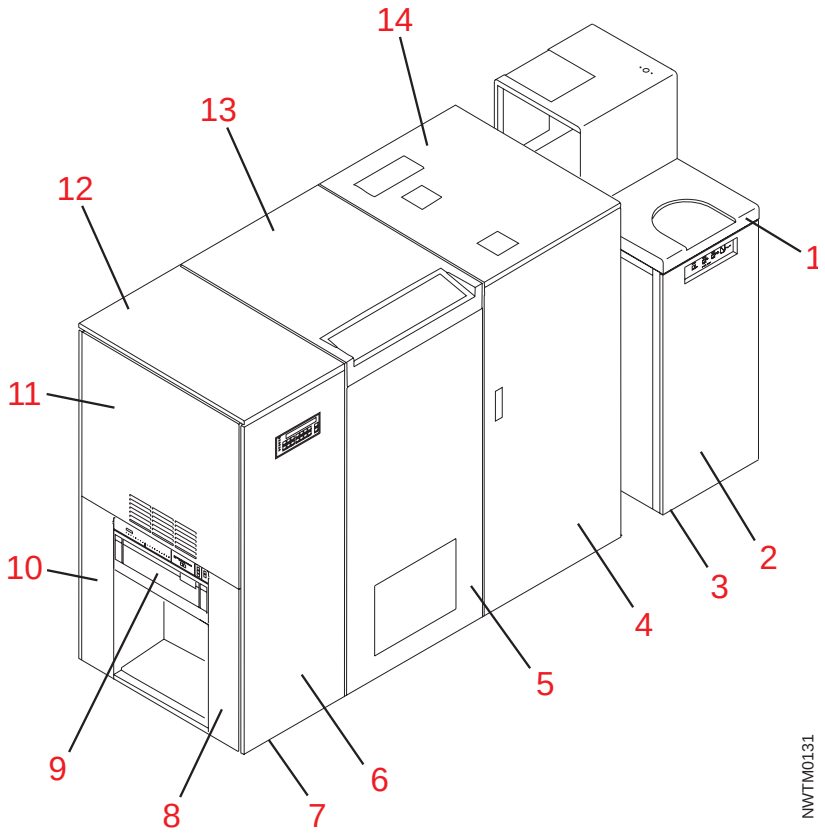
Check the Printer and Control Unit for Damage

1. Ensure that the printer in its final position.
2. Compare the machine to the sales order.

The following drawings show the locations of the front and rear machine covers on the printer and the control unit.

Note: Covers may look different on some printers.

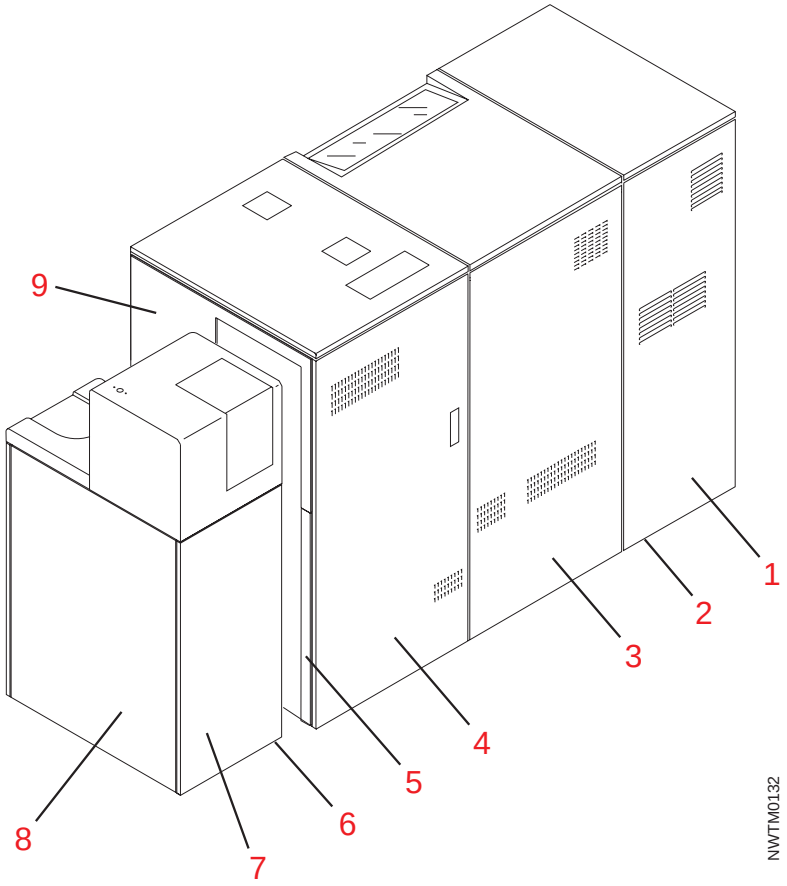
Table 942. Checking the Printer and Control Unit



Front Covers

1. Check all the front and top covers for any shipping damage.
   - **(1)** Control unit shelf
   - **(2)** Control unit front cover
   - **(3)** Cover latch release
   - **(4)** Printer right front cover
   - **(5)** Printer center front cover
   - **(6)** Printer left front cover
   - **(7)** Cover latch release
   - **(8)** Stacker lower right end cover
   - **(9)** Stacker gate cover
   - **(10)** Stacker lower left end cover
   - **(11)** Stacker end cover
   - **(12)** Printer left top cover
   - **(13)** Printer center top cover
   - **(14)** Printer right top cover

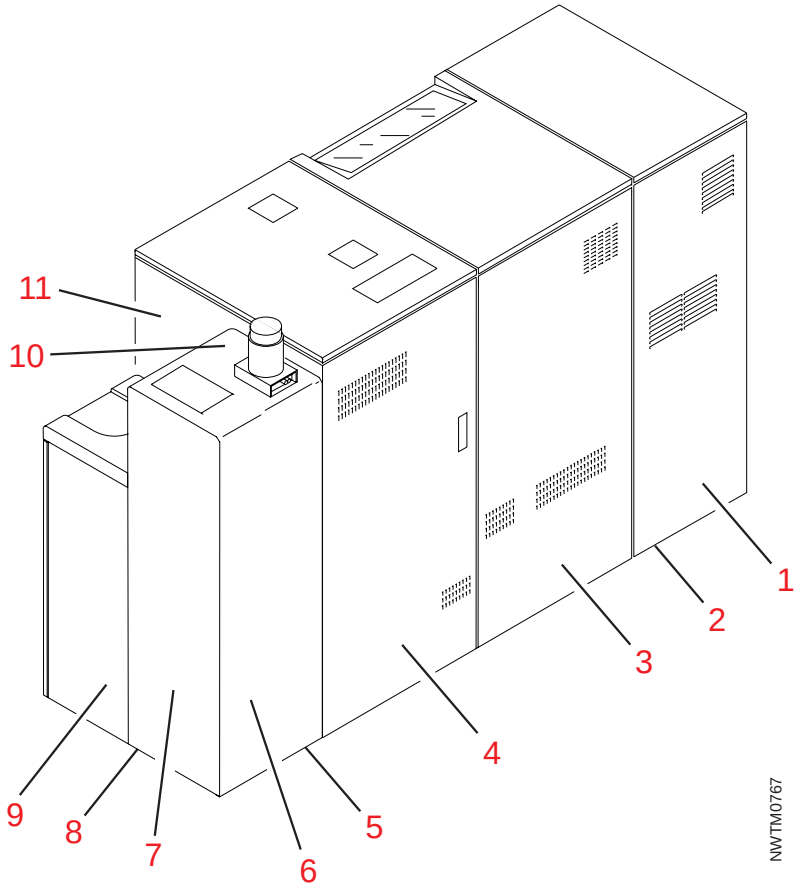
Table 942. Checking the Printer and Control Unit (continued)



Rear Covers

2. Check the printer rear covers and control unit covers for damage
   - **(1)** Printer right rear cover
   - **(2)** Cover latch release
   - **(3)** Printer center rear cover
   - **(4)** Printer left rear cover
   - **(5)** Printer lower right end cover
   - **(6)** Cover latch release
   - **(7)** Control Unit rear cover
   - **(8)** Control Unit side cover
   - **(9)** Printer upper right end cover
3. Remove all film on the windows.
4. If necessary remove all tape on the covers.
5. Remove the control unit side cover **(8)**.

Table 942. Checking the Printer and Control Unit (continued)



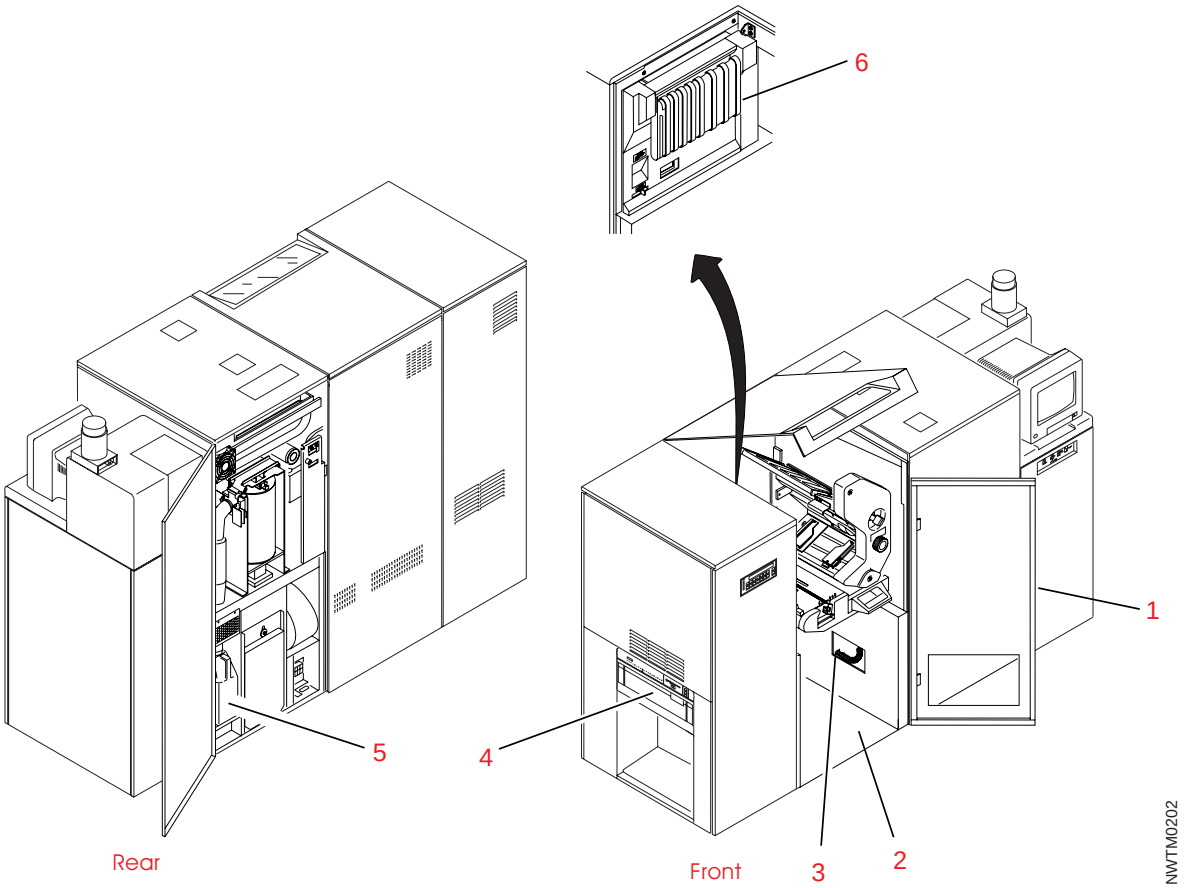
Rear Covers

2. Check the printer rear and control unit covers for damage.
   - **(1)** Printer right rear cover
   - **(2)** Cover latch release
   - **(3)** Printer center rear cover
   - **(4)** Printer left rear cover
   - **(5)** Cover latch release
   - **(6)** Control Unit rear cover
   - **(7)** Control Unit right side cover
   - **(8)** Cover latch release
   - **(9)** Control Unit left side cover
   - **(10)** Control Unit top cover
   - **(11)** Printer right end cover
3. Remove all film on the windows.
4. If necessary remove all tape on the covers.
5. Open both control unit side covers **(7)** and **(9)**.

Remove the Packing Tape

Use the following procedure to unpack the control unit and the printer:

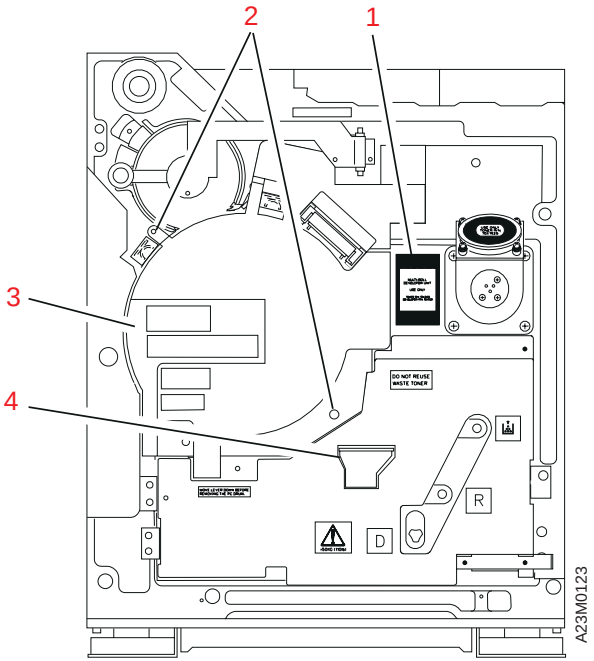
Table 943. Removing the Packing Tape



Process Area (Center Front and Left Rear Covers Open)

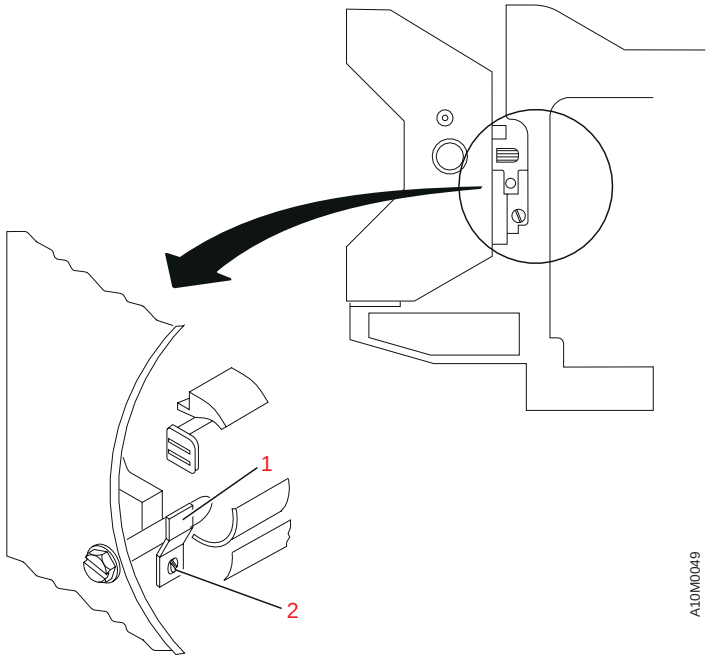
1. Remove the tape and packing materials from the control unit.
2. Open the printer center front cover and the stacker gate cover.
3. Remove the tape and silica gel packages from under the stacker **(4)** and discard them.
4. Remove the tape and silica gel packages from the input bin area **(3)**, and discard them.
5. If necessary, remove the photoconductor drum (PC drum) box from the input bin.
6. If necessary, remove tape from the following areas:
   - **(1)** Printer center front cover
   - **(2)** Input area
   - **(3)** Developer drain hose
   - **(4)** Stacker gate
   - **(5)** Toner-collector table
   - **(6)** Auto-load bridge
7. Open the printer right front cover.

Table 943. Removing the Packing Tape (continued)



Drum Cover Removal

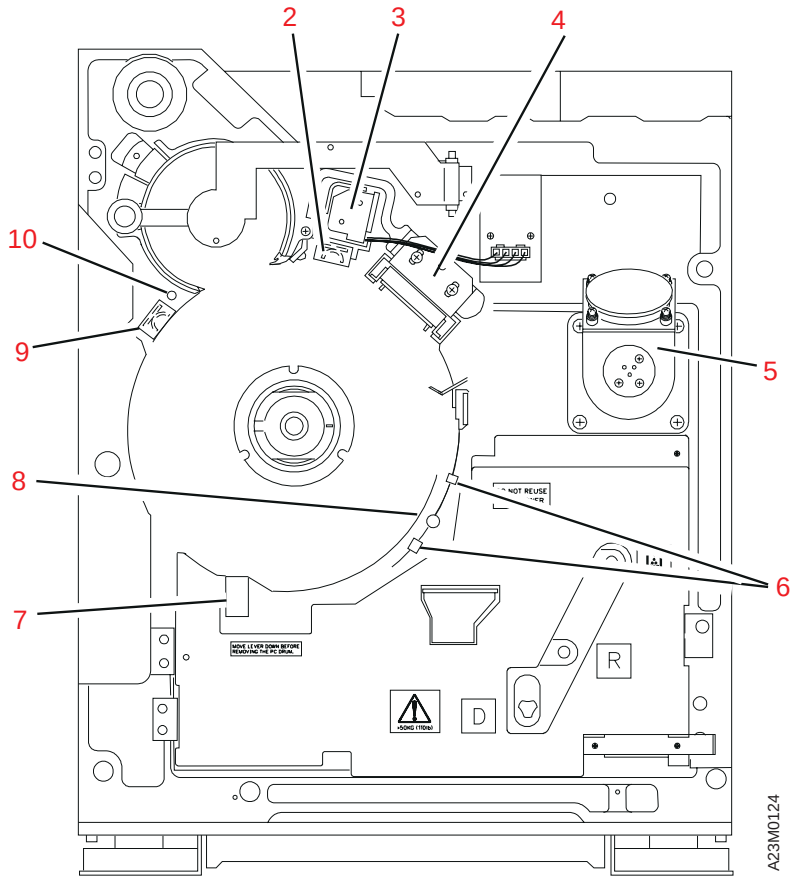
8. If necessary , remove tape from the PC drum cover **(3)**.
9. Remove the 2 screws **(2)** to remove the PC drum cover **(3)**.
10. If necessary remove tape from the developer inlet **(4)**.



Transfer Station Shipping Clip (Printer Front)

11. Remove the screw **(2)** holding the transfer station clip **(1)**.
12. Reinstall the screw **(2)** and place the transfer station clip **(1)** on the shelf in the control unit for reuse during relocation and or discontinuance.

Table 943. Removing the Packing Tape (continued)

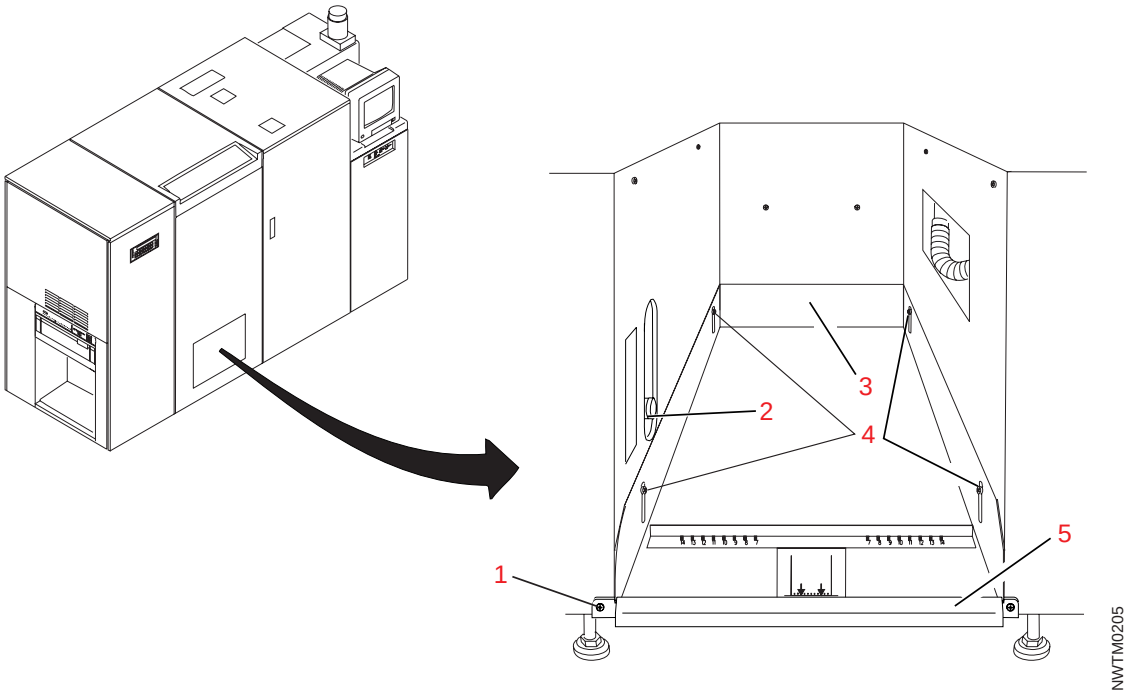


Drum Area (Drum Cover Removed)

13. Lower the scavenger roll lever **(7)**.
14. Remove the sheet of plastic **(8)** inside the drum area. Ensure that all the tape holding the plastic is removed.
15. Remove the tape covering the secondary erase lamp **(3)**.
16. Remove the tape holding the pre-clean corona **(9)**, pre-charge corona **(2)**, and the charge corona **(4)**.
17. Remove any adhesive tape from the toner inlet **(5)**.
18. Remove any adhesive from the developer area **(6)**.

Remove Input Bin and Shipping Brace

Table 944. Removing the Input Bin

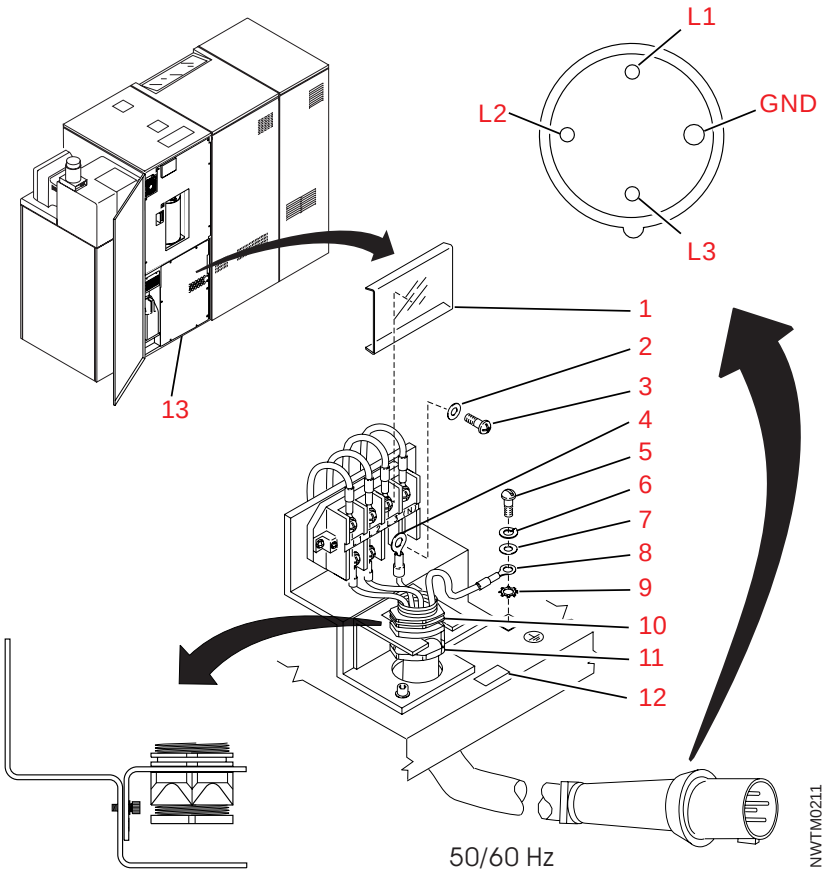


Input Bin and Shipping Brace

1. Remove 2 screws **(1)** and remove the shipping brace **(5)**.
2. Remove 4 screws **(4)**and remove the input bin **(3)**.
3. Remove screw **(2)** in the stacker height adjustment, and lower the adjustment knob.

Connect the AC Power Cord

Table 945. Connecting the AC Power Cord



50-60 Hz Power Cord Connection

DANGER

Before wiring the AC power cord to the printer terminal block, ensure that the power cord is not plugged in.

1. Open the left rear cover and the right rear cover.
2. Remove the blower cover **(13)**.
3. Remove the 2 screws and plate that cover the power cord access opening. Store the plate on the shelf above the terminal block. Keep these screws to attach the strain relief in step 5.
4. Pull the power cord through the power cord access opening.
5. Slide the strain relief **(11)** over the top of the wiring onto the power cord. Loosen the strain relief to install it; tighten it after you install it. The strain relief is located in the same box as the developer mix.

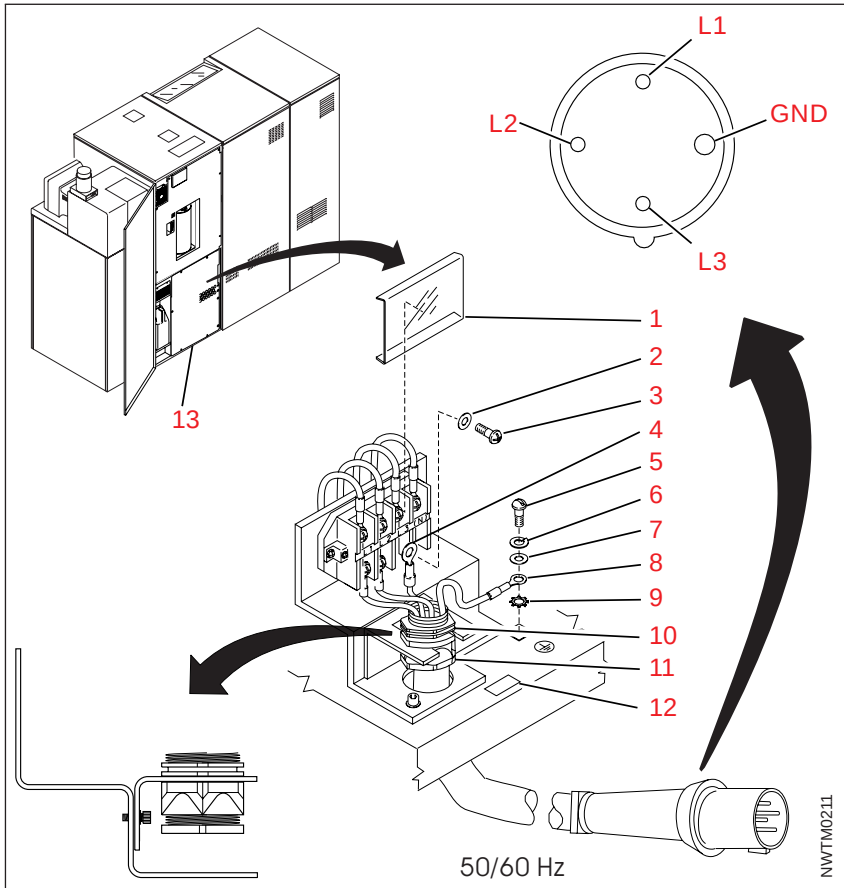
Note: The insulation on the power cord should extend a minimum of 13 mm (0.5 in.) beyond the strain relief.

6. Use the 2 screws to attach the strain relief bracket to the printer power cord access opening (60-Hz printers only).
7. Remove the clear plastic terminal block cover **(1)**.
8. Use Table 946 and Table 947 to connect the terminals from the power cord **(4)** to the terminal block as shown.

DANGER

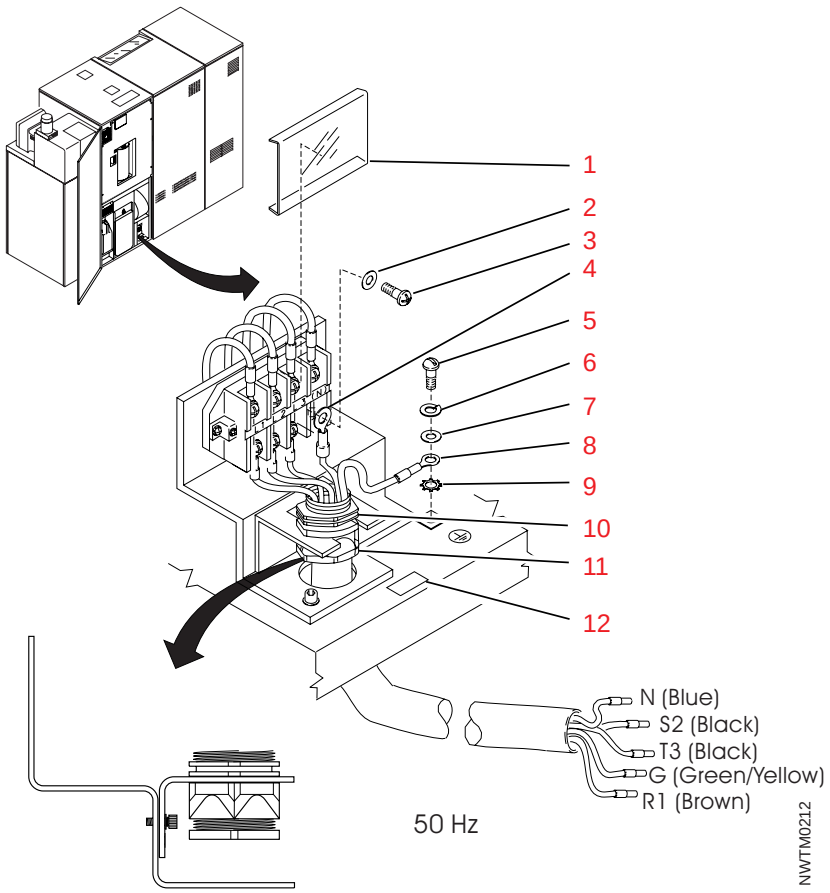
<12> During an electrical storm, do not handle channel cables, connectors, or power cords.

Table 946. 3-Wire Power Cord to Terminal Block Connections & Green Wire Ground

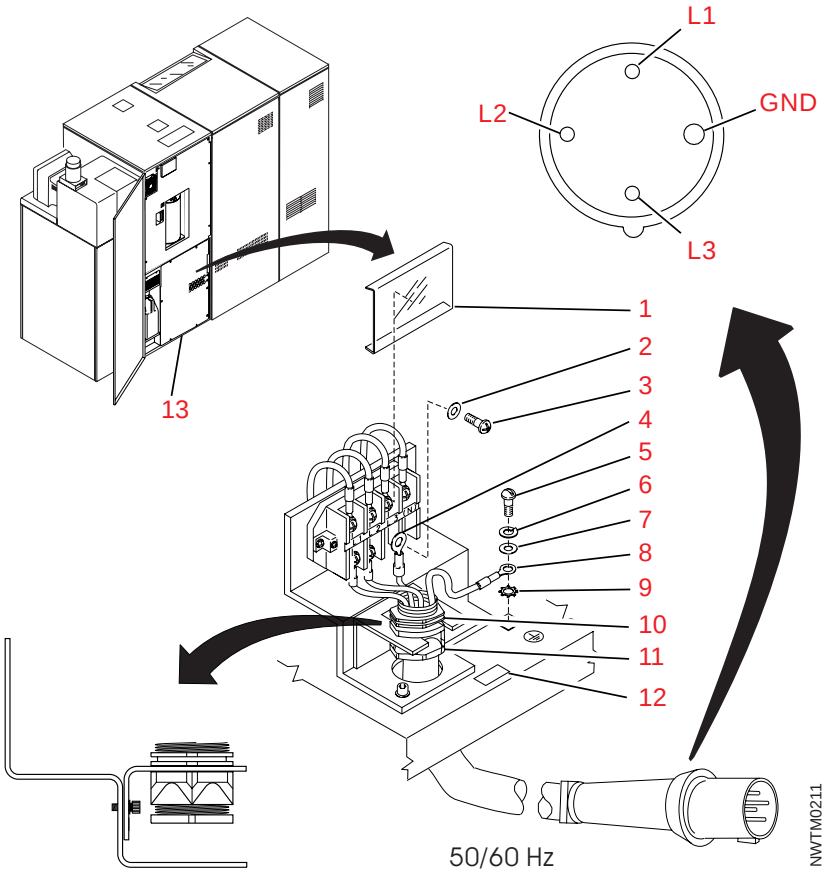


Power Cord 50/60 Hz	Printer Terminal Block
R1	L1
S2	L2
T3	L3
Green/Yellow wire **(8)**	Frame ground

Table 947. 4-Wire Power Cord to Terminal Block Connections



Power Cord 50 Hz 380 V, 400 V, 415 V	Printer Terminal Block
R1	L1
S2	L2
T3	L3
N	N1 (neutral)
Green/Yellow wire	Frame ground

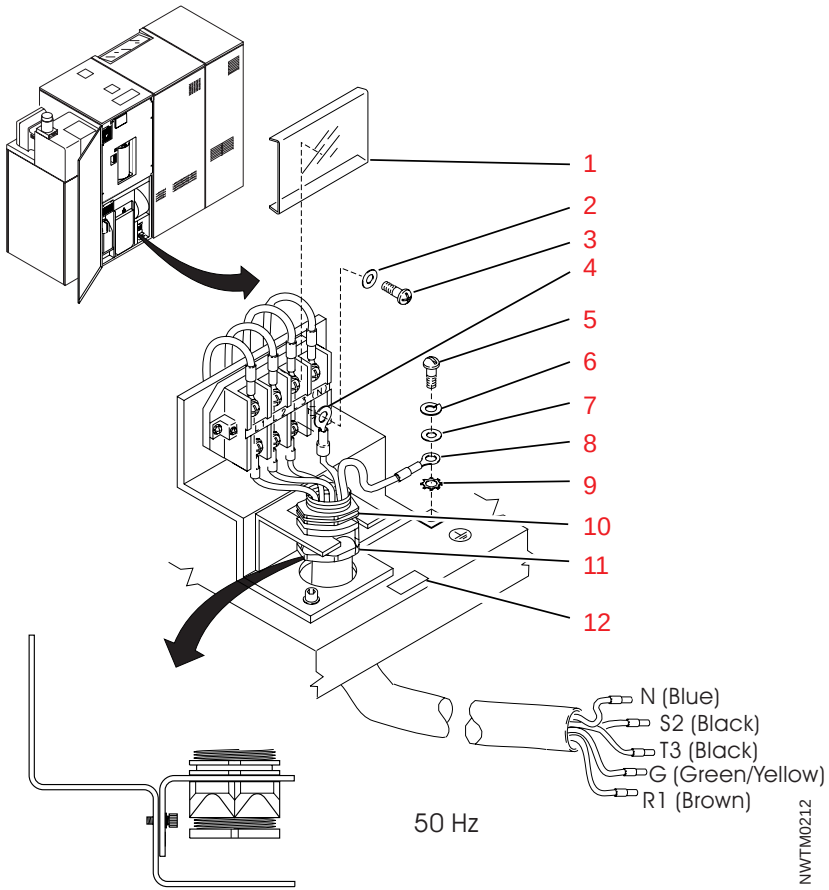


50-60 Hz Power Cord Connection

9. Hand tighten the strain relief **(11)** onto the power cord. Tighten the strain relief an additional ¼ turn with the line cord wrench (P/N 88F3334).
10. Tighten the strain relief clamp nut **(10)** with the line cord wrench.
11. Install the power cord ground wire to the printer ground in the following order:
    a. Star washer **(9)**
    b. Ground lug **(8)**
    c. Flat washer **(7)**
    d. Lock washer **(6)**
    e. Screw **(5)**

Note: The purpose of the next step is to ensure that the individual wires in the line cord are properly crimped.

12. Use a standard voltmeter to ensure that the following conditions exist:
    - There is continuity between the power plug ground pin and the printer frame where the ground lug **(8)** connects.
    - There is continuity between the phase (and neutral on World Trade printers) pins in the power plug and corresponding screw in the terminal block.
13. Reinstall the plastic cover **(1)** onto the terminal block.
14. Ensure that the power cord for the printer is free of twists.

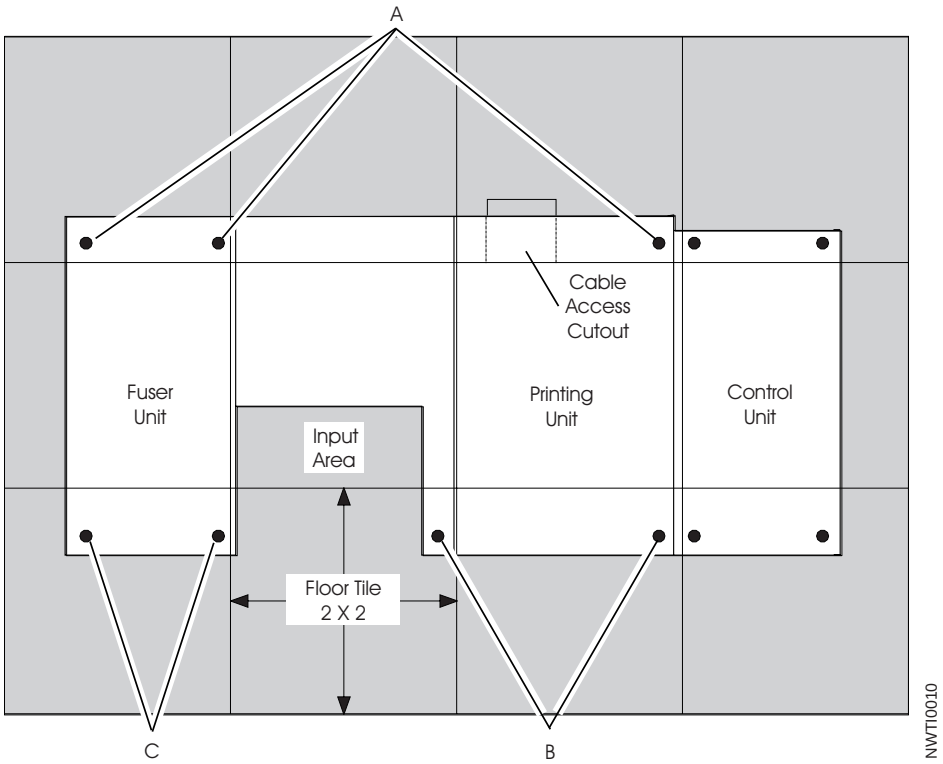


50 Hz Power Cord Connection (World Trade)

15. Locate the voltage label (P/N 845762) and write the voltage value on the label. Then install this label **(12)** next to the power cord access opening.
16. Install the Ozone Filter (Feature 9911) (if the printer has one) in the opening to the vacuum blower. The filter must cover the vacuum blower ground wire connection screw and should be placed as far as possible to the rear of the printer.
17. Do not reinstall the blower cover at this time.

Level the Printer

Table 948. Leveling the Printer



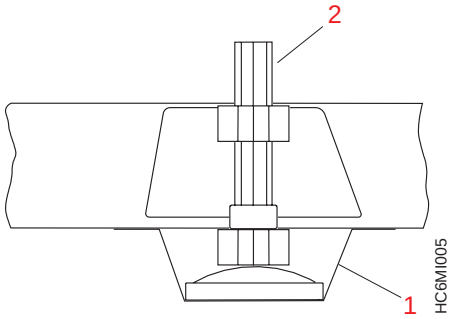
Printer position on 2 X 2 floor tiles

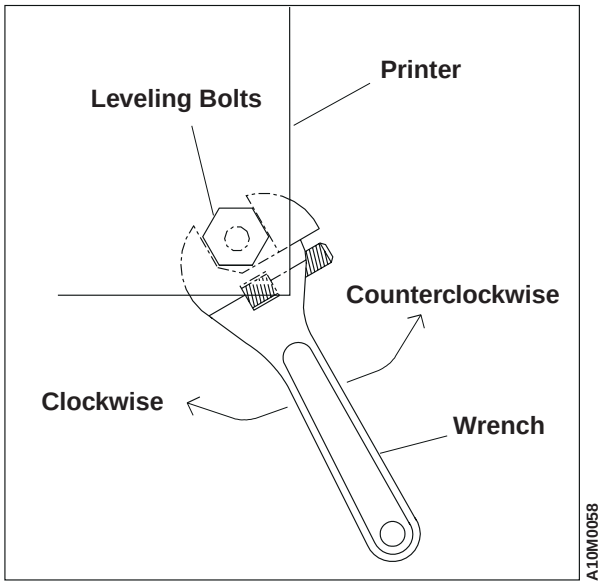
Remember that floor tiles with cutouts in them must be placed under the printer to allow for the power cord, channel cables, and any Pre/Postprocessing equipment connections. The cutouts should be located as far as possible to the rear of the printer to allow enough clearance for the paper path that runs below each printer.

1. Locate the printer on the raised floor tiles so that as many leveling pads as possible are in the *corners* of the tiles. This reduces the deflection or flexing of the tiles. Avoid floor cut outs and ventilation holes in any of the load bearing tiles.

   Use additional raised floor supports under the leveling pads that are not located at the corner of a floor tile.

Table 948. Leveling the Printer (continued)





Leveling Adjustment

2. Remove the adhesive tape **(1)** that holds the leveling bolts **(2)** in place.
3. Lower the 7 leveling pads until all the leveling pads just touch the floor.

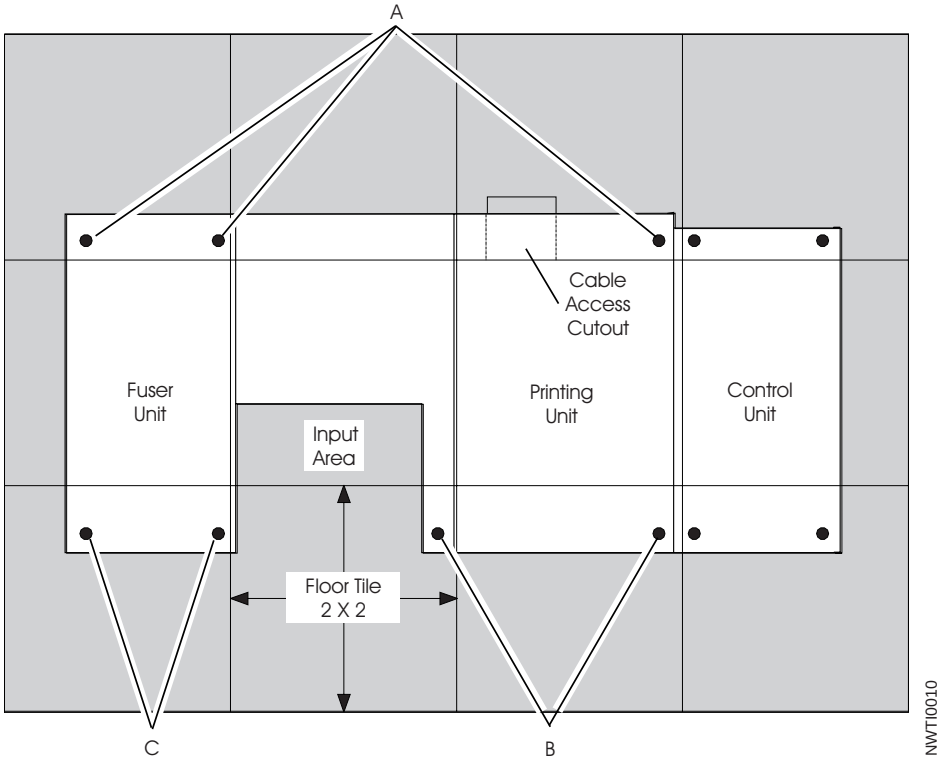
   Use a pencil or permanent marker to mark the front of each leveling pad bolt, so that you know when one revolution is complete.

Turning clockwise raises the printer.

Turning counterclockwise lowers the printer.

Depending on how level the floor is, each caster may vary 2 to 5 mm (0.08 to 0.20 in.) above the floor.

Table 948. Leveling the Printer (continued)

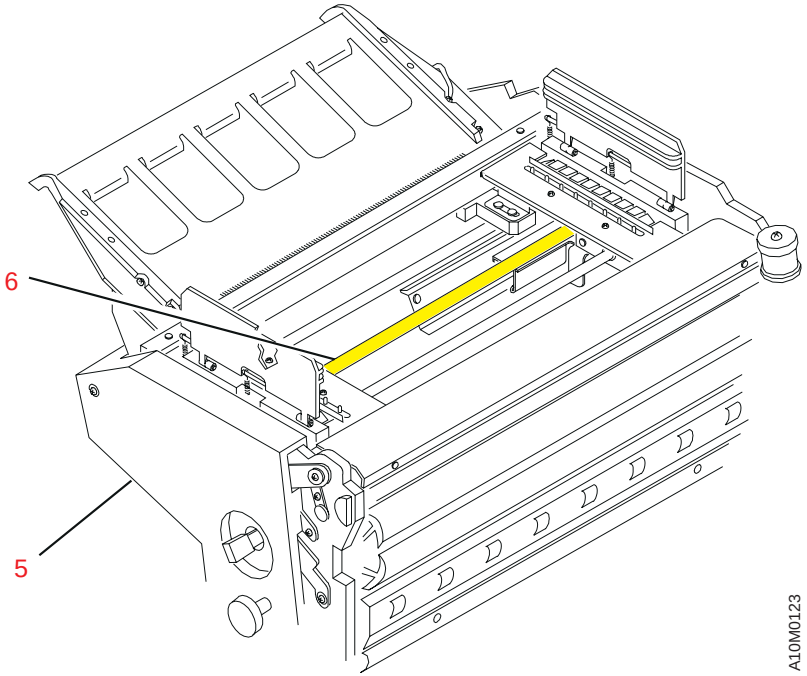


4. Now raise the printer by turning all leveling pads **(A)**, **(B)**, and **(C)** one complete revolution.
5. Ensure that all casters are off the floor.

Note: Avoid raising the printer too high, as it will become difficult to attach the control unit. When you have raised all of the casters off the floor, consider lowering the printer to level it.

6. Use the level (P/N 4832403) to perform the leveling procedure.

Table 948. Leveling the Printer (continued)

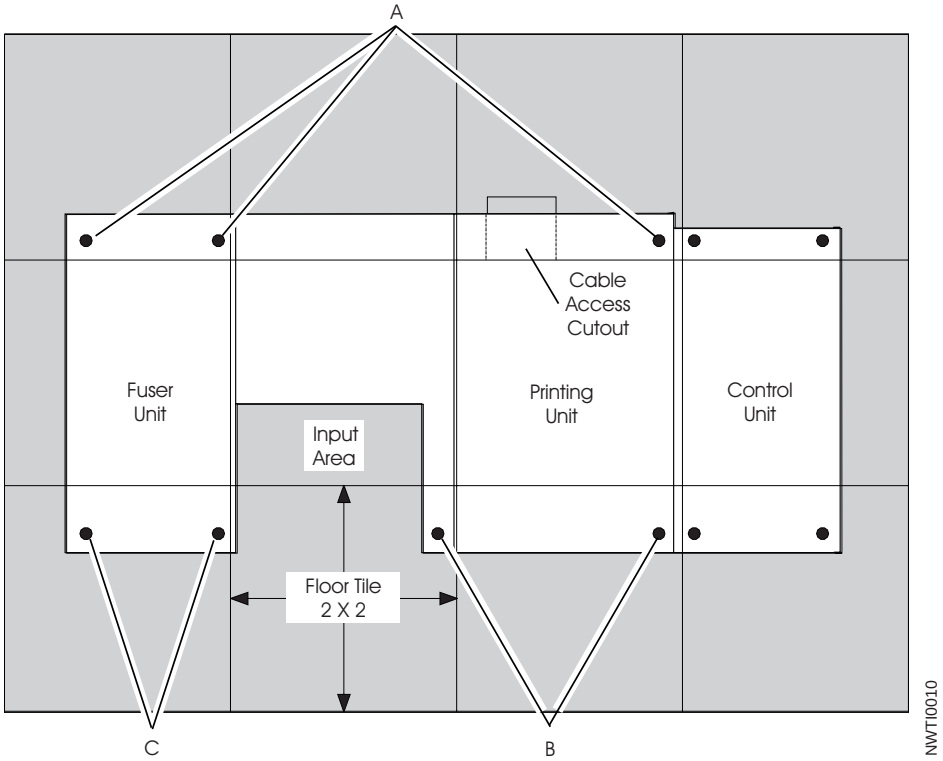


Tractor Guide Shaft Location

7. Ensure that the transfer station **(5)** is closed.
8. Place the level on the tractor guide shaft **(6)**. Ensure that the groove in the level is correctly seated on the tractor guide shaft.

(continued on next page)

Table 948. Leveling the Printer (continued)

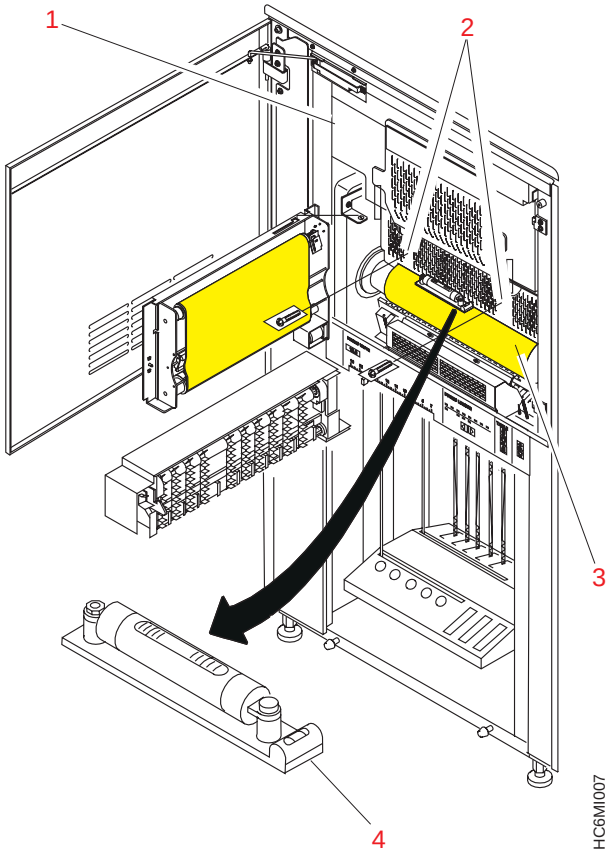


9. Adjust the **(B)** and **(C)** leveling pads equal amounts until the tractor guide is level. That is, adjust all **(B)** and **(C)** leveling pads, one quarter of a turn and then view the level. Do not level the printer by adjusting just one leveling pad at a time.
10. Open the stacker end cover.
11. Open the oiler-belt gate.

Note: A worn hot roll can cause problems during printer leveling. If this is an older printer being relocated, install a new hot roll before leveling the printer.

(continued on next page)

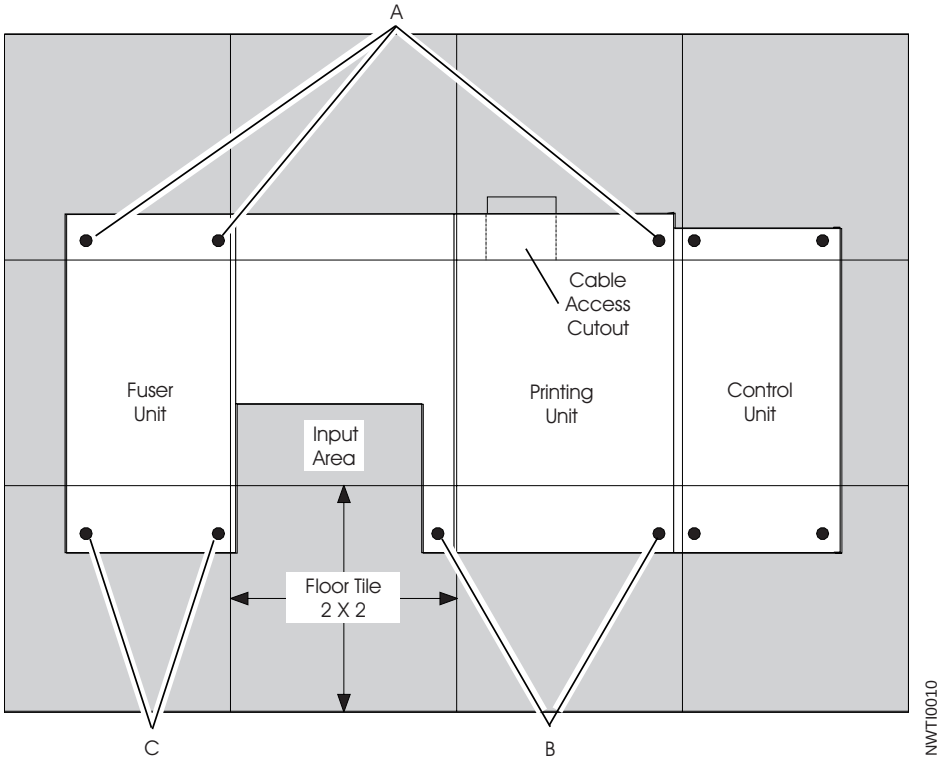
Table 948. Leveling the Printer (continued)



12. Remove the 2 screws **(2)** and remove the hot roll shield **(1)**.
13. Place a single thickness of paper on top of the hot roll **(3)** to protect it; then place the level on top of the paper. Ensure that the groove in the level is correctly seated on the hot roll.

(continued on next page)

Table 948. Leveling the Printer (continued)



14. Adjust the **(C)** leveling pads equal amounts until the hot roll is level.
15. Repeat steps 8 through 14 until the tractor guide shaft **(6)**, and the hot roll **(3)** are level.
16. If you cannot level the printer, without the casters touching the floor, begin the leveling procedure again. In step 4, raise all leveling pads 1.5 or 2 revolutions instead of 1 revolution.
17. Install the hot roll shield **(1)** after leveling the printer.
18. Rotate all casters outward so that they do not block the paper path under the printer. Ensure that there is nothing else under the printer that would block the paper path.

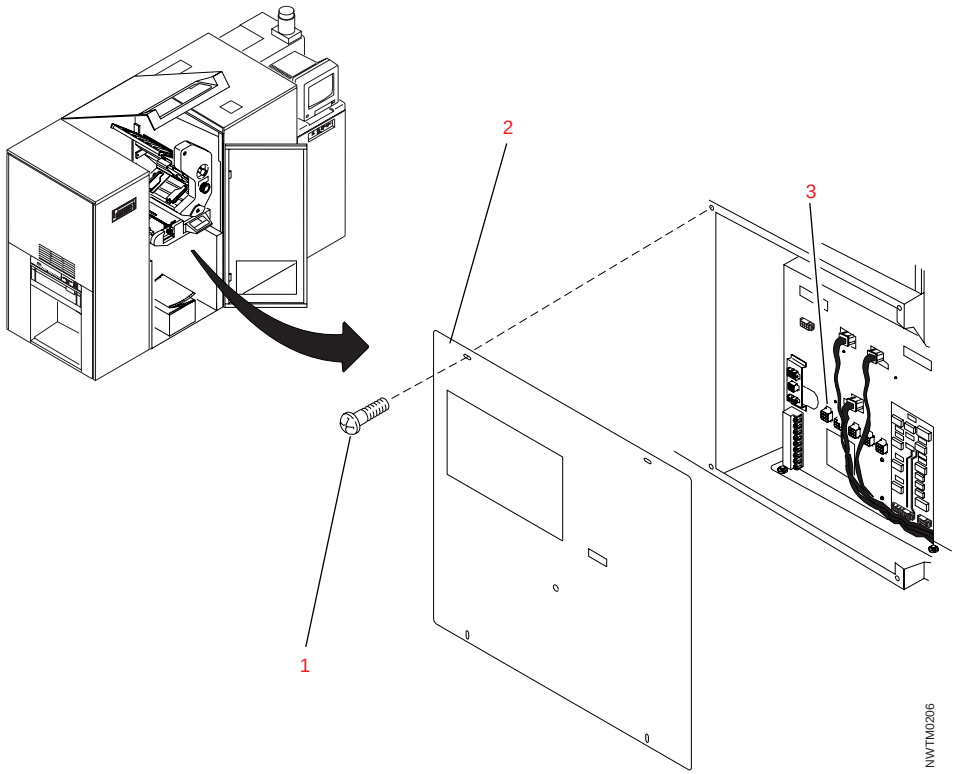
DIP Switch Settings

1. Remove the B1 board cover .
2. Remove B1J11 Card.
3. Check B1J11 Switch S8 Settings to ensure that the switch settings are correct.
4. Reinstall the B1J11 Card. (The B1 board cover will be installed later).

Check the Voltage Jumpers

To check the voltage on the printer power supply, do the following:

Table 949. Checking the Voltage Jumpers

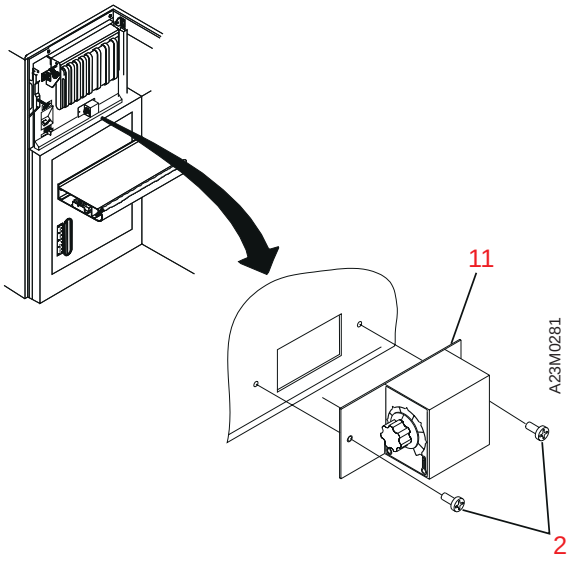


Voltage Jumper Plugs

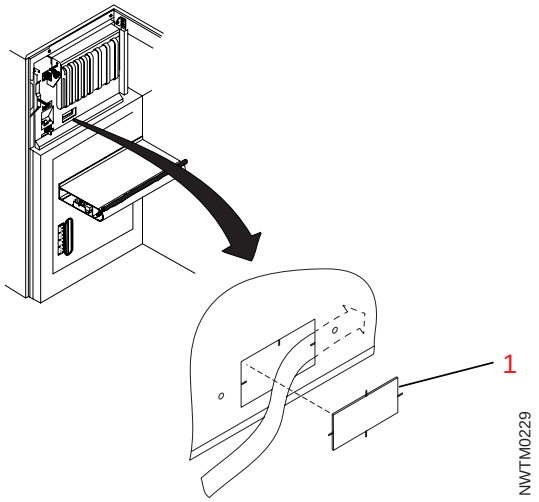
1. Verify the customer's power settings at the power source before you continue.
2. Remove the screws **(1)** (only one shown) on the input bin right side **(2)** cover.
3. Ensure that all the correct voltage jumper plugs **(3)** are installed. The voltage values are written on the plugs.
   Note: If the customer's voltages change, install different voltage jumper plugs, which are in the installation kit.
4. If necessary, change the voltage jumper plugs. See the installation kit.
5. Reinstall the input bin right side cover.
6. Reinstall the AC Power Supply Cover.
7. Do not reinstall the Input Bin on Printer 2 of a duplex system.
8. On a Simplex Printer or Printer 1 of a duplex system, reinstall Input Bin only if you are not installing a Preprocessor device.

Install Preheat Control

Table 950. Installing the Preheat Platen Temperature Control



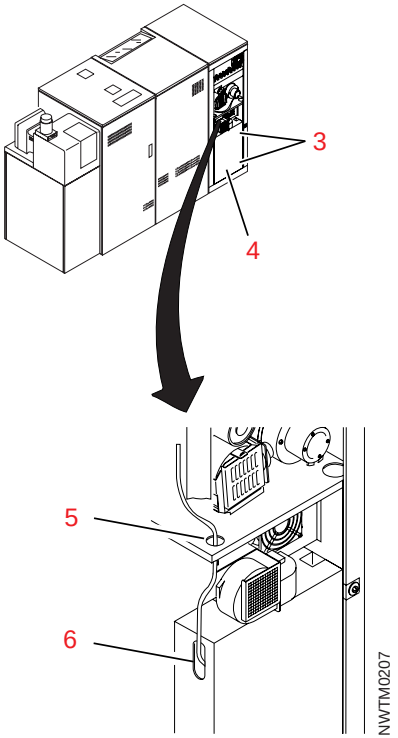
Note: Preheat control may already be installed on some printers. Check for the presence of the preheat control **(11)** on the printer. Skip this section if it is already installed.



1. Remove the punch plate **(1)** on the left panel in the input area by cutting the punch tabs with diagonal cutting pliers, or by prying the punch plate out with a screwdriver.

   Note: Use a file to remove any sharp edges that may remain in the opening after the plate is removed.
2. Locate the Preheat Control (P/N 57G6632)

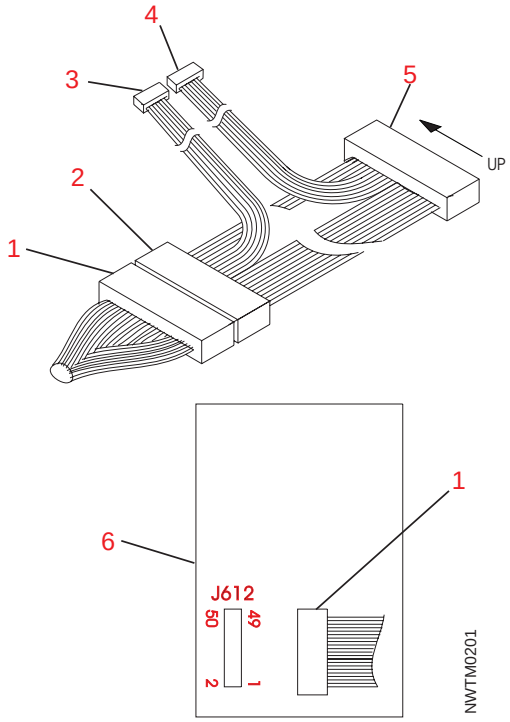
Table 950. Installing the Preheat Platen Temperature Control (continued)



3. Open the printer right rear cover.
4. Remove 2 screws **(3)** on the fuser logic cover **(4)**. Route the end of cable that attaches to the preheat platen control assembly through the access hole **(6)** up to the access hole **(5)** and over to the preheat platen control knob assembly.
   Note: TC IN **(3)** and TC OUT **(4)** are attached to the preheat control.

   Attach the cable to the preheat platen control assembly.
5. Route the other end of the ribbon cable along with existing cables through the 3 plastic cable retainers mounted at the top of the fuser logic cover, and then on down to the FSxxx Card.

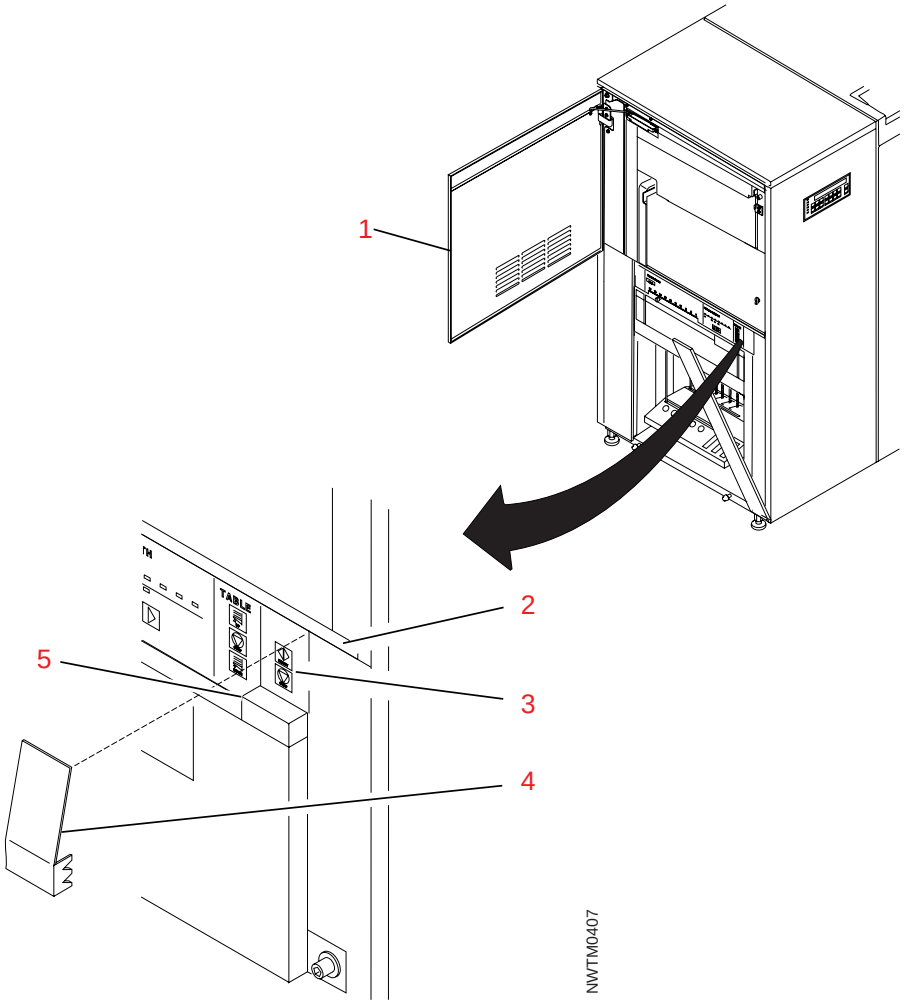
Table 950. Installing the Preheat Platen Temperature Control (continued)



Preheat Control

6. Disconnect plug P612 **(1)** from the FSxxx Card **(6)**. Connect J612TC **(2)** to P612
7. Plug P612TC **(5)** into J612 on the FSxxx Card and snap the cable retainers closed.
8. Close the fuser logic cover **(3)** and reinstall the 2 screws **(4)**. Close the printer right rear cover.
9. Reference the figure on page 3688 and install the preheat control **(11)** with the 2 screws **(2)** (P/N 1621190)
10. Turn the preheat control knob all the way to the left *(counterclockwise)*. This is the standard preheat temperature setting.

Install Stacker Switch Cover



Stacker Switches

The **Start**, and **Stop** stacker switches**(3)** must be covered.

Note: The stacker switch cover **(4)** is located in the package with the right end covers. There are two types of covers. If the cover **does not** look like **(4)** in the picture, go to step 5.

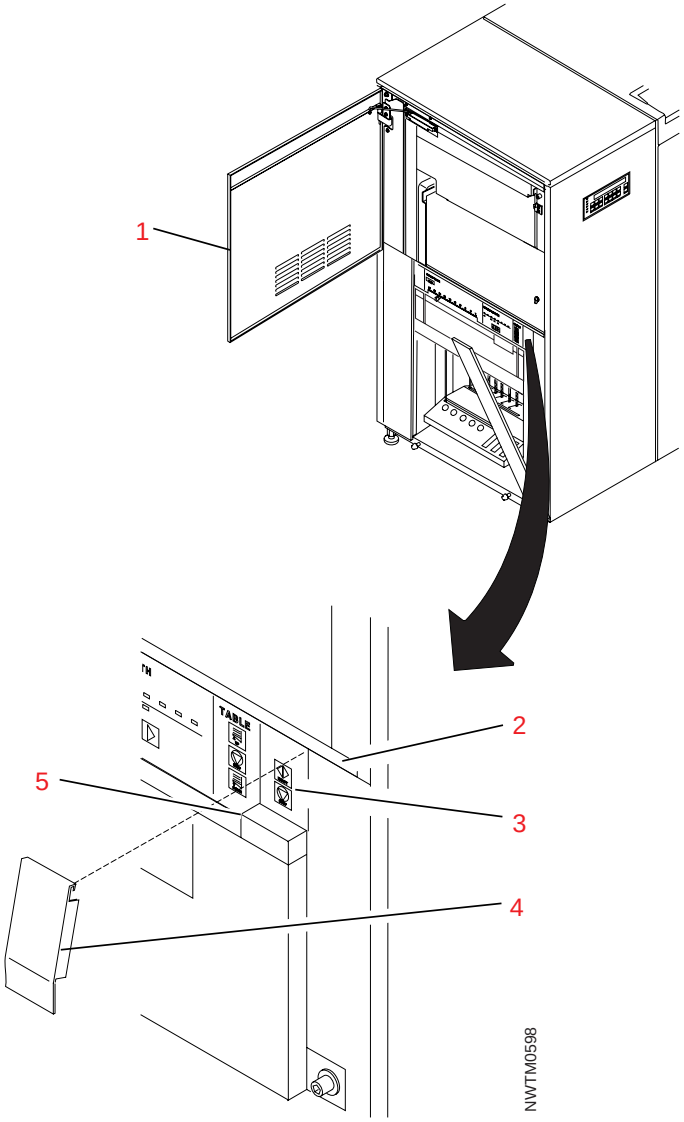
CAUTION:
<70> The oiler belt, oiler wick roll, and their environments are high temperature areas. Be very careful when working in these areas.

1. Open the stacker end cover **(1)**.

Clothing Damage

Oil and other contaminates from the fuser oil belt/roll can damage clothing. While you work on this area, place forms over the oiler gate.

2. Position the top end of the stacker switch cover **(4)** (P/N 57G6611 under the rail **(2)** so that it covers the stacker **Ready** and **Stop** switches.
3. Push the lower end of the stacker switch cover **(4)** in so that it is seated firmly over the black block **(5)**.
4. If the stacker gate interferes with the stacker switch cover, adjust the position of the stacker gate using the slotted hole and mounting screw located on the top of the gate.



Stacker Switches

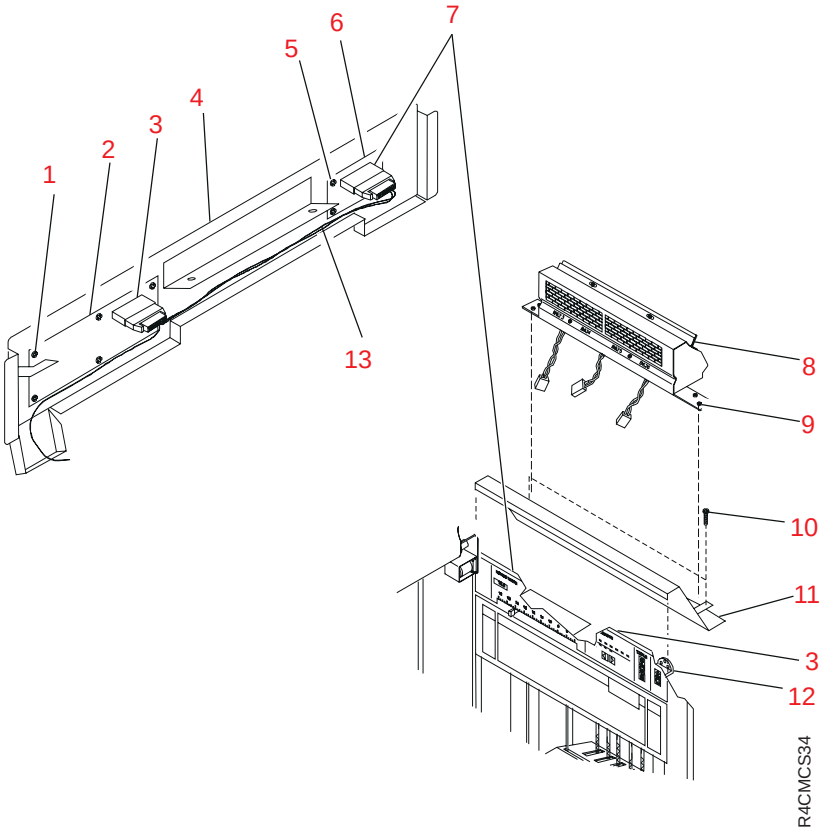
5. Open the stacker end cover **(1)**.

CAUTION:
<70> The oiler belt, oiler wick roll, and their environments are high temperature areas. Be very careful when working in these areas.

Clothing Damage

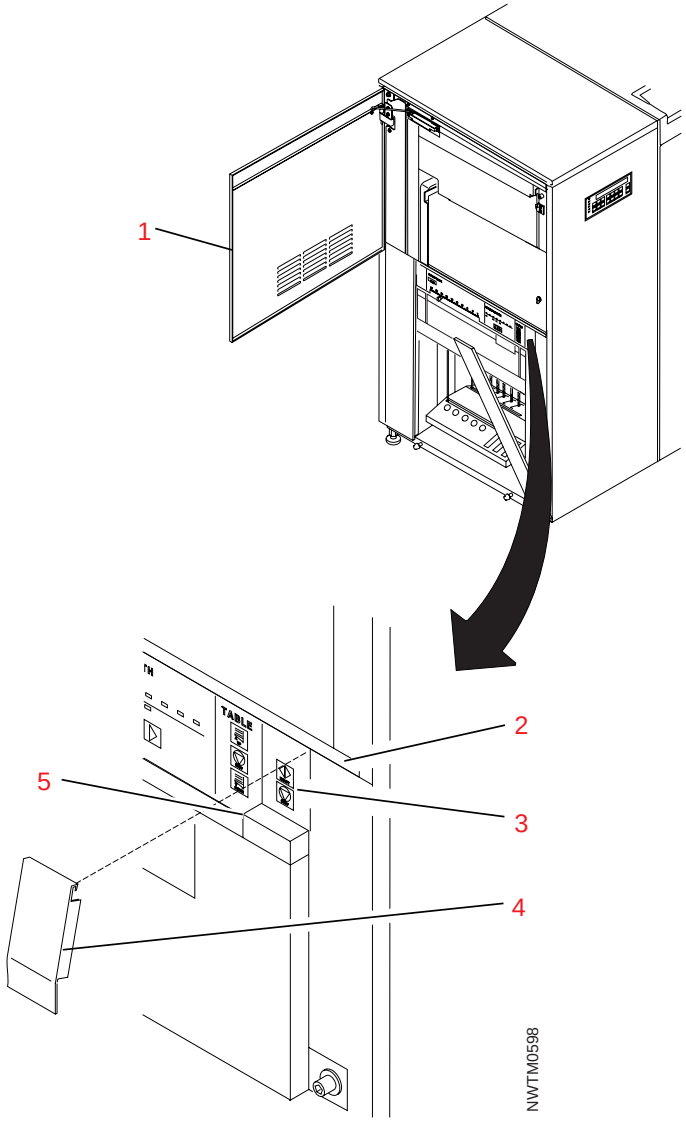
Oil and other contaminates from the fuser oil belt/roll can damage clothing. While you work on this area, place forms over the oiler gate.

6. Open and lock the oiler gate.



Stacker Control Panel

7. Remove the screws **(9)**, lift the fan assembly **(8)**, and disconnect the fan connectors. Remove the fan assembly **(8)**.
8. Loosen the 2 screws **(10)** and remove the stacker panel shield **(11)**.



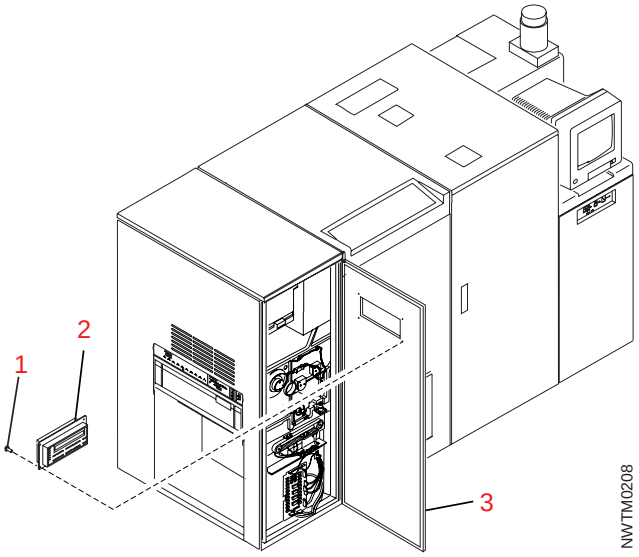
Stacker Switches

9. Hook the top end of the switch cover **(4)** over the top edge of the stacker control panel and position it so that it covers the **Ready** and **Stop** switches.
10. Replace the stacker panel shield and the fan assembly.

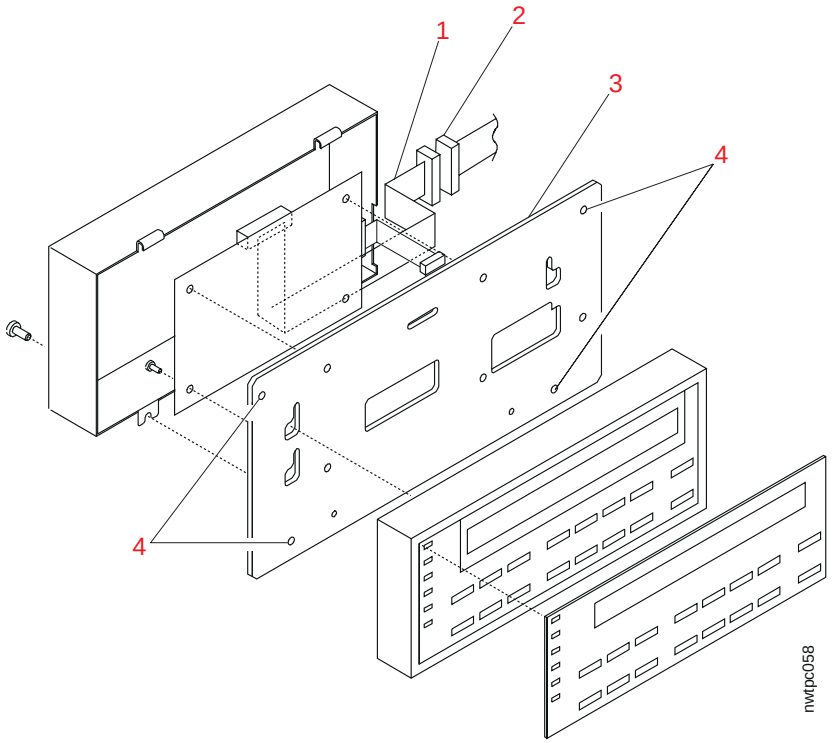
Install Side 1/Side 2 Verification Function

Locate the Side 1/Side 2 Verification Function parts. Follow the ″Details of Installation″ Section of the Side 1/Side 2 Installation Instructions shipped with the parts. The ″Configure″ and ″Test Procedure″ in the Installation Instructions will be done in .

Install Operator Panel

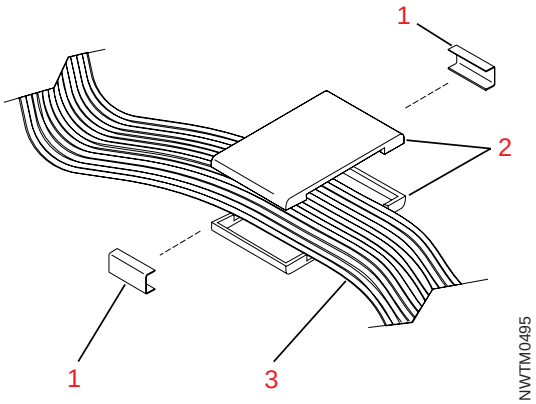


1. Open the printer left front cover.
2. Install the new operator panel **(2)** (P/N 45G1906 with four screws **(1)** provided with the operator panel assembly.
3. Install the toroid (P/N 30H2784) after the Operator Panel has been installed.



Note: The short cable **(1)** may not be installed in your printer.

4. Attach the toroid on the operator panel cable **(2)** (cable between connectors P6004 and J232). Attach the toroid as close as possible to the outside edge of the operator panel assembly.

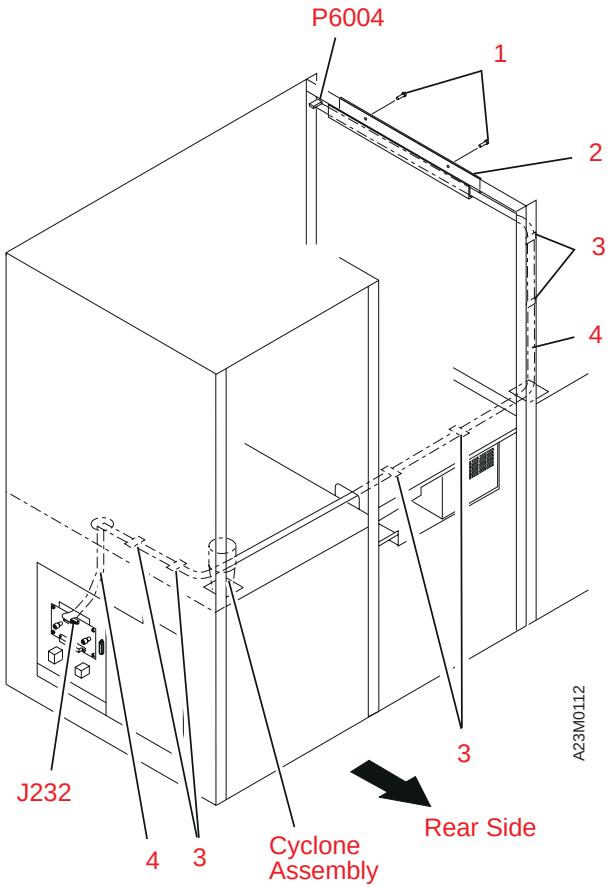


To install the toroid:

5. Place the cable **(3)** between the two halves of the toroid **(2)** as shown.
6. Put one spring clip**(1)** over both halves of the toroid on one end.
7. Put the remaining spring clip **(1)** over both halves of the toroid on the other end.
8. Attach connector P6004 to the cable that comes out of the operator panel.

Note: The cable from the machine and the cable from the operator panel may have identical connectors and thus not connect together. In this case, do the following:

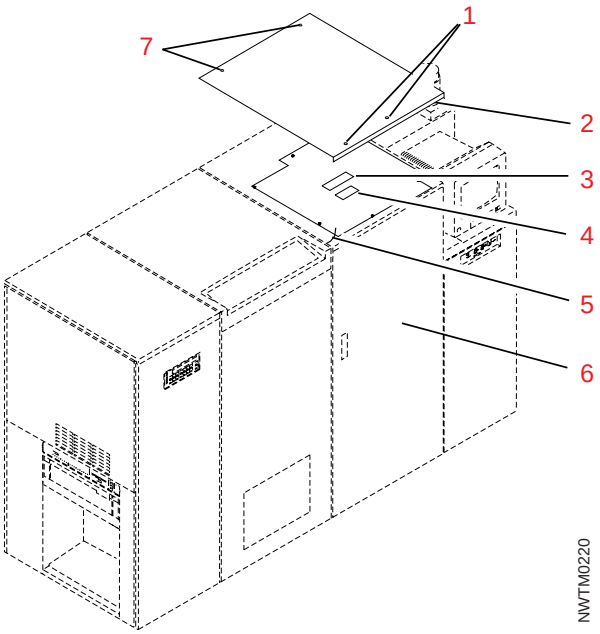
a. Remove the screws from the back of the operator panel
b. Disconnect the short cable inside the operator panel.
c. Connect the P6004 cable directly to the operator panel.
d. Reinstall the screws on the back of the operator panel.

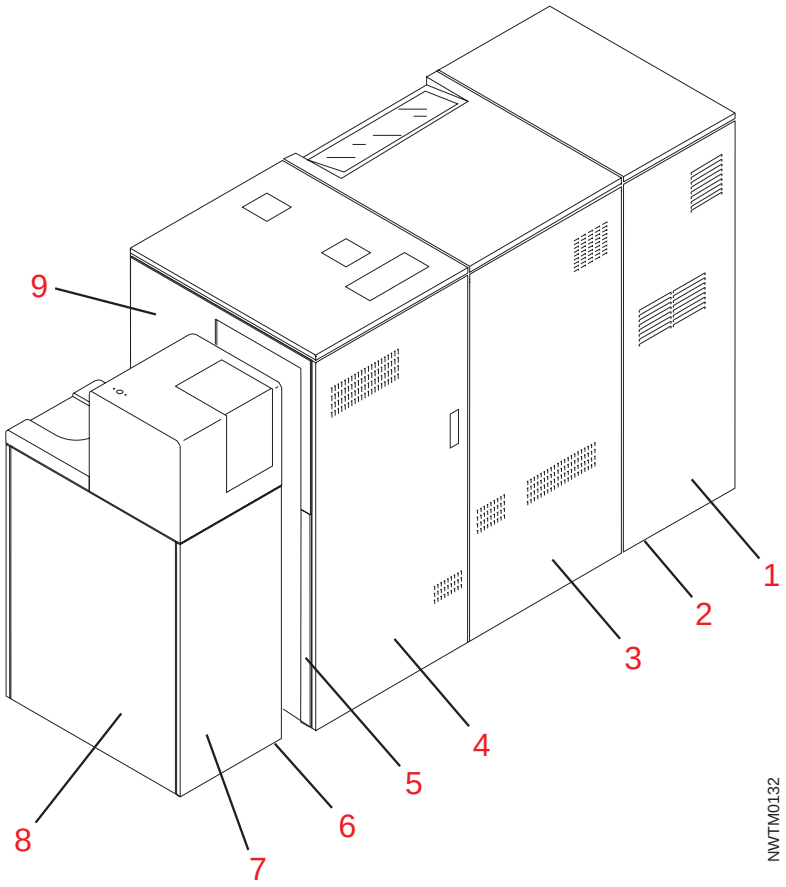


9. Install the language overlay that came with your operator panel. Peel the protective layer off the adhesive on the back of the overlay and carefully press the overlay into position on the operator panel.

Remove Printer Right Top Cover

Table 951. Removing the Printer Right Top Cover





1. Open the printer right front cover **(6)**.
2. Remove the two screws **(1)** in the printer right top cover **(2)**.
3. Open the printer center rear cover **(3)** and the printer left rear cover **(4)** .
4. Remove the two screws **(7)** in the printer right top cover **(2)**,
5. Disconnect the ground strap **(5)** fastened to the bottom of the printer right top cover.
6. Remove the printer right top cover.
7. You will reinstall this cover at the end of the install procedure.

Install the Controller in the Control Unit

Determine which RS/6000 controller has been shipped with your printer.

If the controller is already installed, select the appropriate section and do the following on your controller:

- Check the controller cables for proper connection.
- Ensure that the **Mode** switch is set to Normal.

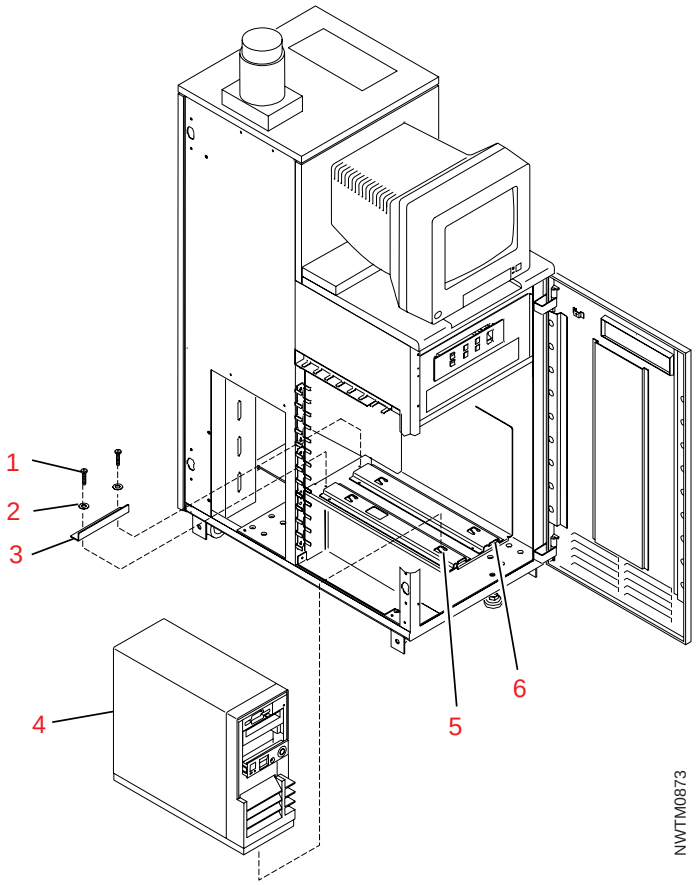
  Note: If the controller is a type 7009, ensure that the voltage switch at the rear is set to 230 V.
- Ensure that the **Power** switch is set to On.
- Install the mouse.

If the controller is not installed, select the approipriate section to install your controller.

- 7009 Controller Installation
- 7012 Controller Installation
- 7013 Controller Installation
- 7025 Controller Installation
- 7043 Controller Installation

7009 Controller Installation

Table 952. Installing the 7009 Controller in the Control Unit

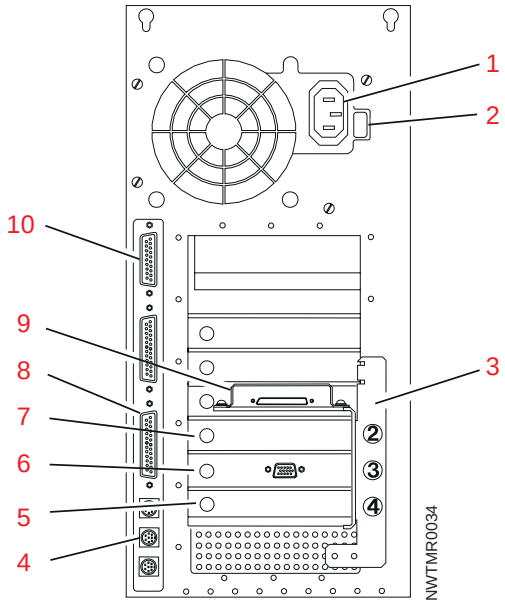


7009 Controller Installation

Note: If the controller is a Type 7009, it may already be installed in the control unit. If it is, go to Step 10.

1. Remove holding bracket **(3)**.
2. Place the controller **(4)** onto the mounting plate **(6)** in the control unit. Position the controller so that the raised hooks **(5)** fit into the slots on the bottom of the controller.
3. When the controller is in position, slide the unit forward until the raised hooks latch onto the bottom of the controller.
4. Install the holding bracket **(3)** (P/N 04H0422) at the rear of the controller with the hardware provided.

Table 952. Installing the 7009 Controller in the Control Unit (continued)



Controller 7009-C10/20 Connectors

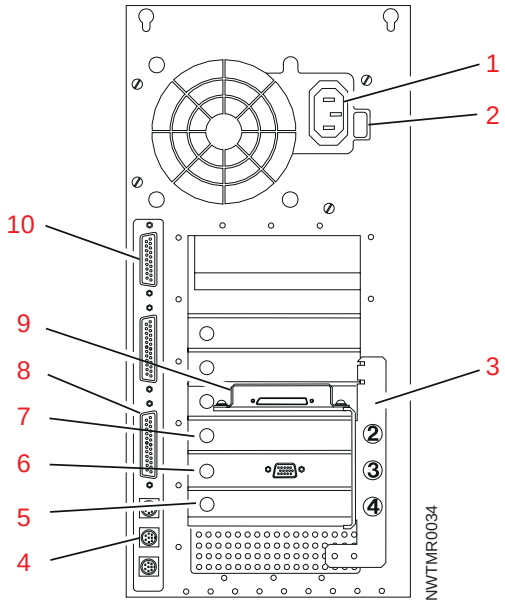
5. If a parallel channel adapter card, is installed in adapter card slot 2 **(7)**, plug the **Y** cable from the channel tailgate into the connector on the adapter card. If two parallel channels are installed, the **Y** cable should be attached to the upper tailgate assembly. This will be configured as channel **A** if two parallel channels are installed in the controller.

   Note: The Select/Bypass switch on the single end of the **Y** cable must be in the **Select (S)** position, not in the **Bypass (B)** position.

   The Select/Bypass switch is located at the controller end of the **Y** cable. If this switch is in the Bypass position, the host is never able to select the printer to print a job. The host receives I/O condition code 3, CC=3, for Select In returned.
6. If a parallel channel adapter card is installed in adapter card slot 4 **(5)**, plug the **Y** cable from the channel tailgate into the adapter card connector. If two parallel channels are installed, the **Y** cable is attached to the lower tailgate assembly. This is configured as channel **B** if two parallel channels are in the controller.
7. Remove the SCSI cable restraint bracket from the back of the controller at **(9)** (Adapter Card Slot 1).

   Do not remove the large cable restraint ″L″ bracket **(3)**, because the nut plate inside the controller will fall and you will not be able to re-attach the bracket.

Table 952. Installing the 7009 Controller in the Control Unit (continued)



Controller 7009-C10/20 Connectors

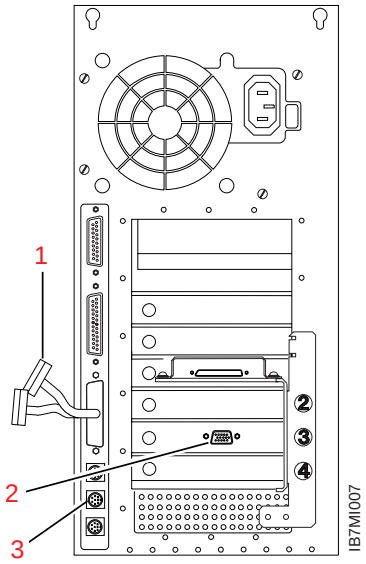
Important Note

Do not coil the SCSI cable or place it close to any AC power source. This can cause SCSI errors.

8. Plug the SCSI to MIC cable
   - For single beam printhead - P/N 30H2756
   - For two-beam switchable printhead - P/N 24H8118
   - For 3900, 310 PPM: P/N 52G4337

   into the connector on the Adapter Card in Slot 1 **(9)**.
9. Re-attach the SCSI cable restraint bracket. The MIC end of this cable is installed on MIC card connector PJJ13.
10. Ensure that the Voltage Switch **(2)**, at the right side of the power connector is set to 230V and the bracket to hold the switch in that position is in place and tightened down. Powering on the controller from a 230V power source with the Voltage Switch set to 115V will cause permanent damage to the controller power supply.
11. Connect the power cable. One end is attached to JA06 on the AC Control Box and the other end is connected to **(1)** on the back of the controller.
12. Ensure that the **Key Mode** Switch on the front of the controller is in the **OK** position.
13. Ensure that the **Power** Switch is in the **ON** position.

Table 952. Installing the 7009 Controller in the Control Unit (continued)



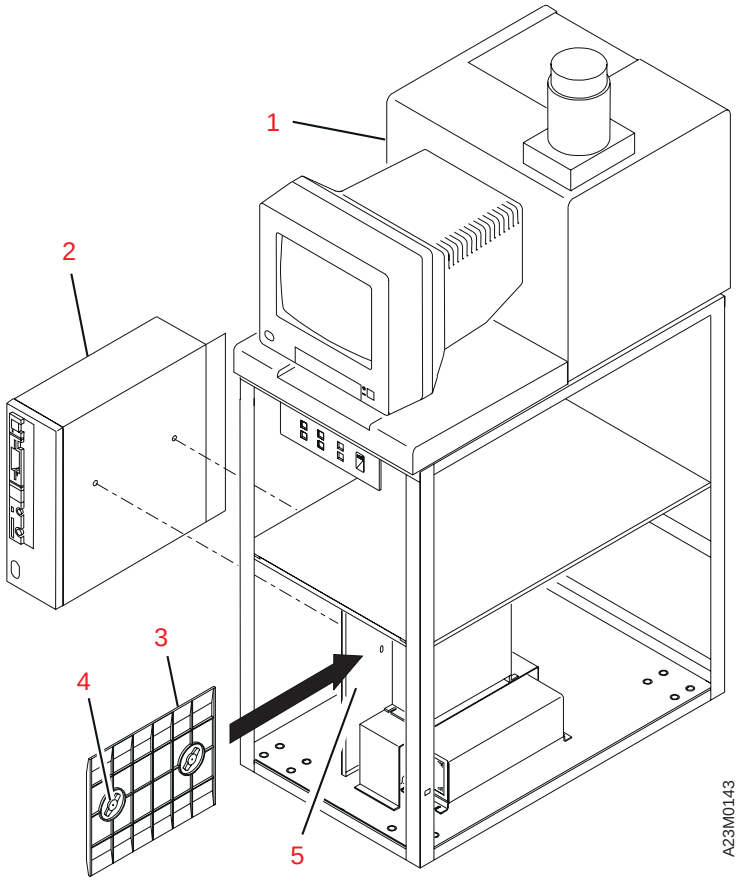
7009

14. Connect the mouse to the controller at connector **(3)**. The mouse is inside the control unit.

Note: The mouse is **not** used to operate the controller or the Display/Touch Screen Monitor, however, it must be installed for the control unit to operate correctly.

7012 Controller Installation

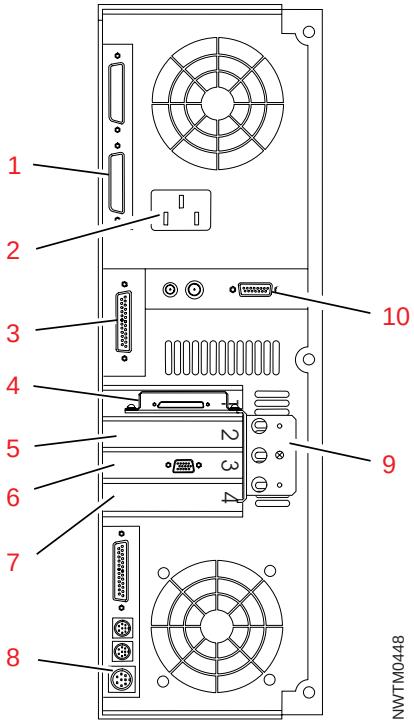
Table 953. Installing the 7012 Controller in the Control Unit



7012 Controller Installation

1. Loosen holding screws **(4)** and remove pedestal **(3)** from the controller assembly.
2. Place the controller **(2)** on the left side of the vertical frame member.
   Note: It is easier to do the following cable connection steps if you move the back end of the controller slightly toward the outside of the control unit frame.

Table 953. Installing the 7012 Controller in the Control Unit (continued)



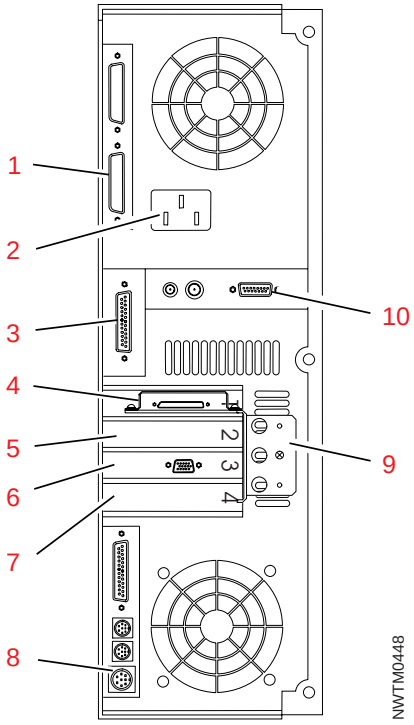
3. If a parallel channel adapter card, is installed in adapter card slot 2 **(5)**, plug the **Y** cable from the channel tailgate into the connector on the adapter card. If two parallel channels are installed, the **Y** cable should be attached to the upper tailgate assembly. This will be configured as channel **A** if two parallel channels are installed in the controller.

   Note: The Select/Bypass switch on the single end of the **Y** cable must be in the **Select (S)** position, not in the **Bypass (B)** position.The Select/Bypass switch is located at the controller end of the **Y** cable. If this switch is in the Bypass position, the host is never able to select the printer to print a job. The host receives I/O condition code 3, CC=3, for Select In returned.

4. If a parallel channel adapter card is installed in adapter card slot 4 **(7)**, plug the **Y** cable from the channel tailgate into the adapter card connector. If two parallel channels are installed, the **Y** cable is attached to the lower tailgate assembly. This is configured as channel **B** if two parallel channels are in the controller.
5. If you are installing a Model 390 controller, go to step 12.
6. If you are installing a Model 370 controller, go to step 7.

Note:

Table 953. Installing the 7012 Controller in the Control Unit (continued)



7. Remove the SCSI cable restraint bracket from the back of the controller at **(4)** (Adapter Card Slot 1).

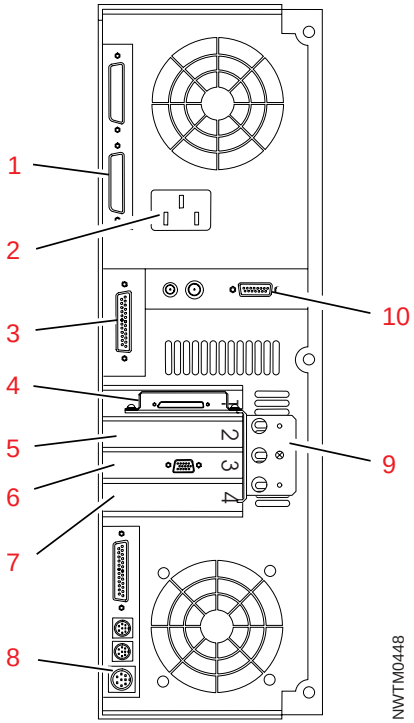
   Do not remove the large cable restraint ″L″ bracket **(9)**, because the nut plate inside the controller will fall and you will not be able to re-attach the bracket.

Important Note

Do not coil the SCSI cable or place it close to any AC power source. This can cause SCSI errors.

8. Plug the SCSI to MIC cable (P/N 30H2756) into the connector on the adapter card in Adapter Card Slot 1 **(4)**.
9. Re-attach the cable restraint bracket. The MIC end of this cable is installed on MIC card connector PJJ08.
10. Connect the power cable. One end is attached to JA06 on the AC Control Box and the other end is connected to **(2)** on the back of the controller.
11. Go to step 14.

Table 953. Installing the 7012 Controller in the Control Unit (continued)

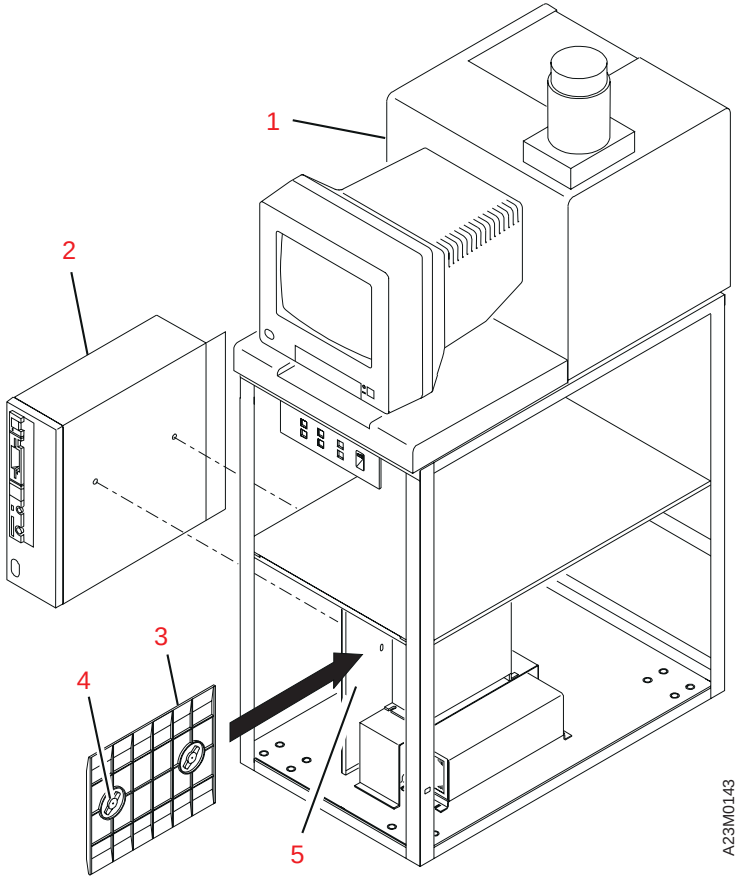


Important Note

Do not coil the SCSI cable or place it close to any AC power source. This can cause SCSI errors.

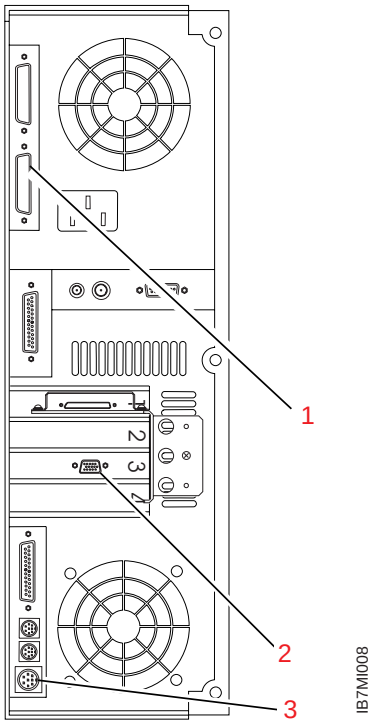
12. Plug the SCSI to MIC cable (P/N 30H2756) into the connector on the adapter card in Adapter Card Slot 1 **(4)**.
13. Connect the power cable. One end is attached to JA06 on the AC Control Box and the other end is connected to **(2)** on the back of the controller.

Table 953. Installing the 7012 Controller in the Control Unit (continued)



14. Place the controller pedestal **(3)** on the right side of the vertical frame member with the pedestal holding screws **(4)** protruding through the holes in the frame member, and into the holes in the bottom of the controller frame. Tighten the holding screws securely.
15. Ensure that the Mode Switch on the front of the controller is in the **Normal** position.
16. Ensure that the **Power** switch is in the **On** position.

Table 953. Installing the 7012 Controller in the Control Unit (continued)



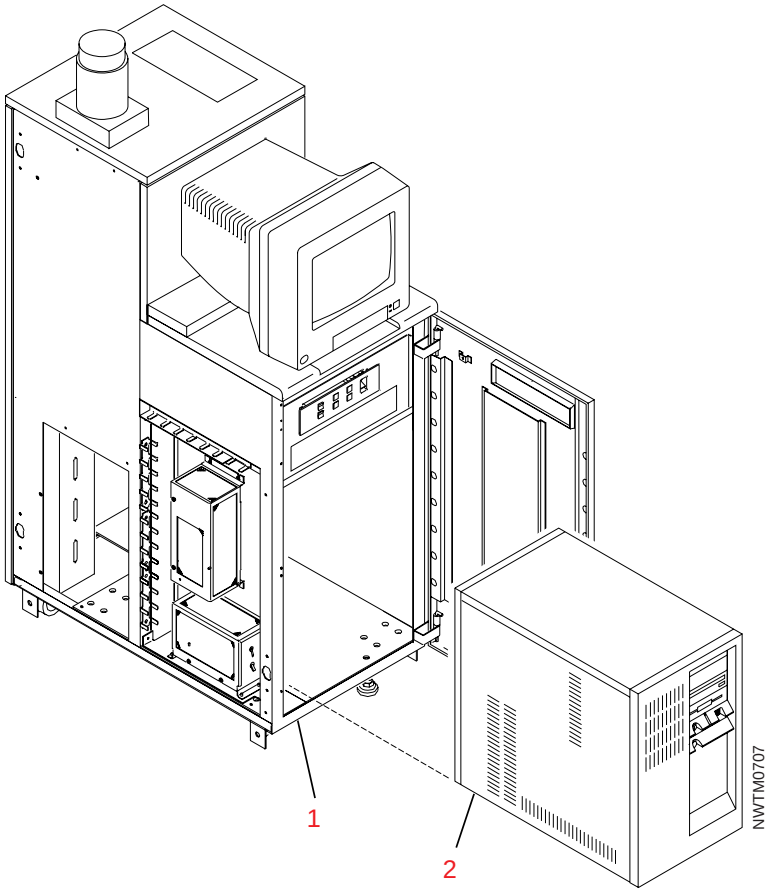
7012

17. Connect the mouse to the controller at connector **(3)**. The mouse is inside the control unit.

Note: The mouse is **not** used to operate the controller or the Display/Touch Screen Monitor, however, it must be installed for the control unit to operate correctly.

7013 Controller Installation

Table 954. Installing the 7013 Controller in the Control Unit

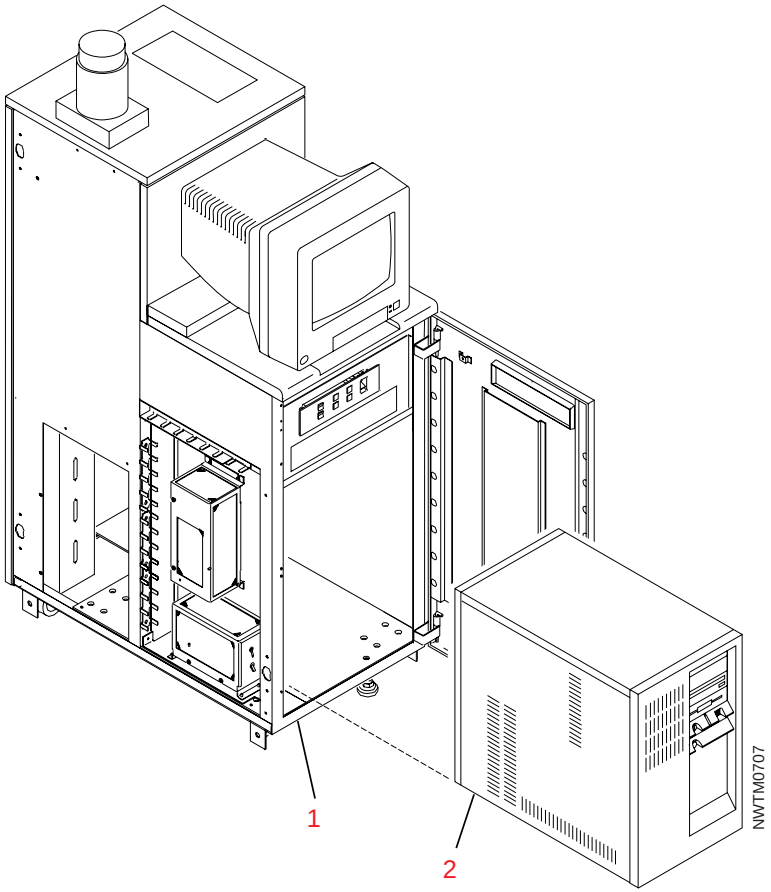


CAUTION:
<77> The RISC Controller weighs more than 45 kg (100 lb). If the entire controller must be lifted, use three or more persons.

7013 Controller Installation

1. Open the control unit front cover.
2. Open both control unit side covers.
3. Remove the rear cover from the 7013 controller.
4. Lower the front leveling pad on the control unit so that it does not interfere when you push the controller into the control unit.
5. Roll the controller to the front of the control unit with the rear of the controller facing the front of the control unit.
6. Lift the rear of the controller **(2)** and place it on the front edge of the control unit floor **(1)**.
7. Push on the front of the controller and slide it into the control unit.
8. Close the control unit front cover.

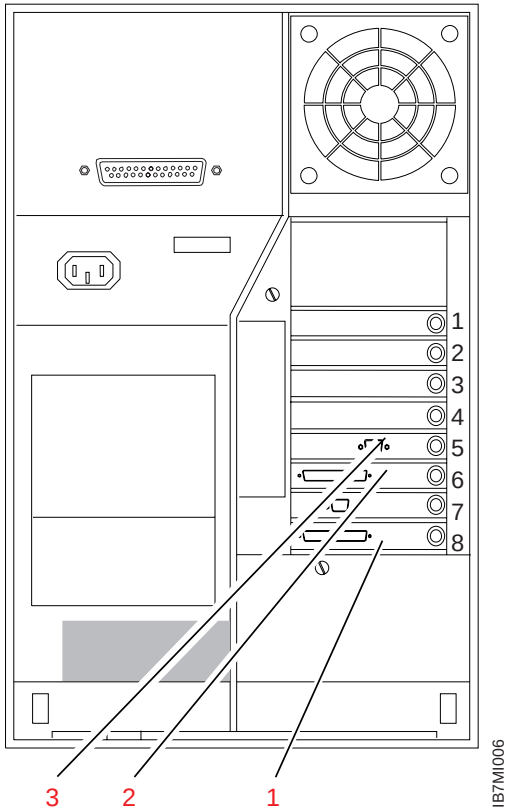
Table 954. Installing the 7013 Controller in the Control Unit (continued)



7013 Controller Installation (cont'd)

9. With the front door closed, go to the right side of the control unit and push the controller toward the front of the control unit so that there is room for cabling at the rear of the controller.
10. If the controller is a:
    a. Model 591 - go to step 11.
    b. Model 595 - go to step 17.

Table 954. Installing the 7013 Controller in the Control Unit (continued)



The next five steps are for the Model 591 controller.

11. Plug the SCSI to MIC cable (P/N 24H8118) into the connector on the Adapter Card in Slot 8 **(1)**.
12. Plug the MIC end of this cable into MIC card connector PJM13 located in the top of the control unit of Printer 2.
13. Plug the SCSI to Printer 1 cable (P/N 30H2751) into the connector on the Adapter Card in Slot 6 **(2)**.
14. Plug the MIC end of this cable into MIC card connector PJM13 located in Printer 1.
15. Plug the host attachment cable into the connector on the Adapter Card in Slot 5 **(3)**

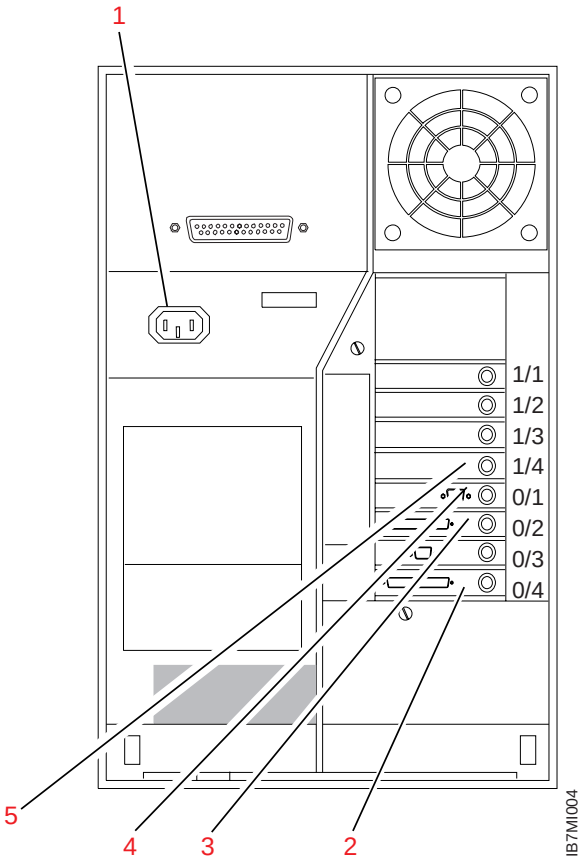
Important Note

Do not coil the SCSI cable or place it close to any AC power source. This can cause SCSI errors.

Ensure that the hex spacers and cable retention screws are screwed down tight so that there is a good SCSI connection at both the controller and the MIC end of the SCSI cable.

16. Go to step 25.

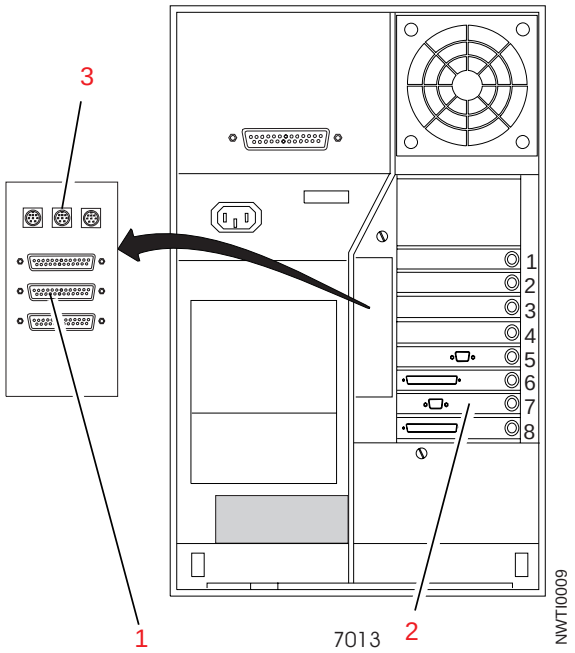
Table 954. Installing the 7013 Controller in the Control Unit (continued)



The next nine steps are for the Model 595 controller.

17. Plug the SCSI to MIC cable (P/N 24H8118) into the connector on the Adapter Card in Slot 0/1 **(4)**.
18. Plug the MIC end of this cable into MIC card connector PJM13 located in the top of the control unit of Printer 2.
19. Plug the SCSI to Printer 1 cable (P/N 30H2751) into the connector on the Adapter card in Slot 1/4 **(5)**.
20. Plug the MIC end of this cable into MIC card connector PJM13 located in Printer 1
21. Plug the host attachment cable into the connector on the Adapter Card in Slot 0/2 **(3)**, and Slot 0/4 **(2)** if a second host attachment cable is present.
22. Connect the power cable. One end attaches to JA06 on the AC Control Box and the other end connects to **(1)** on the back of the controller.
23. Ensure that the **Key Mode** Switch on the front of the controller is in the **OK** position.
24. Ensure that the **Power** Switch is in the **ON** position.

Table 954. Installing the 7013 Controller in the Control Unit (continued)



25. Connect the mouse to the controller at connector **(3)**. The mouse is inside the control unit.

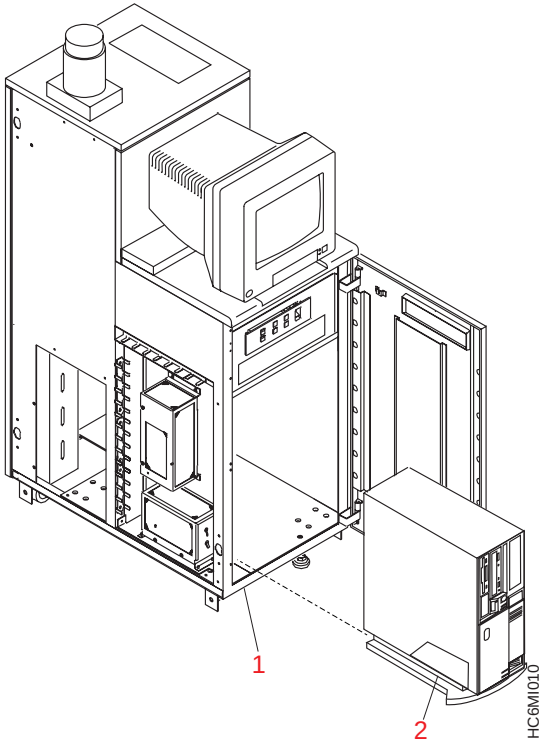
Note: The mouse is **not** used to operate the controller or the Display/Touch Screen Monitor, however, it must be installed for the control unit to operate correctly.

7025 Controller Installation

Do not install the keyboard if one is supplied. Store the keyboard inside the control unit.

7043 Controller Installation

Table 955. Installing the 7043 Controller in the Control Unit

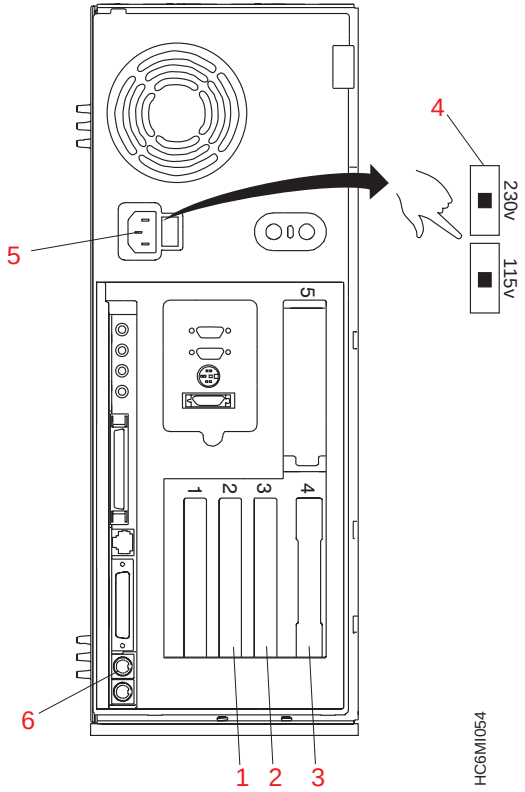


CAUTION:
<77> The RISC Controller weighs more than 45 kg (100 lb). If the entire controller must be lifted, use three or more persons.

7043 Controller Installation

1. If necessary, install the base on the 7043 controller.
2. Open the control unit front cover.
3. Open both control unit side covers.
4. Lower the leveling pad at the front of the control unit so that it does not stick out from the floor of the control unit.
5. Lift the rear of the controller **(2)** and place it in the control unit **(1)**.
6. Close the control unit front cover.
7. With the front door closed, go to the right side of the control unit and push the controller toward the front of the control unit so that there is room for cabling at the rear of the controller.

Table 955. Installing the 7043 Controller in the Control Unit (continued)



7043 Connectors

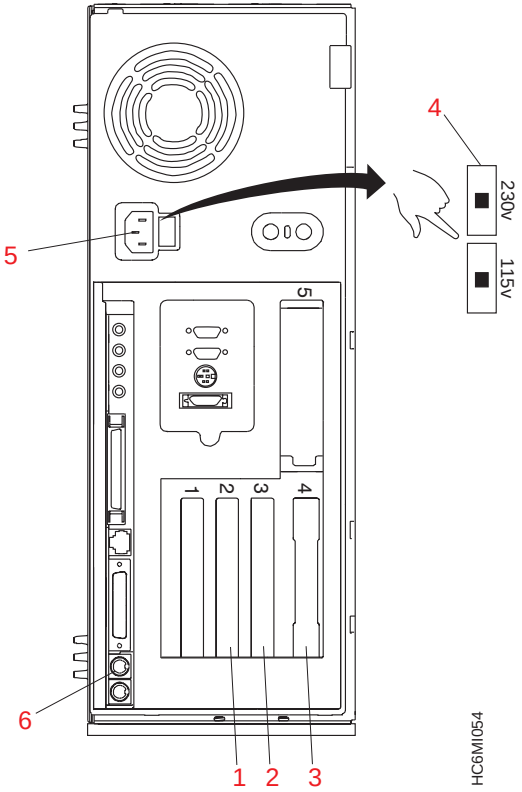
Note: It is easier to do the following cable connection steps if you move the back end of the controller slightly toward the outside of the control unit frame.

8. If a parallel channel adapter card, is installed in adapter card slot 2 **(1)** or slot 4 **(3)**, plug the **Y** cable from the channel tailgate into the connector on the adapter card. If two parallel channels are installed, the **Y** cable should be attached to the upper tailgate assembly. This will be configured as channel **A** if two parallel channels are installed in the controller.

   Note: The Select/Bypass switch on the single end of the **Y** cable must be in the **Select (S)** position, not in the **Bypass (B)** position.The Select/Bypass switch is located at the controller end of the **Y** cable. If this switch is in the Bypass position, the host is never able to select the printer to print a job. The host receives I/O condition code 3, CC=3, for Select In returned.

9. If a parallel channel adapter card is installed in adapter card slot 4 **(3)**, plug the **Y** cable from the channel tailgate into the adapter card connector. If two parallel channels are installed, the **Y** cable is attached to the lower tailgate assembly. This is configured as channel **B** if two parallel channels are in the controller.

Table 955. Installing the 7043 Controller in the Control Unit (continued)



10. Plug the SCSI-to-MIC cables (P/N 24H8118) into the connector on the adapter card in slot 3 **(2)**.

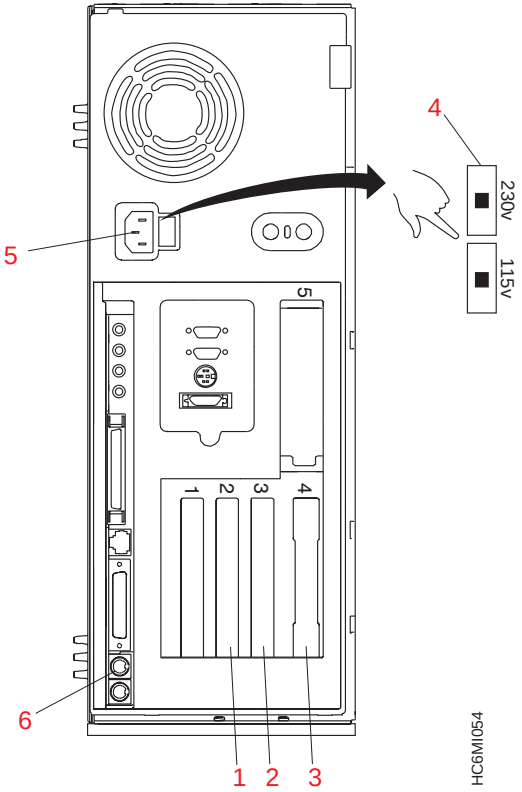
> **Important Note**
>
> Do not coil the SSA cable or place it close to any AC power source. This can cause SSA errors.
>
> Ensure that the hex spacers and cable retention screws are screwed down tight so that there is a good SCSI connection at both the controller and the MIC end of the SCSI cable.

11. Plug the MIC end of this cable into MIC card connector PJM13 located in the top of the control unit of printer 2.
12. Plug any other host attachment cables into the connector on the adapter card in slot 2 **(1)** or slot 4 **(3)**.

Attention: Ensure that the Voltage switch **(4)**, at the right side of the power connector is set to the 230 V. (The switch is set to 230 V when it is pushed downward and you can see **230** on the switch.) Also ensure that the voltage switch cover is in place. Powering on the controller from a 230 V power source with the voltage switch set to 115 V will cause permanent damage to the controller power supply.

13. Connect the power cable. One end attaches to JA06 on the AC Control Box, and the other end connects to **(5)** on the back of the controller.

Table 955. Installing the 7043 Controller in the Control Unit (continued)

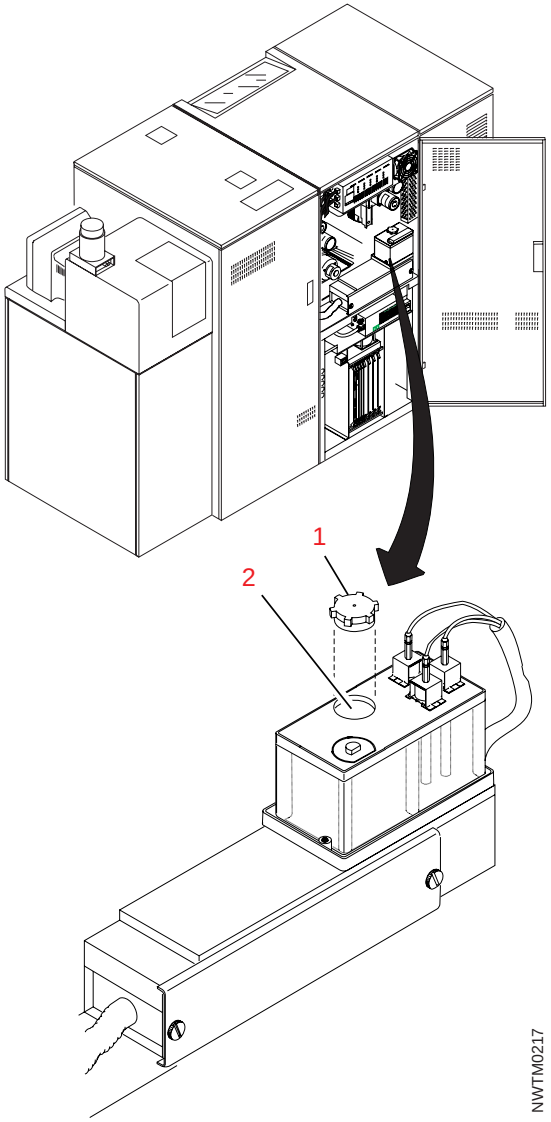


14. Connect the mouse to the controller at connector that is labeled ″Mouse″ **(6)**. The mouse is inside the control unit.

Note: The mouse is **not** used to operate the controller or the Display/Touch Screen Monitor, however, it must be installed for the control unit to operate correctly.

Change the Fuser Oil Filter Screen

Table 956. Changing the Fuser Oil Filter Screen

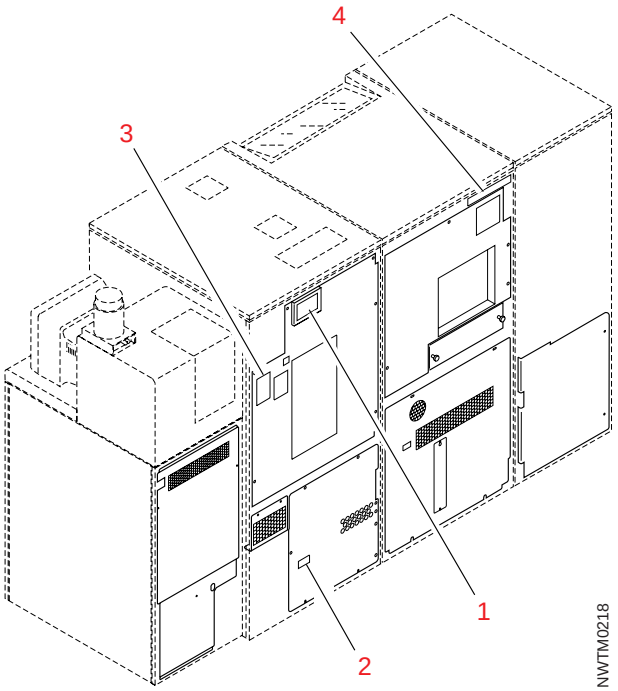


Fuser Oil Filter Screen

1. Open the printer right rear cover.
2. Remove the fuser oil filler cap **(1)**.
3. Remove the white fuser oil filter screen **(2)** with a screwdriver.
4. Replace the fuser oil filter screen with the screen (P/N 57G4379) that is located in the installation kit.

Install Labels and IBM Logo

Table 957. Installing Labels and the IBM Logo



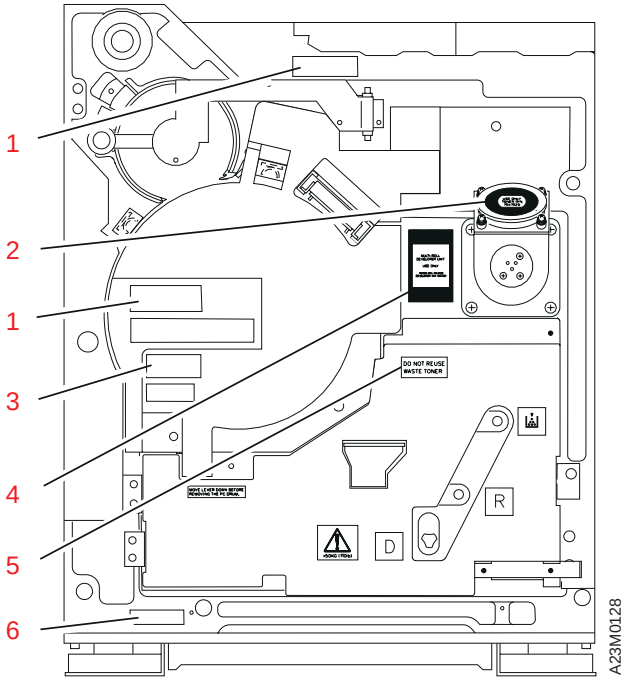
Label Installation (Rear View)

The labels are in the installation kit. Locate and apply the label for the appropriate language as indicated by the illustrations.

Sometimes there is more than one language per sheet of labels. Install the correct labels for your country.

1. Locate the IBM logo (P/N 89H9677) and the four push-on clips (P/N 89H9768). Install the logo on the printer left front cover.
2. **(1)** Caution (P/N 65F6243).
3. **(2)** Do Not Reuse Waste Toner (P/N 65F6252).

Table 957. Installing Labels and the IBM Logo (continued)

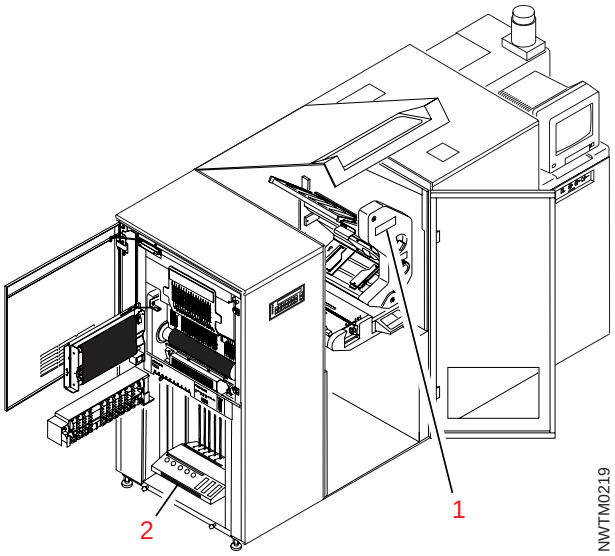


Process Area Label Installation

4. **(1)** Caution (P/N 6fF6243) 2 labels.
5. **(2)** Toner Part Number (P/N 57G6591 or P/N 90H2451).
6. **(3)** Hazardous Area (P/N 88F1192)
7. **(4)** Toner/Developer (P/N 57G4395 or P/N 90H2449).
8. **(5)** Do Not Reuse Waste Toner (P/N 65F6252).
9. **(6)** IBM Model Number and Serial Number

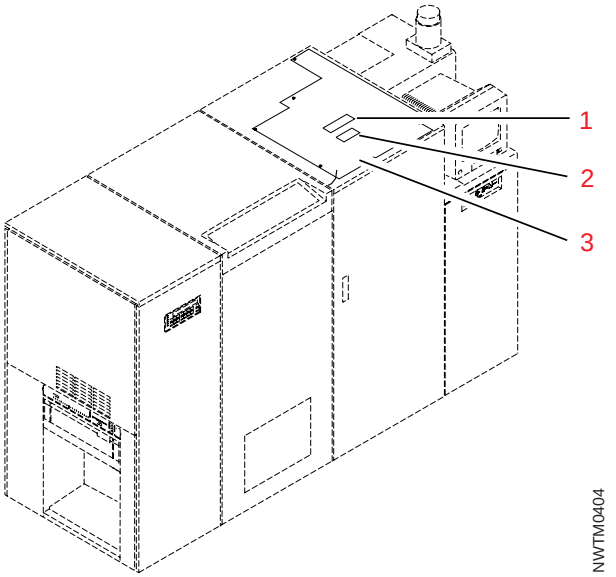
   Note: Ensure that the printer serial number label matches the control unit serial number. The control unit serial number is located on the back of the control unit.

Table 957. Installing Labels and the IBM Logo (continued)



Label Installation

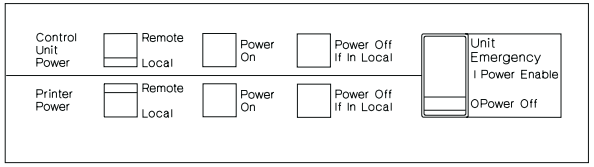
10. **(1)** Caution - (P/N 88F1194).
11. **(2)**Caution - (P/N 65F6254).



Attach labels to the printhead cover.

12. **(1)** Caution - (P/N 65F6243).
13. **(2)** Laser Radiation - (P/N 88F1196 or P/N 90H2651).

Table 957. Installing Labels and the IBM Logo (continued)



Power Control Panel

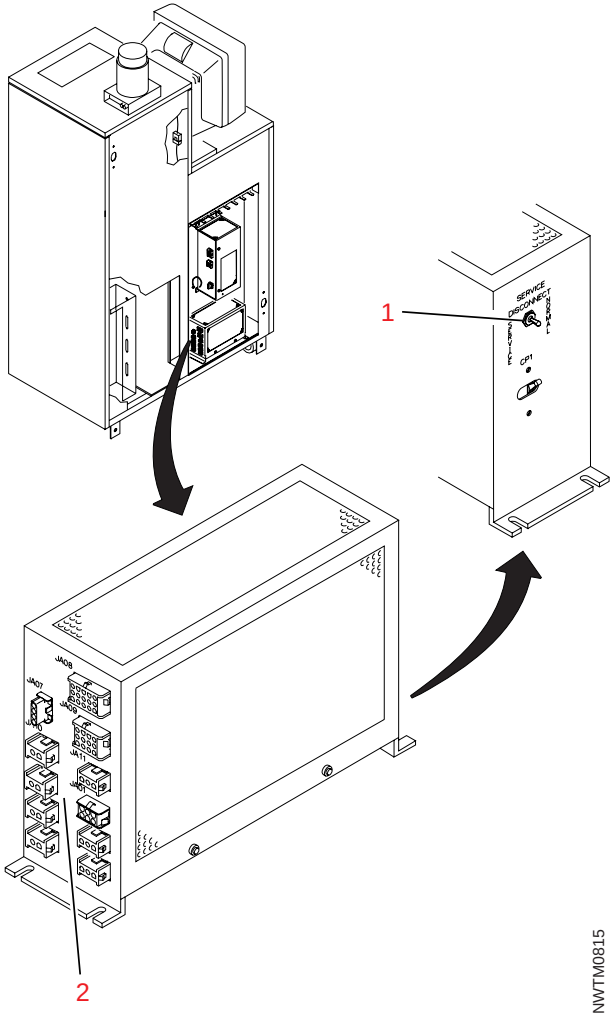
14. Install the language overlay on the Power Control Panel. Peel the protective layer off the adhesive on the back of the overlay and carefully press the overlay into position on the Power Control Panel.

Table 958. Power Control Panel Overlay

Language	Part Number
English	45G1753
French	45G1755
German	45G1757
Italian	45G1759
Spanish	45G1761

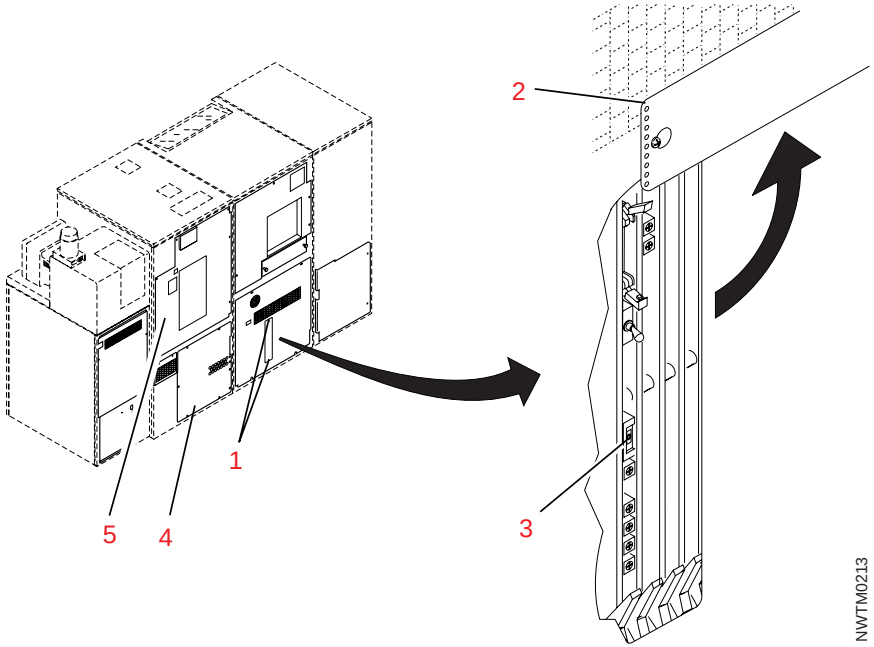
Power On the Printer In Diagnostic Mode

Table 959. Powering on the Printer in Diagnostic Mode



1. Ensure that the service disconnect switch **(1)** on the AC control box in the control unit is in the **Printer** (Normal) position.
2. Ensure that the voltage selection jumper (P/N 45G1952) on the AC control box **(2)** is plugged correctly as follows:
   - Plug JA02 for input line voltage = 240 V AC
   - Plug JA03 for input line voltage = 220/230 V AC
   - Plug JA04 for input line voltage = 200/208 V AC
3. Ensure that the customer has turned off the branch circuit CB.
4. Plug the power cord into the receptacle.
5. Have the customer turn on the branch circuit CB.
6. Turn on the main printer breakers, located behind the printer right front cover.
7. Set the **Unit Emergency** switch on the control unit power control panel to the **Power Enable** position.
8. Open the printer center rear cover.

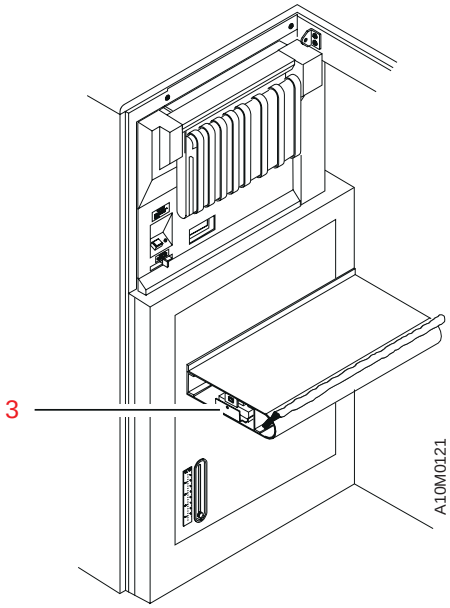
Table 959. Powering on the Printer in Diagnostic Mode (continued)



B1J11 Card Location and Digital Switch

9. Locate the Diagnostic Function Switch **(3)** on the B1J11 Card and change it to **3**.
10. Set the **Printer Local/Remote** switch to “Local” and press the appropriate **Printer Power On** switch. Do not power on the control unit.

Table 959. Powering on the Printer in Diagnostic Mode (continued)



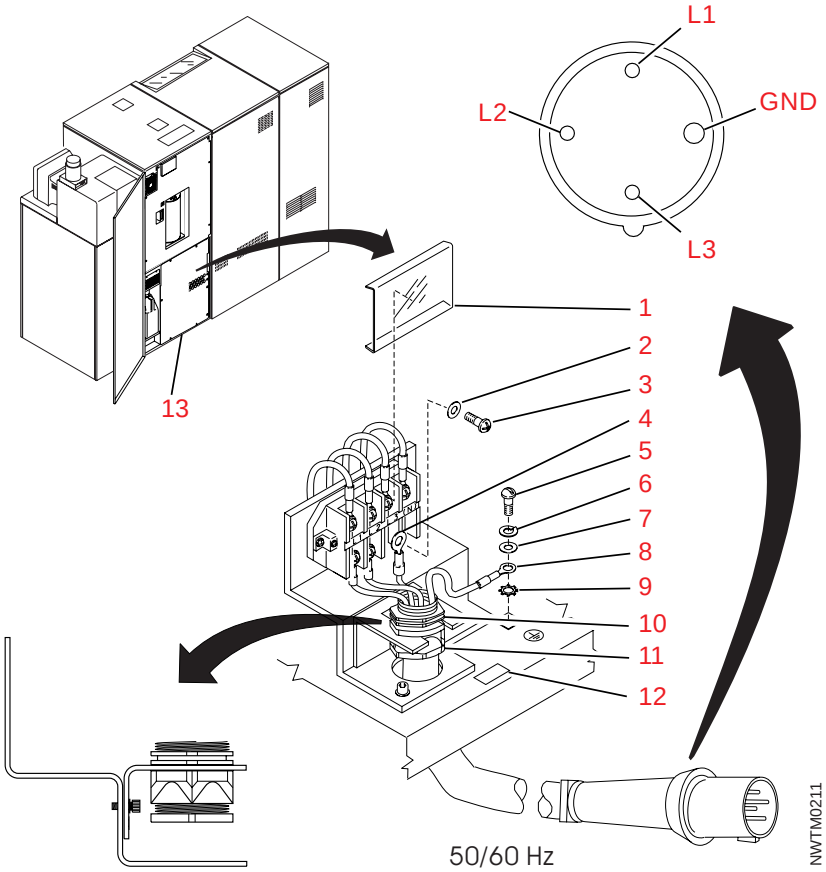
11. Locate the maintenance panel **(3)** in the forms input area. Remove the cover and pull out the maintenance panel.
12. Turn the splicing lever down.
13. Run Driver Routine “24” on page 1651 from the maintenance panel. This test operates the splicing table vacuum for 5 seconds.
    a. If vacuum is present on the splicing table, go to step 15.

       — OR —

    b. If air is blowing **out** of the splicing table, press the appropriate **Printer Power Off if in Local** switch on the power control panel. This shows that the customer’s AC phasing is not correct

       Note: If the printer phases are incorrect, have the customer correct the power connection to the printer.

Table 959. Powering on the Printer in Diagnostic Mode (continued)

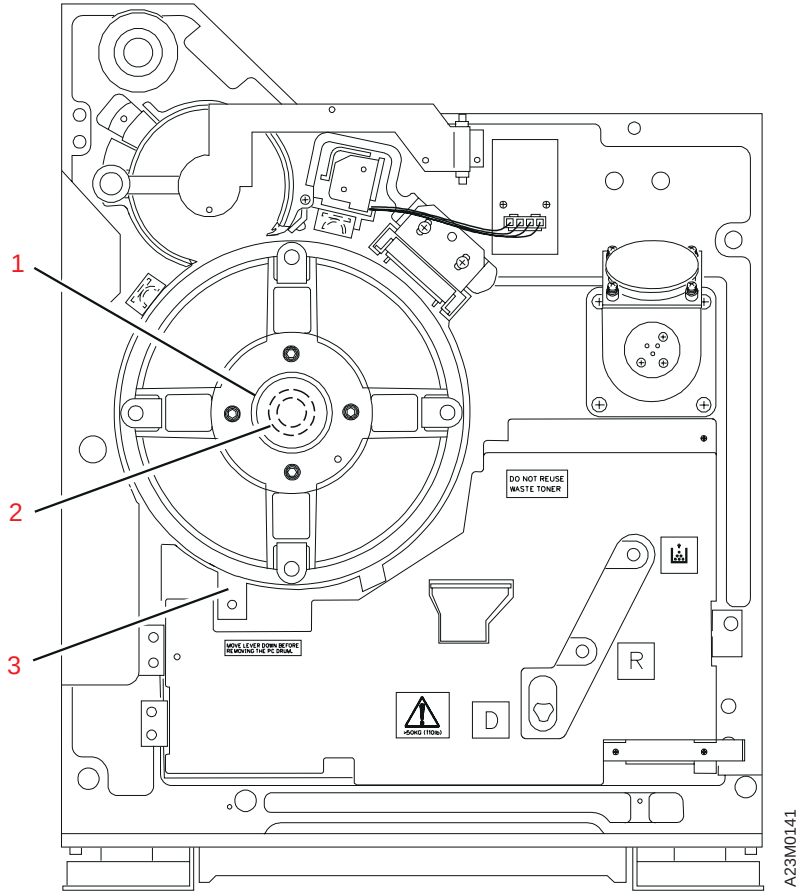


50-60 Hz Power Cord Connection

14. Repeat step 10 through step 13 to verify the power phases and that there is vacuum at the splice station.
15. Press the appropriate **Printer Power Off if in Local** switch on the power control panel.
16. Install the phase rotation label that shows RECEPTACLE (P/N 6226855) on the customer's power receptacle.
17. Reinstall the blower cover **(13)**.

Check the Drum Gaps and Install the PC Drum

Table 960. Checking the Drum Gaps and Installing the PC Drum



Developer (Front)

Note: You removed the drum cover in step 9 on page 3671.

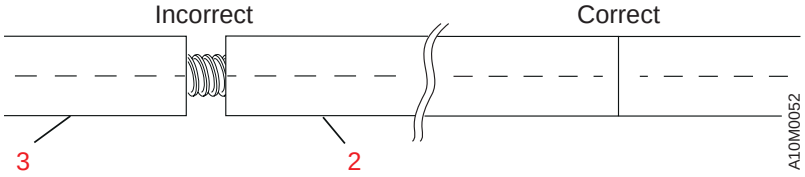
1. Remove the developer front seal/gauge **(3)** if it is installed.
2. Remove the drum knob **(1)** from the end of the drum shaft **(2)**.
3. Use a lint-free cloth to clean the drum shaft inside the printer.

Attention: Ensure that you check the gaps from the developer to the PC drum tool before you install the drum. The drum is very expensive to replace.

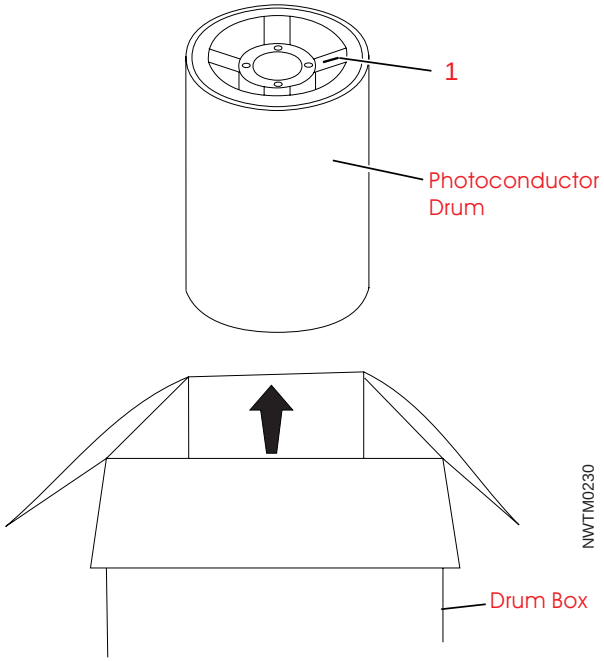
4. Perform the Developer Checks and Adjustments procedures.
5. Run 11 from the maintenance panel to load the retractors
6. Use a lint-free cloth to clean the threads and the shaft on the PC drum shaft extension.

Attention: Dirt particles may damage the threads and make removal of the PC drum shaft extension difficult.

Table 960. Checking the Drum Gaps and Installing the PC Drum (continued)



Photoconductor Drum Shaft Extension



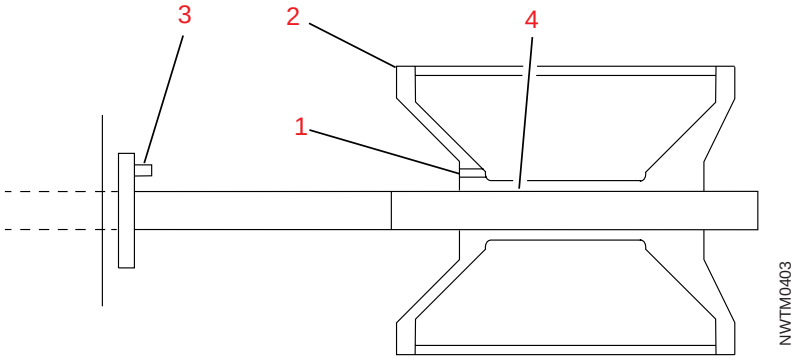
PC Drum Pin Location Hole

7. Hand-tighten the PC drum shaft extension **(2)** to the PC drum shaft **(3)**.
8. See Developer (Front) and lower the scavenger roll lever **(3)**.

Attention: Do not touch the photoconductor drum surface; handle the drum from the inside only and wear plastic gloves. The PC drum is easily scratched and is sensitive to all contaminants, including saliva and fingerprints. Do not expose the photoconductor drum to light for more than 5 minutes.

9. Remove the photoconductor drum from the storage box and save the box for use when you are servicing, relocating, or discontinuing the printer.
10. Use a pencil or a permanent marker to mark the spoke on the drum **(1)** where the pin is located.

Table 960. Checking the Drum Gaps and Installing the PC Drum (continued)



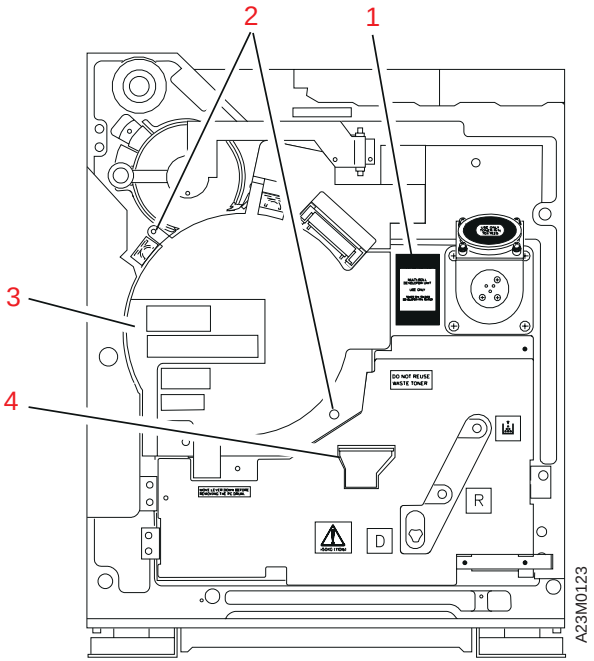
Photoconductor Drum and Pin Location

11. Hold the PC drum **(2)** from the inside and insert the PC drum onto the PC drum shaft extension **(4)**.
12. Align the PC drum hole **(1)** in the PC drum **(2)** with the pin **(3)**.
13. Slide the PC drum **(2)** toward the rear of the printer frame until the PC drum hole **(1)**slides over the pin **(3)**.
14. Remove the PC drum shaft extension. Store it in the control unit, or where other tools are stored.
15. Reinstall the drum knob.
16. Raise the scavenger roll lever.
17. Reinstall the front seal/gauge.
18. Locate label Caution (P/N 24H3337). Install the label on the printhead casting.

Hint

When you install the front seal, use a small screwdriver or pointed object to gently push the foam in and around the 3 magnetic rolls. If the foam seal is not snugly in place, developer mix will spill out during operation.

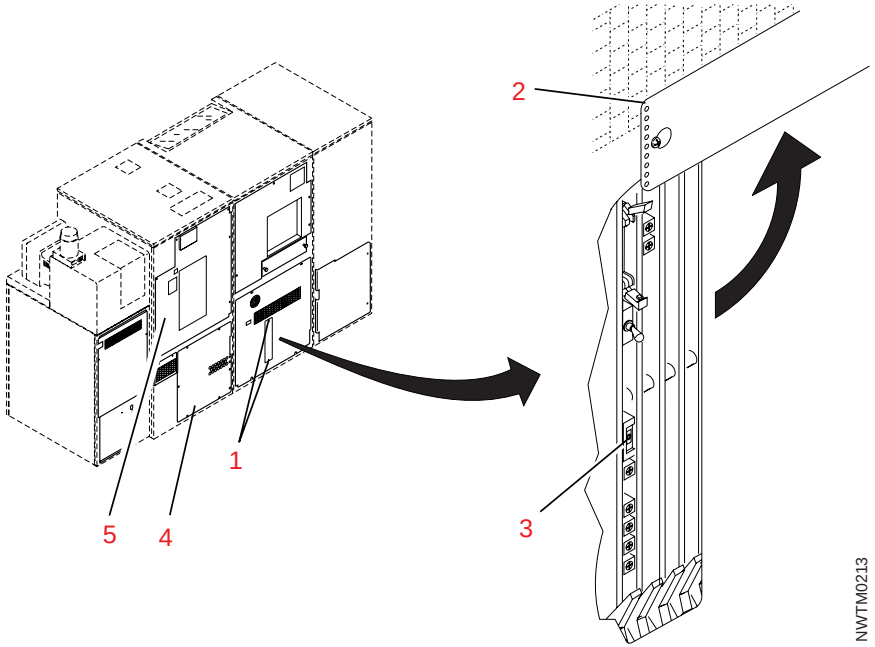
Table 960. Checking the Drum Gaps and Installing the PC Drum (continued)



Drum Cover Reinstallation

19. Reinstall the PC drum cover **(3)** and install the 2 screws **(2)**.

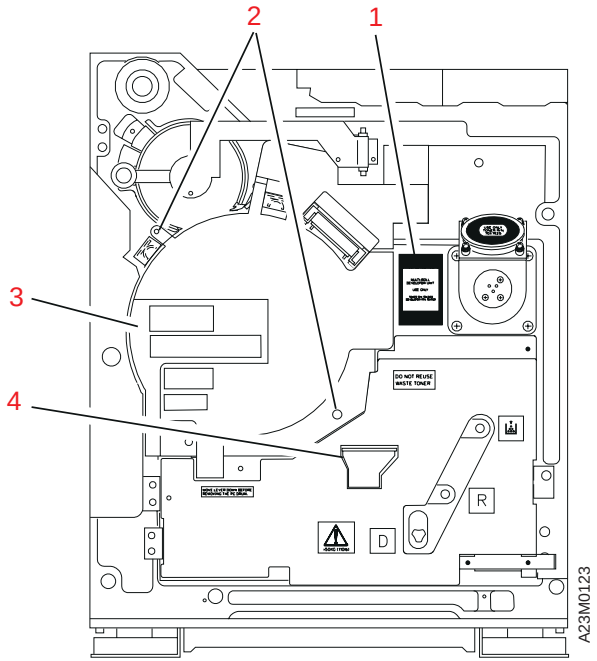
Table 960. Checking the Drum Gaps and Installing the PC Drum (continued)



B1J11 Card Location and Digital Switch

20. Change the diagnostic function switch (thumbwheel) on the B1J11 Card to **0**.
21. Set the **Printer Local/Remote** switch to Local and press the **Printer Power On if in Local** switch.

Table 960. Checking the Drum Gaps and Installing the PC Drum (continued)



Drum Cover Reinstallation

22. Install the developer mix **(4)**. See “Change Developer Mix” in the *Operator’s Guide*.

Notes:

a. Use the developer mix that is sent with each machine; it matches the mix counter. If you install new mix, adjust the toner control card.

b. Install toner only when the `ADD TONER` message appears on an Out of Supplies window. See the *Operator’s Guide*.

23. Install toner label **(1)**.

Check the Printhead Alignment

Single Beam Printhead

1. Perform the Step M2 Mirror Check procedure but do not adjust the printhead at this time.
2. If the Mirror 2 Check is not good, perform the entire ″Printhead Check and Adjustment″ beginning with Step Zero Beam Alignment Check.

Two Beam 240 Printhead

1. Perform the entire Printhead Checks and Adjustments procedure.

Two Beam 240/300 Printhead

1. Perform the entire Printhead Checks & Adjustments procedure.

Check Vacuum System

1. If you are installing the printer at a location above 4000 feet in altitude, the vacuum system may need to be adjusted. See Preheat Platen Vacuum Adjustment.
2. For Model ID2 - Adjust the preheat platen vacuum to 178.0±15.0 mm (7.0±0.6 in.)

Check and Set NVS Memory

Check all the NVS memory values and set them correctly for your model. See Read From or Write to Memory (Position 2).

Check the Toner Control Program

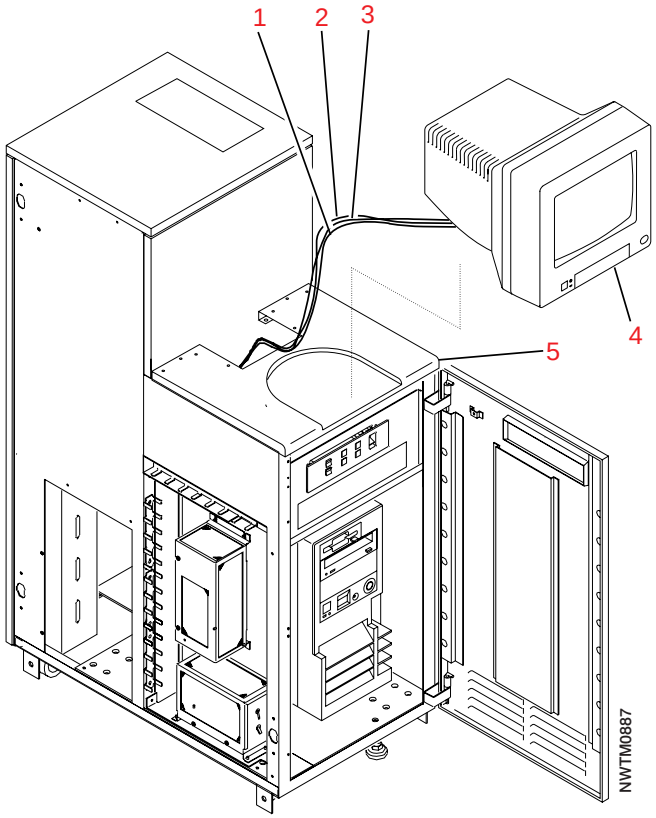
Ensure that the toner control program value is set correctly. See Read From or Write to Toner Control Program Memory (Position 2).

Continue Installation Procedures

If you are installing a duplex printing system, go to Installing a Duplex System Printer 1

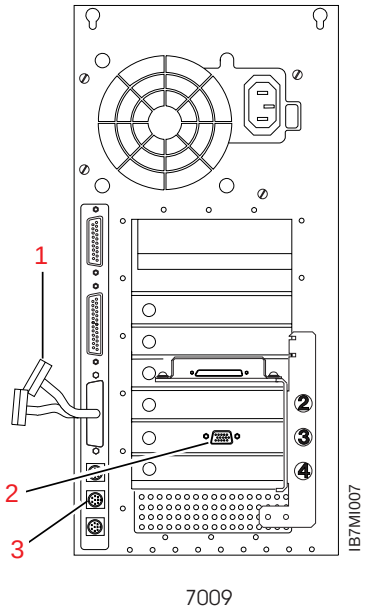
Install the Display/Touch Screen on the Control Unit

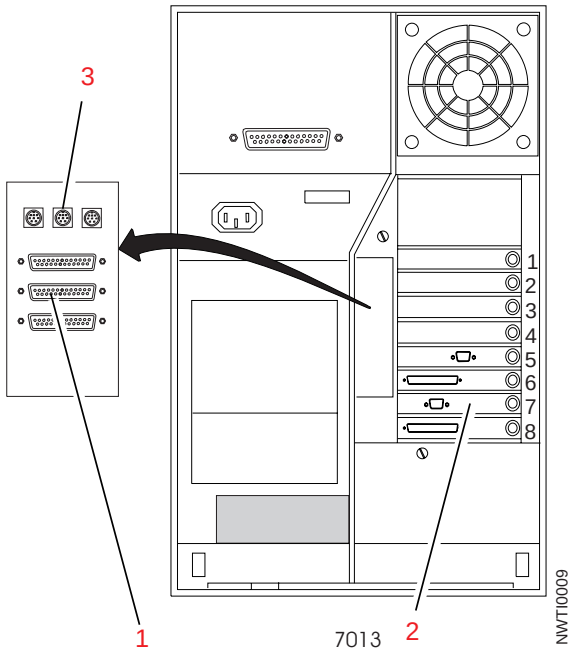
Table 961. Installing the Display/Touch Screen



1. If the display base is not already installed, attach it to the bottom of the display with the screw already in the bottom of the monitor.
2. Discard the power cord that comes with the Display/Touch Screen monitor if one is supplied.
3. Discard the 9 to 25-pin connector that comes with the Display/Touch Screen monitor.
4. Set the Display/Touch Screen monitor **(4)** onto the control unit shelf **(5)**.
5. Thread the signal cables **(2)** and **(3)** through the cable access hole in the top of the Display/Touch Screen shelf and down to the rear of the controller.
6. Locate the power cord that is attached to JA05 of the AC control box. Thread the loose end of the power cord up through the cable access hole and attach it to the back of the monitor.
7. If the controller you are installing is a
   - 7009 or 7013 - go to step 8.
   - 7012 - go to step 10.
   - 7025 or 7043 - go to step 12.

Table 961. Installing the Display/Touch Screen (continued)

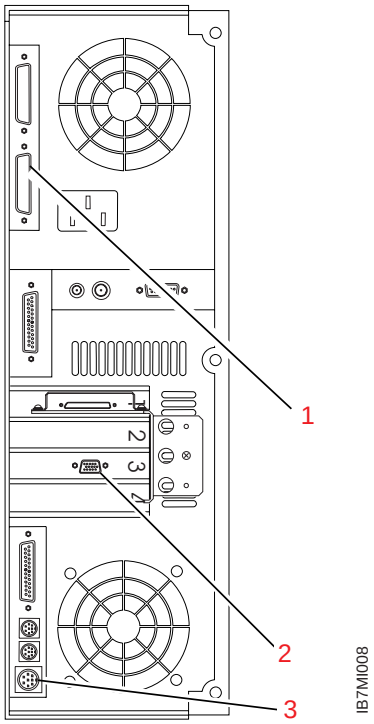




8. Plug the 15 pin Display/Touch Screen cable into the connector **(2)** . (The adapter card in slot 3 or slot 7, depending on which controller you have.)
9. Connect the cable with the 9-pin connector to the 9 to 25 pin connector located in jack **(1)** on the back of the controller .

   Note: The 9-pin connector must be connected to Serial Port 2 (not Serial Port 1) or the Display/Touch Screen monitor will not work.

Table 961. Installing the Display/Touch Screen (continued)

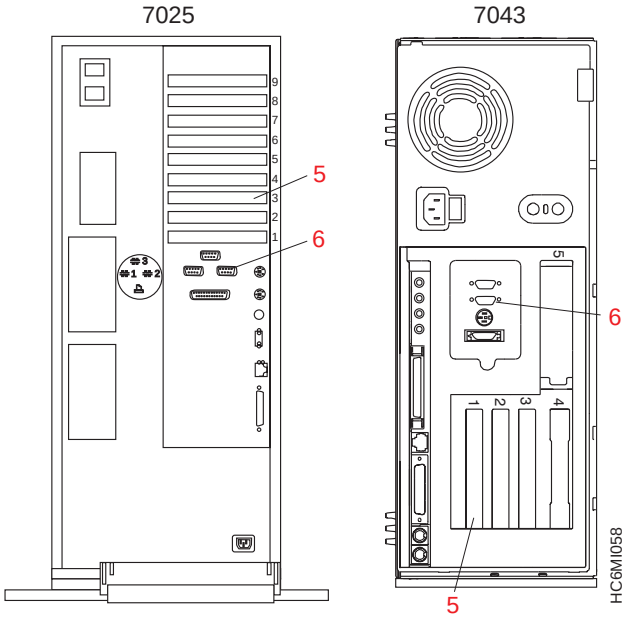


7012

10. Plug the 15 pin Display/Touch Screen cable into the connector **(2)** . (The adapter card in slot 3).
11. Connect the cable with the 9-pin connector to the 9 to 25 pin connector located in jack **(1)** on the back of the controller .

    Note: The 9-pin connector must be connected to Serial Port 2 (not Serial Port 1) or the Display/Touch Screen monitor will not work.

Table 961. Installing the Display/Touch Screen (continued)

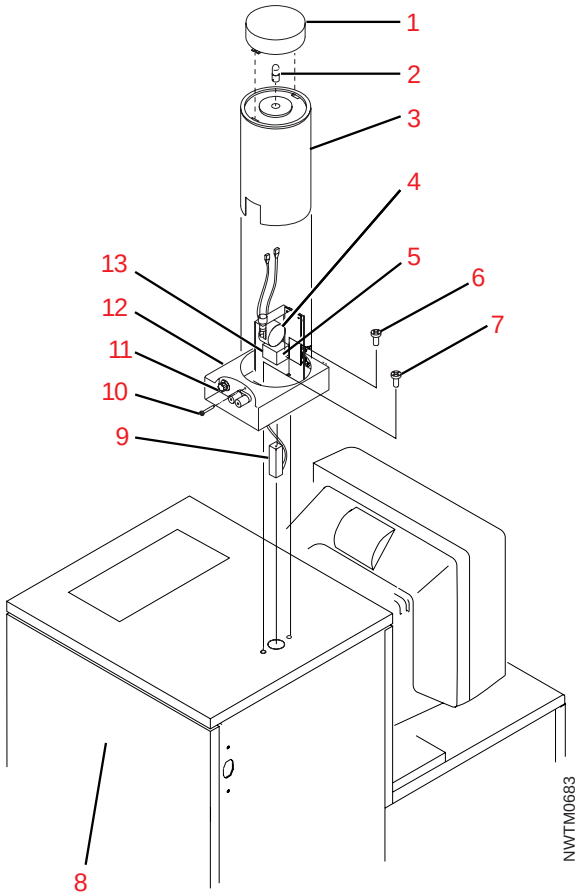


12. Plug the 15 pin Display/Touch Screen cable into the connector **(5)**. (The adapter card in slot 1 or slot 3, depending on which controller you have.)
13. Connect the cable with the 9-pin cable into serial port 2**(6)** .

    Note: The 9-pin connector must be connected to Serial Port 2 (not Serial Port 1) or the Display/Touch Screen monitor will not work.

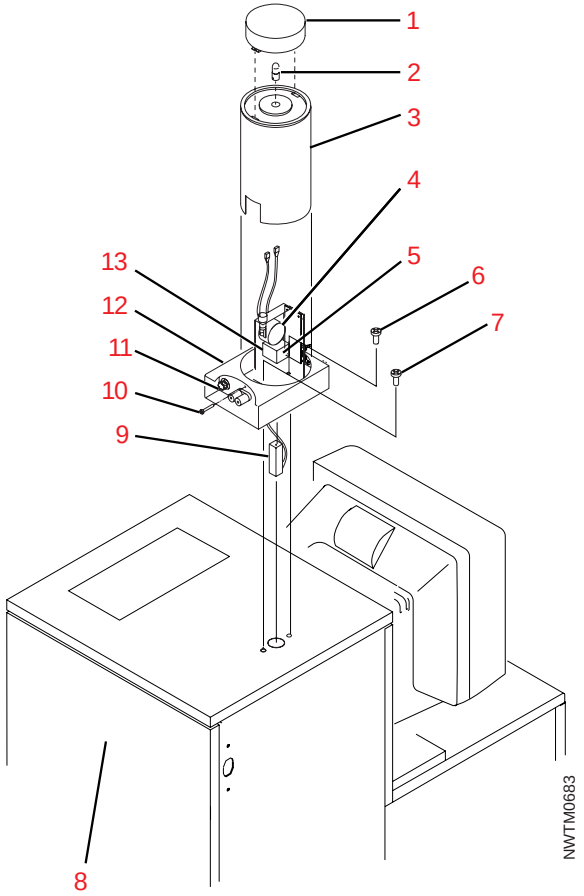
Install the Operator Alert Assembly on the Control Unit

Table 962. Installing the Operator Alert Assembly



1. Open the rear cover of the control unit..
2. Start the screws (P/N 53F1663) **(6)** and **(7)** into the control unit approximately 3 turns.
3. Thread the operator alert cable **(9)** through the large hole in the top cover.
4. Examine the underside of the base **(12)**. It has keyhole slots for the mounting screws. Be sure to position this assembly so that the controls are facing the *rear* of the printer.
5. Place the keyhole slot in the base **(12)** over the front **(6)** and rear **(7)** screws.
6. Slide the base **(12)** to the front of the printer.
7. Carefully raise the sleeve **(3)** to gain access to screws **(6)** and **(7)**.
8. Tighten the mounting screws **(6)** and **(7)**.

Table 962. Installing the Operator Alert Assembly (continued)



Note: Be careful not to cut any wires when you lower the sleeve onto the base.

9. Install the sleeve **(3)** with the slot to the rear.
10. Install the screw **(10)**. If necessary to start the screw, rotate the sleeve slightly.
11. Connect the ALP2 **(9)** connector to the ALJ2 connector that is located under the top cover of the control unit.
12. Close the rear cover.
13. If the customer prefers, attention alerts can be relayed to a remote operator's terminal or other device, see External Contacts .

Table 962. Installing the Operator Alert Assembly (continued)

External Contacts

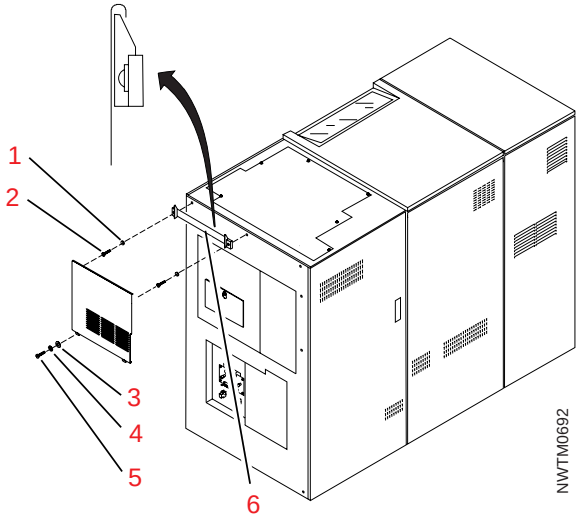
The operator alert assembly comes with a set of external contacts to allow an alert signal of the customer's choice to be attached. The posts accept standard dual or single banana plugs and leads terminated with spade lugs or stripped and bare.

The recommended voltage for the post is 12 V dc at a maximum current of 5 ampere. The contacts have a 5-A fuse.
There is no voltage present at the binding post. The customer is responsible for supplying power to run any external device.

The two contacts of the binding post are shorted together with the closing of a relay contact. The relay is turned on only when the lamp or alarm is operating during an error condition. The relay is reset or turned off in the same manner the operator alert lamp is reset.

Attach Control Unit Frame to Printer

Table 963. Attaching the Control Unit to the Printer

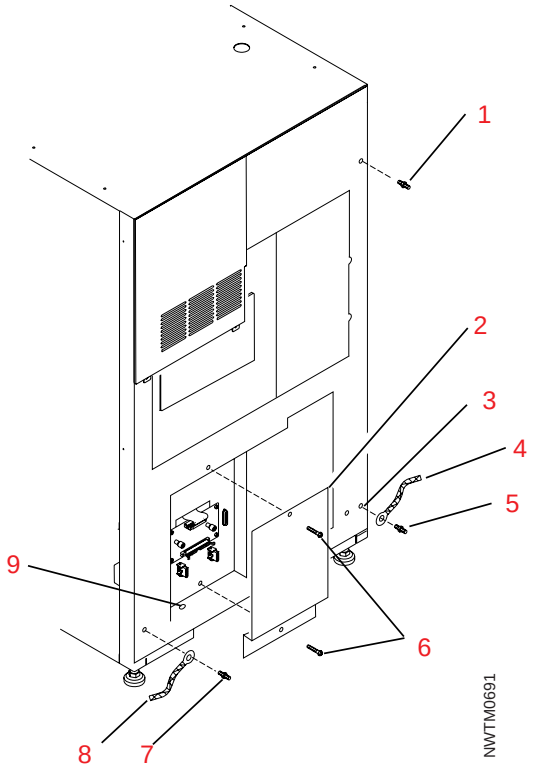


Printer Right End Cover

Note: All screws, star washers, flat washers, nuts, single shoulder stud bolts, and double threaded shoulder stud are shipped in the installation kit.

1. SHUTDOWN AND POWER OFF THE PRINTER.
2. Install the bracket **(6)** (P/N 30H6667) with the two screws **(2)** (P/N 45G2364) and washers **(1)** onto the right end of the printer frame.
3. Lower the printer right end cover into position so that the lip on the inside of the cover (P/N 30H6662) fits over the bracket **(6)** as shown.
4. Secure the lower front of the printer right end cover with the screw **(5)** (P/N 45G2364), lock washer **(4)** and washer **(3)**.

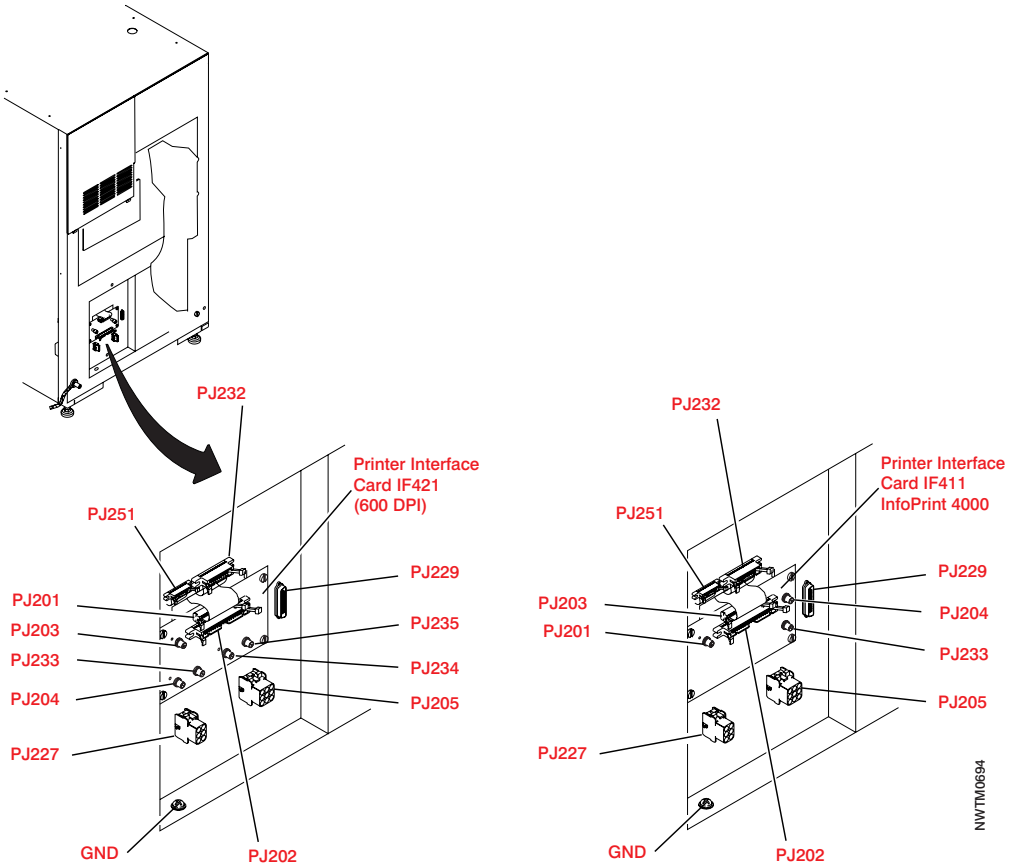
Table 963. Attaching the Control Unit to the Printer (continued)



Cable Access Cover Removal

5. Remove the 2 screws **(6)** on the printer to remove the cable access cover **(2)**.
6. Reinstall the 2 screws **(6)**.
7. Store the cable access cover in the control unit.
8. Move the control unit so that it is close to the right side of the printer frame.
9. Install the double threaded shoulder stud **(1)** (P/N 30H3032).
   Note: The shorter end of the shoulder stud goes into the printer.
10. Locate the ground straps **(8)** and **(4)** attached to the floor of the control unit and attach the free ends to the printer with star washers and double threaded studs (P/N 30H3032) **(7)** and **(5)**.

Table 963. Attaching the Control Unit to the Printer (continued)



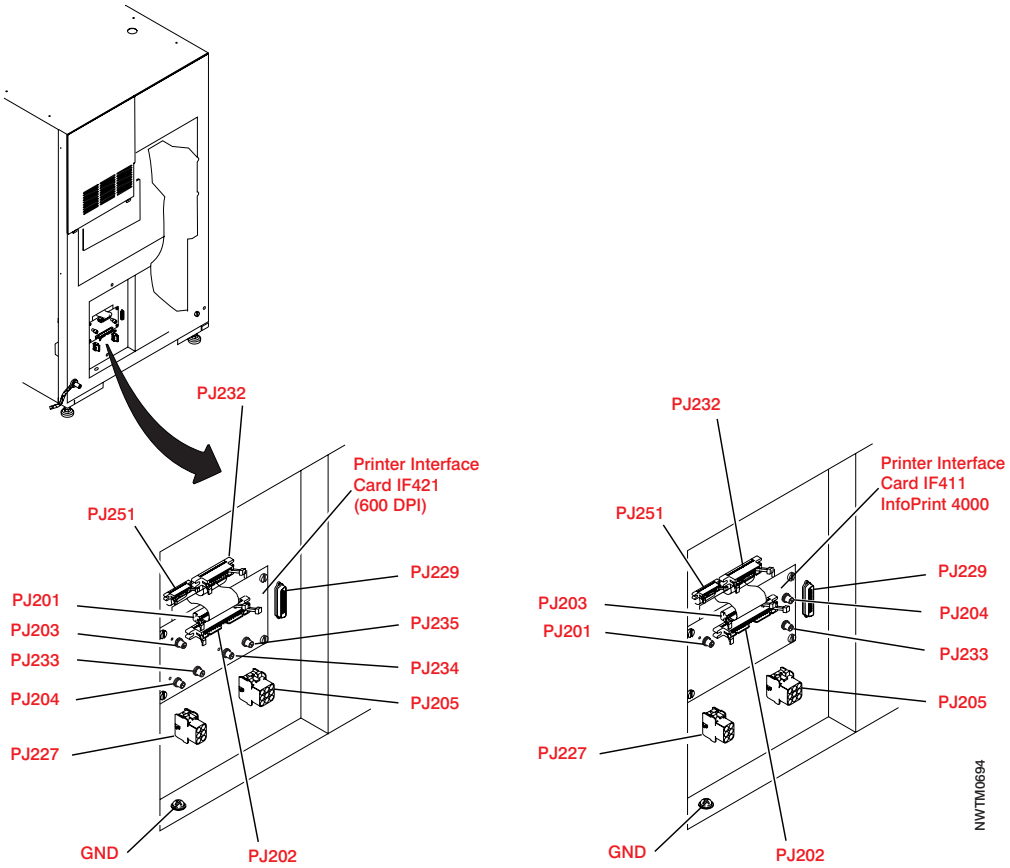
Control Unit Interface Connections

11. Connect the three coax cables, J203, J204, and J233..
12. Connect the 50-pin flat ribbon cable, J202.

    Note: The J202 connector may not be polarized and can be installed incorrectly. The side of the cable with the brown (not tan) stripe should go toward the rear of the printer.
13. Connect the 9-pin Mate-N-Lock connector, PJ205.
14. Connect the 6-pin Mate-N-Lock connector, PJ227.
15. Connect the 20-pin connector, PJ232 to the new operator panel located on the printer left front cover.
16. Connect the 36-pin connector, PJ229.

    Note: The stacker disable plug is no longer required if you are installing a postprocessing device. The pre/postprocessing configuration will cause the stacker to drive down when required.
17. Connect the ground wire.

Table 963. Attaching the Control Unit to the Printer (continued)



Control Unit Interface Connections

18. If the Enhanced Toner Loading feature **is installed**,connect the cable from PMJ12 on the MIC to connector PJ251 on the Printer Interface Card IF421/IF411. This connector may be labeled as PJ1018 on some printers and be positioned differently.
19. Align the holes in the control unit with the studs installed in steps 9 and 10.
20. Align the front of the control unit with the front of the printer.

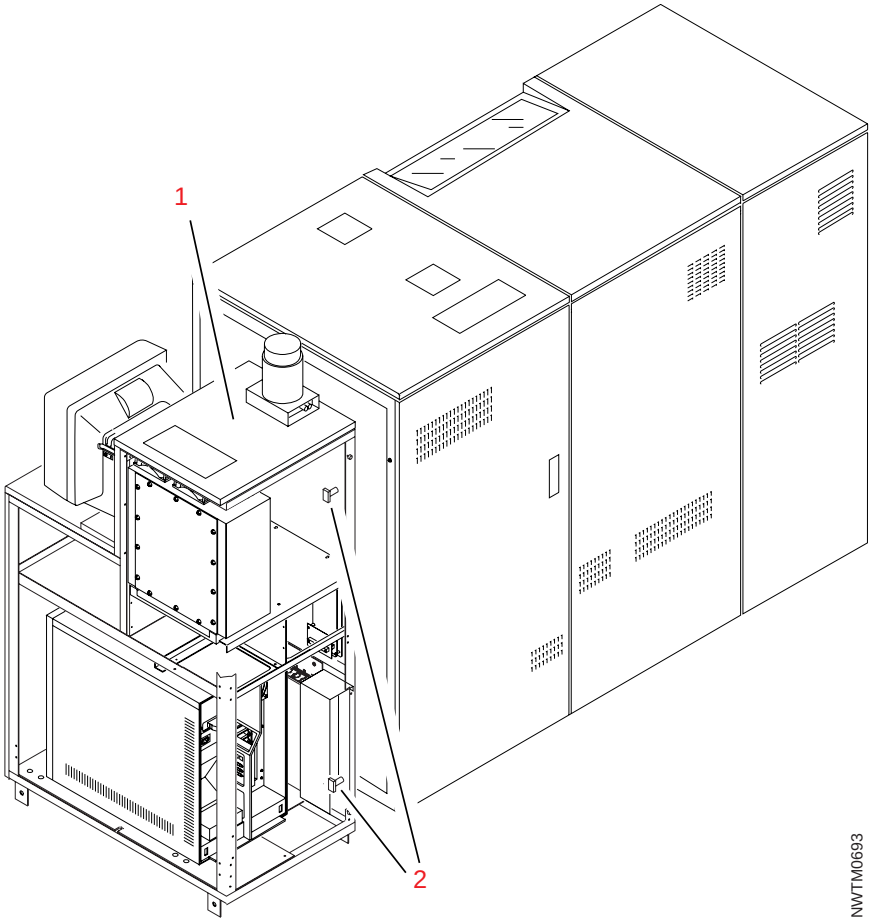
Notes:

a. It may be necessary to adjust the leveling pads for best cover alignment.

b. For installation in Japan, install the two plastic cups under the leveling pads.

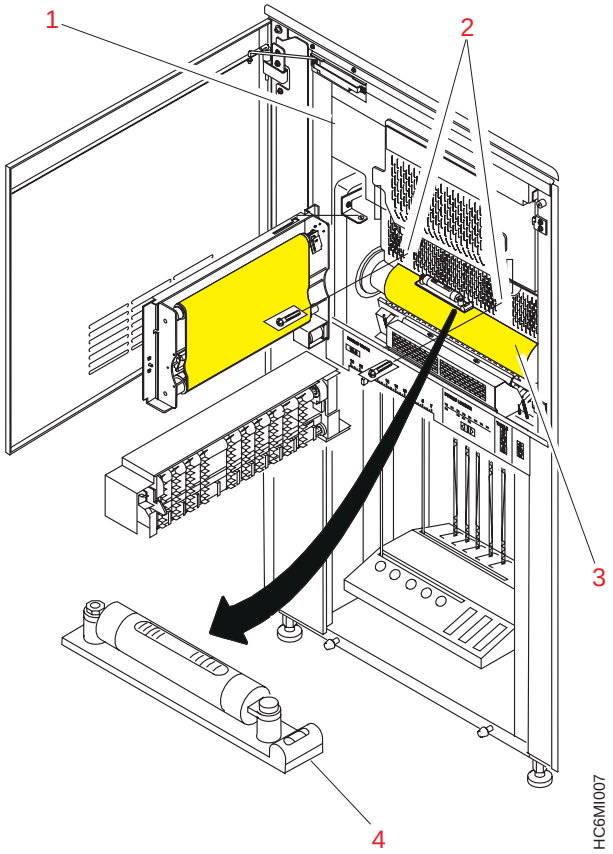
Attention: Ensure that the cables are not pinched when the control unit is closed.

Table 963. Attaching the Control Unit to the Printer (continued)



21. Join the rear of the control unit to the printer using the 2 knobs **(2)** (P/N 65F6190) to screw onto the studs in the printer frame.
22. Join the front of the control unit to the printer in the same way. Screw the knob onto the stud in the lower front corner of the printer.

Table 963. Attaching the Control Unit to the Printer (continued)



Printer Hot Roll Area - Leveling Procedure

23. Ensure that the printer is still level. See step 8 on page 3682 through step 14 on page 3685.
24. When the printer is level, remove the paper from the hot roll **(3)**.
25. Reinstall the hot roll shield **(1)** and 2 screws **(2)**.
26. Go to Change the Fuser Oil Filter Screen.

Installing a Duplex System Printer 1

DANGER

<12> During an electrical storm, do not handle channel cables, connectors, or power cords.

Note: If the printer to be used is to be field converted from a simplex printer, follow the Conversion Installation Instructions (P/N 04H0696) instead of the procedures in this section.

If you need help in determining which is Printer 1 and which is Printer 2, go to Distinguishing Printer 1 from Printer 2.

This section covers the mechanical and electrical installation of Printer 1 in a duplex system. You will be using most of the procedures that are described in Installing a Simplex Printer or Duplex System Printer 2.

Table 964. Procedures for Installation of Printer 1

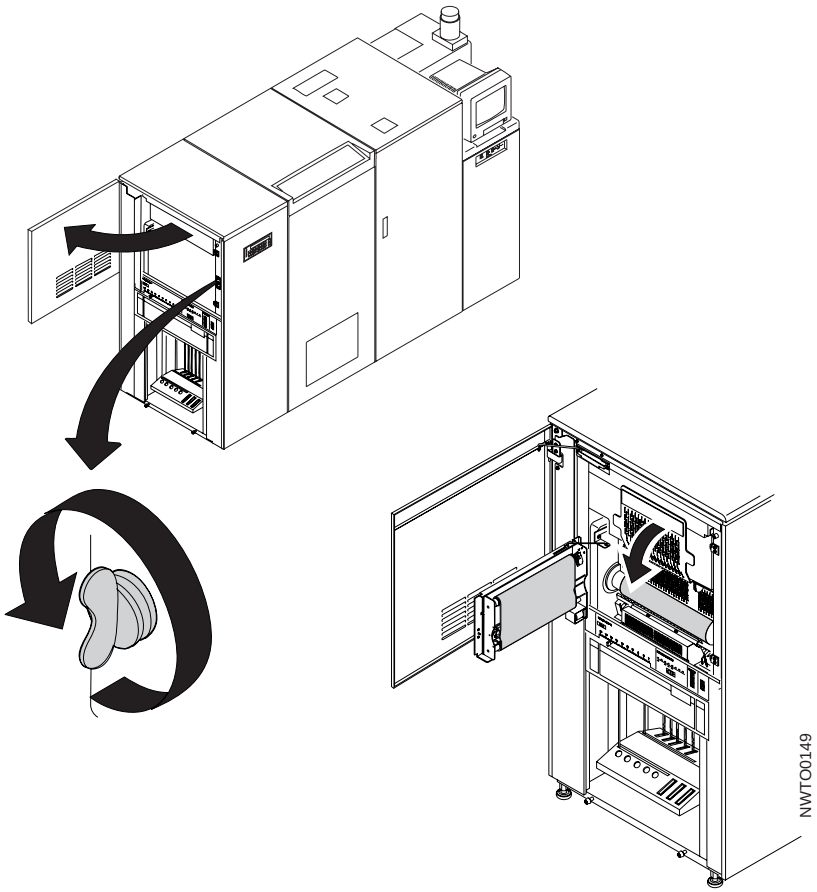
Step	Procedure	Reference
Follow the procedures listed in the table in order to install Printer 1.		
1	Check Printer and Control Unit for Damage	3667
2	Remove Packing Tape	3670
3	Remove Input Bin and Shipping Brace	3673
4	Connect AC Power Cord	3674
5	Level Printer	3679
6	Check Voltage Jumpers	3687
7	Install Preheat Control	3688

Table 964. Procedures for Installation of Printer 1 (continued)

Step	Procedure	Reference
8	Install Stacker Switch Cover	3691
9	Install Operator Panel	3696
10	Remove Printer Right Top Cover	3698
11	Install Printer Right End Cover	3743
12	Install Operator Alert Assembly on Control Unit	3740
13	Attach Control Unit Frame to Printer	3743
14	Change Fuser Oil Filter Screen	3720
15	Install Oil Pan	3751
16	Install Labels	3721
17	Power On the Printer	3725
18	Install PC Drum	3729
19	Install Printhead M1 Mirror Stabilizer Kit	0
19	Check Printhead Alignment	3735
20	Check Vacuum System	2189
21	Check and Set NVS Memory	1611
22	Check Toner Control Program	1619
23	Install Additional Duplex System Hardware	3753

Install Oil Pan

Table 965. Install Oil Pan



Stacker End Cover

If the oil pan is already installed, disregard this procedure.

If an oil pan is supplied with the installation kit, install it using this procedure.

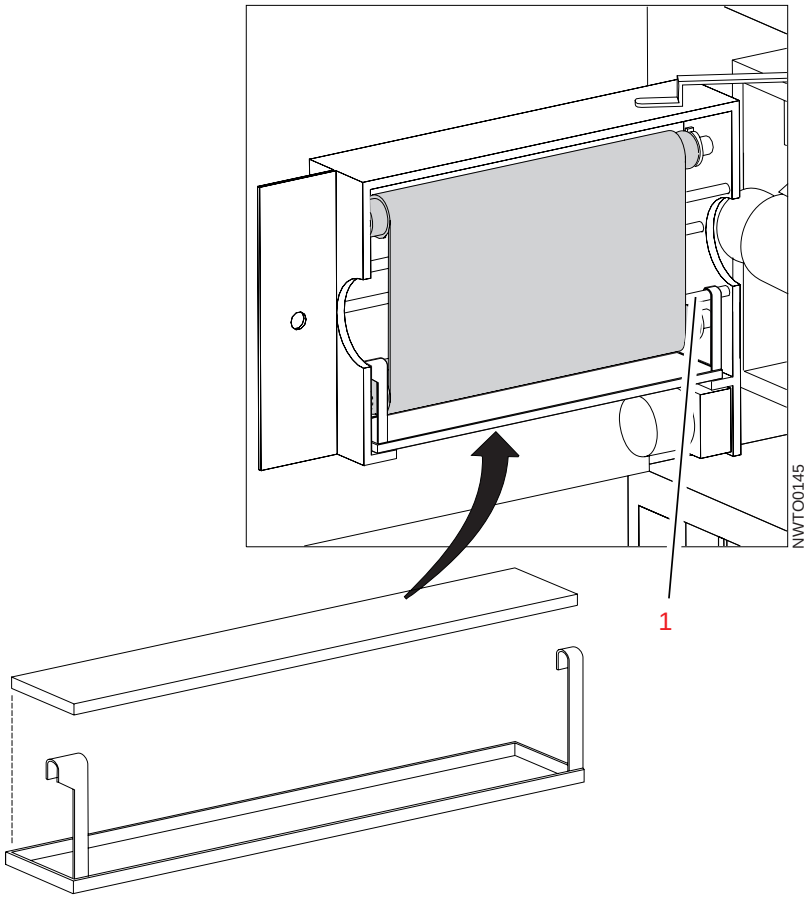
CAUTION:
<70> The oiler belt, oiler wick roll, and their environments are high temperature areas. Be very careful when working in these areas.

1. Open the stacker end cover.

   Note: When the oiler-belt is opened, the fuser begins to cool down immediately and the printer operator panel message may change to *OILER GATE OPEN*.
2. Turn the wing nut counterclockwise to release the oiler-belt gate.
3. Open the oiler-belt gate.
4. Allow the printer to cool down for at least 20 minutes before proceeding.
5. Lower the hot roll shield.

Table 965. Install Oil Pan (continued)

6. Remove one of the absorbent pads (P/N 30H6594) from the plastic wrapper and lay it in the oil pan.
7. Install the oil pan by hooking the oil pan over the lower oiler belt support shaft **1**. Ensure that the bottom of the oil pan sits on the shelf below the oiler belt as shown.
8. Raise the hot roll shield.
9. Close the oiler-belt gate and secure it in place by turning the wing nut.
10. Close the stacker end cover.
11. Instruct the operators to check the absorbent pad weekly to see if it needs to be changed. Depending on printer usage, the pad will last from one week to several months.
12. Show the operator how to remove and replace the oil pan and absorbent pad.



Oil Pan Installation

Installing Additional Duplex System Hardware

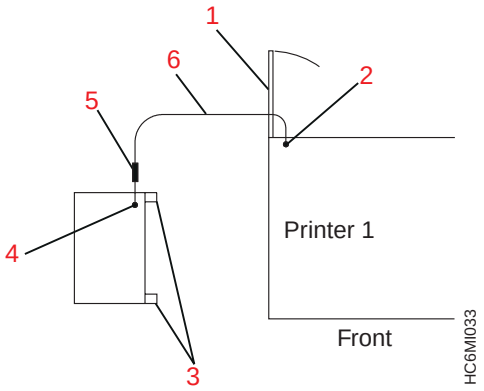
DANGER

<12> During an electrical storm, do not handle channel cables, connectors, or power cords.

This section covers additional hardware items that are required for the installation of a duplex system.

Install the Buffer/Flipper Unit

Table 966. Installing the Buffer/Flipper Unit



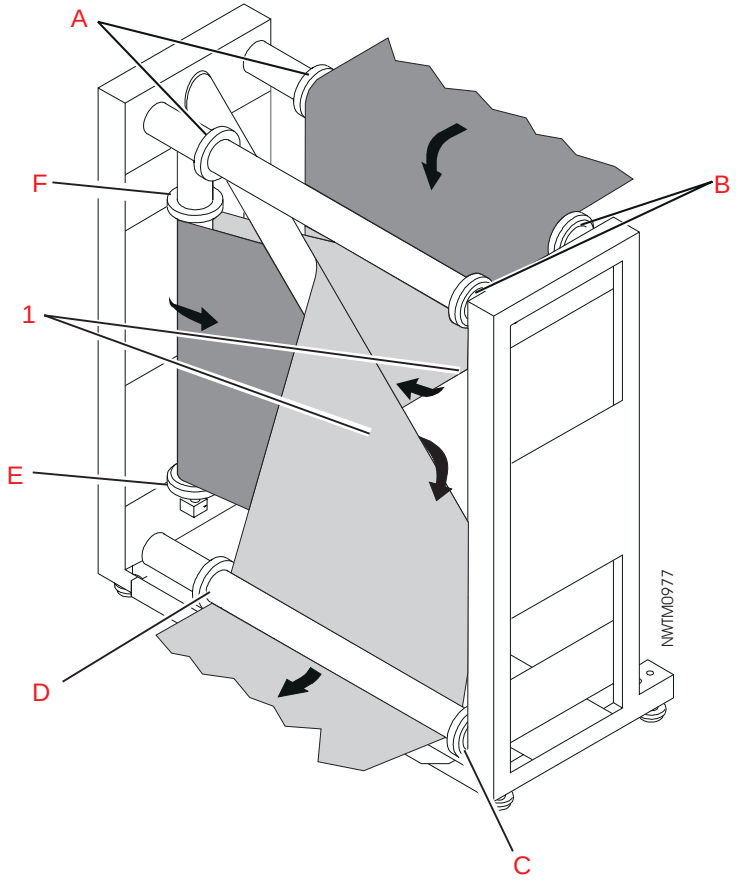
Buffer/Flipper Ground Wire Insulation

The Buffer/Flipper and the printers run best when the forms that are leaving the flipper, line up with the tractors of Printer 2. To achieve this alignment, do the following:

1. Carefully position the Buffer/Flipper in the footprint area that is shown in the figure:
   - Inline configuration, see Figure 1 on page 3659.
   - Left-angle configuration , see Figure 2 on page 3660.

   Ensure that the Buffer/Flipper feet **(3)** always face the left end of Printer 1.

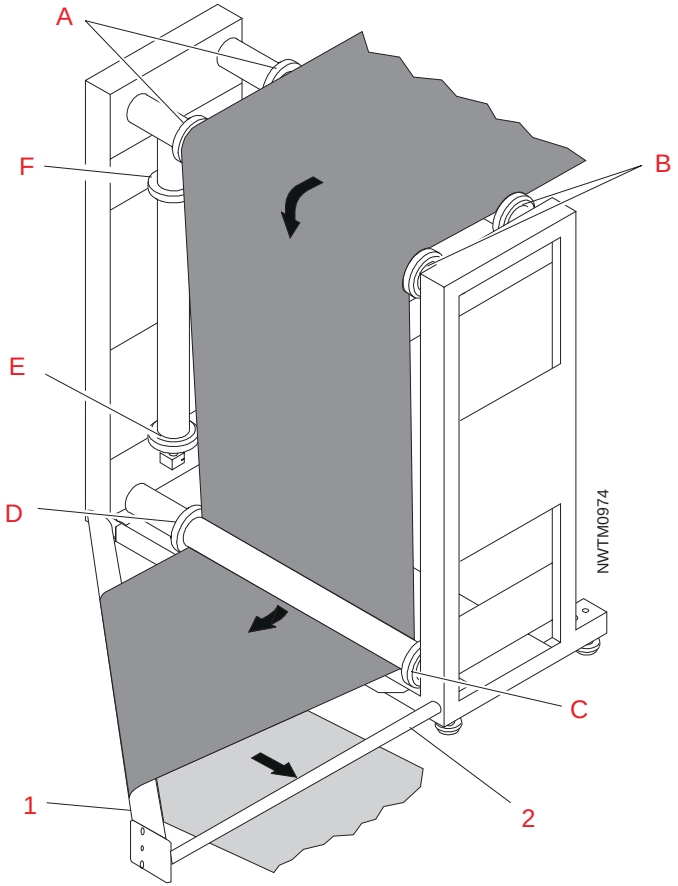
Table 966. Installing the Buffer/Flipper Unit (continued)



Threaded Inline Configuration

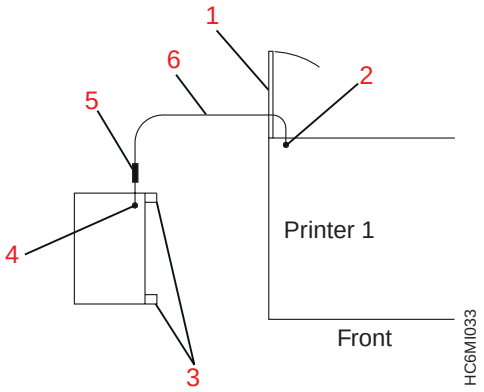
2. For the left-angle configuration, remove the longer of the two cross bars, **(1)**. Install the bar **(1)** as shown inside the Buffer/Flipper frame.

Table 966. Installing the Buffer/Flipper Unit (continued)



3. Install the bar **(1)** as shown.
4. Install the support bar **(2)** (P/N 57G6598) from the frame to the end of the crossbar just installed.

Table 966. Installing the Buffer/Flipper Unit (continued)



5. Connect the Buffer/Flipper ground wire **(6)** (P/N 45G2045 to Printer 1 with the screw and lockwasher **(2)** that connect the printer ground strap to the printer frame.

   Note: The Buffer/Flipper ground disconnect **(5)** should be closer to the Buffer/Flipper than to the printer.
6. Connect the ground wire to the Buffer/Flipper with the screw and lock washer **(4)** provided on the Buffer/Flipper for this purpose.
7. Go to Adjust the Collars.

Adjust the Collars

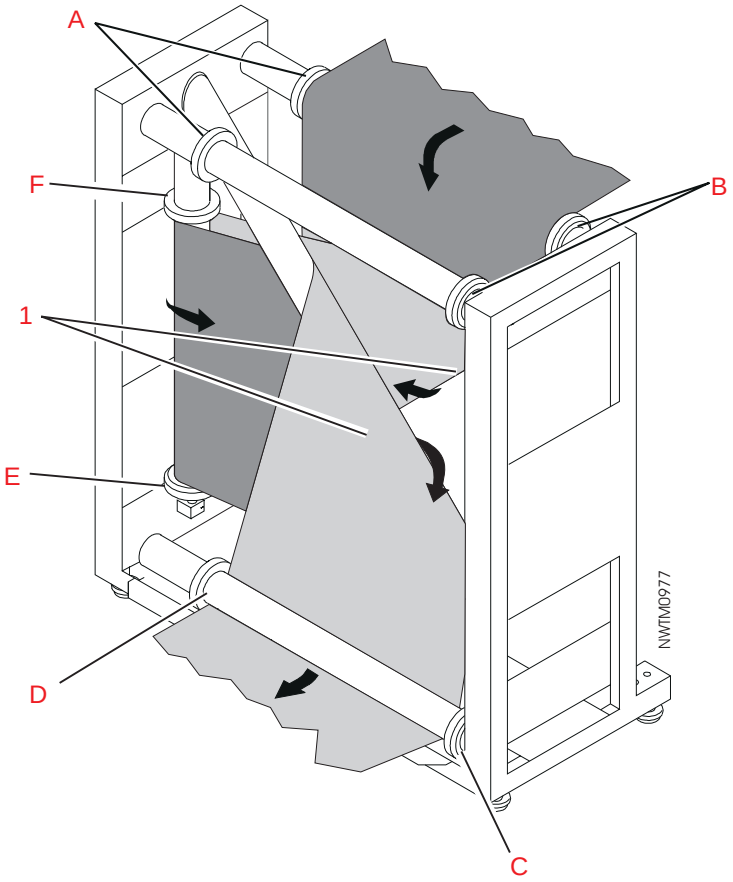
Use Table 967 to position the collars on the Buffer/Flipper. Measure from the front edge of the bar to the inside edge of the collar.

Table 967. Measurements for Collar Positions in Millimeters (Inches)

Collar	Inline	Left Angle
A	518 (20.4)	635 (25)
B	48 (1.9)	166 (6.5)
C	38 (1.5)	166 (6.5)
D	508 (20)	635 (25)
E*	173 (2.9)	173 (2.9)
F*	617 (24.3)	617 (24.3)
Note: * Measure from bottom of the Buffer/Flipper frame, not from the floor.		

Inline Configuration:

Table 968. The Buffer/Flipper Unit Inline Configuration

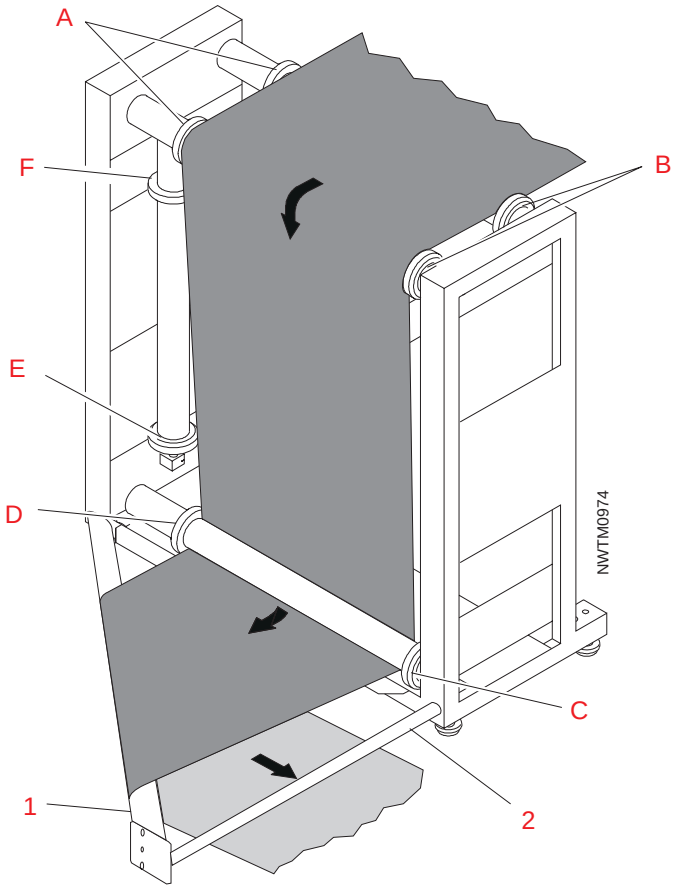


Threaded Inline Configuration

As the form enters the flipper, its rear edge should run close to collar **A**, slightly above collar **E**, and slightly to the rear of collar **C**.

Left-Angle Configuration:

Table 969. The Buffer/Flipper Unit Left-Angle Configuration



Threaded Left-Angle Configuration

As the form enters the flipper, its rear edge should run close to collar **A**. As the form leaves the 45° bar **(1)**, the edge should line up with the tractors of Printer 2.

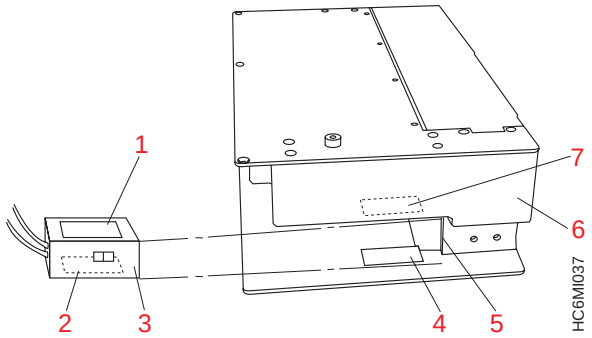
Install the Urge Unit (Hinged-Top, Pearl White Unit Only)

For the Fixed-Top Black Urge Unit, go to Install the Urge Unit (Fixed-Top Black Unit Only).

Notes:

1. Some preprocessing devices require a second urge unit and supply that urge unit with the preprocessing device. If two urge units are used: install the two-roll urge unit that is supplied with the duplex system in Printer 2, and the one supplied with the preprocessing device in Printer 1. If only one urge unit is required, install it in Printer 2.

Table 970. Installing a Two-Roll Urge Unit



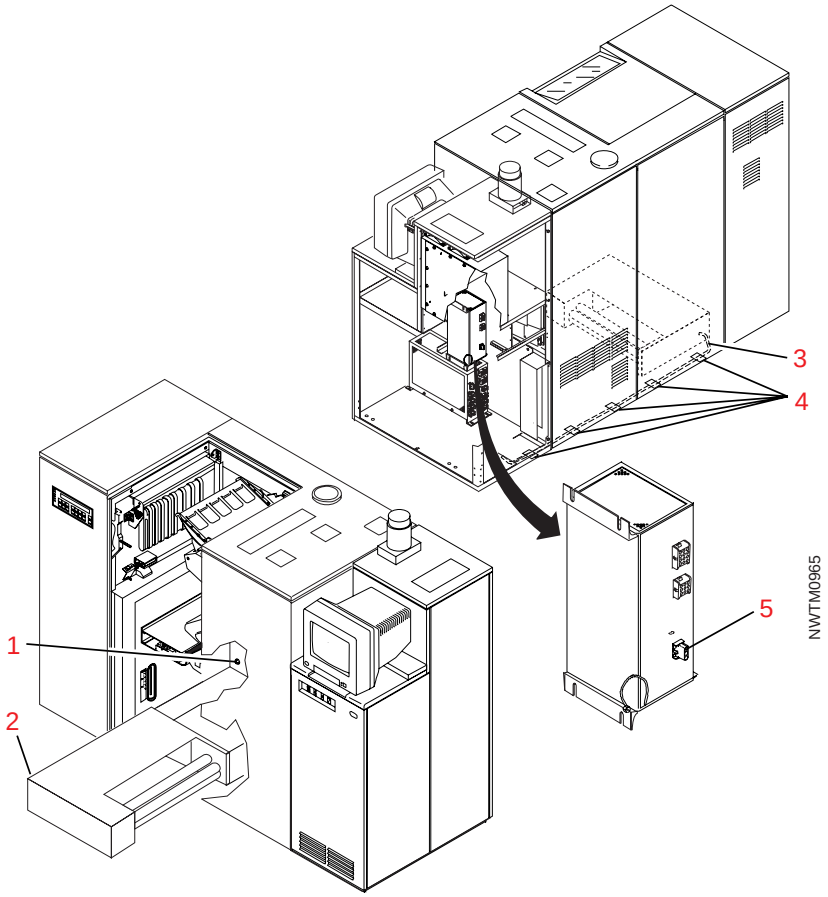
Power Switch Box, Two-Roll Urge Unit

1. Power Off the printer.
2. Locate the urge unit power switch box **(3)**.
3. Locate the velcro strips. The switch box is mounted to the urge unit with velcro strips.
4. To determine where to place the velcro strips, hold the switch box flush with the surface **(6)** of the urge unit. The right side of the switch box should be touching the edge **(5)**.
5. Separate the two halves of the velcro and place the 2 looped halves in positions **(4)** and **(7)** on the urge unit.
6. Place the 2 hooked halves in positions **(1)** and **(2)** on the switch box.
7. Surround the switch box with a piece of paper so that the two hooked halves of the velcro cannot come in contact with the looped halves.
8. Position the switch box between the looped halves of the velcro. The switch box is correctly positioned when the switch is flush with surface **(6)** and the right side of the switch box is touching edge **(5)**.
9. When the switch box is in the correct position, remove the piece of paper and allow the velcro strips to connect.

Attention: Do not allow the velcro strips to connect to each other when the switch is not correctly positioned. The urge unit will have to be disassembled to remove the switch box and reposition it.

10. There are two cables that come out of the switch box. Plug the short cable into the jack on the back side of the urge unit.

Table 970. Installing a Two-Roll Urge Unit (continued)



11. Install the urge unit **(2)** in the input area with the rolls on the right side.
12. Install 5 cable clamps **(7)** (P/N 2513269) to the under side of the printer frame.
13. Route the power cord **(6)** of the urge unit through the clamps.
14. Locate the Y cable (P/N 90H1655).
15. Disconnect the PJH01 connector **(5)** from the DC power box in the control unit.
16. Plug the PJH01 connector of the Y cable into the JH01 connector on the DC power box.
17. Plug the JPH01 connector of the Y cable into the PH01 plug that was removed from the DC power box in step 15.
18. Plug the AC power cord from the urge unit (that is labeled JN01) into the PN01 connector on the Y cable.
19. Set the urge unit power switch to On.

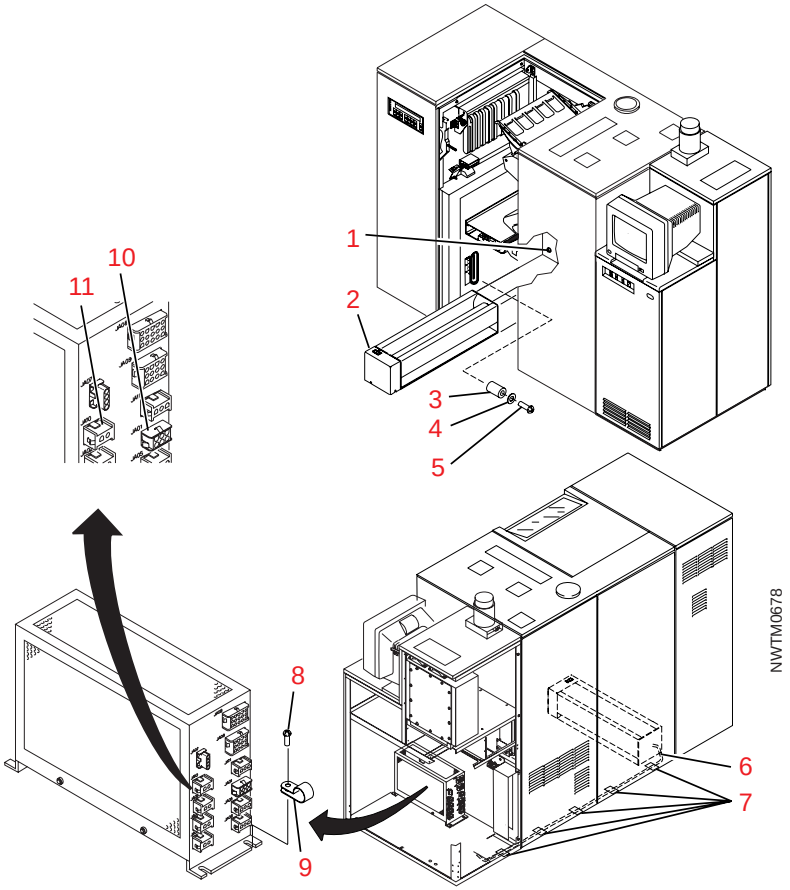
Install the Urge Unit (Fixed-Top Black Unit Only)

For the Hinged-Top Pearl White Urge Unit, go to Install the Urge Unit (Hinged-Top, Pearl White Unit Only).

Notes:

1. Some preprocessing devices require a second urge unit and supply that urge unit with the preprocessing device. If two urge units are used: install the two-roll urge unit that is supplied with the duplex system in Printer 2, and the one supplied with the preprocessing device in Printer 1. If only one urge unit is required, install it in Printer 2.

Table 971. Installing an Urge Unit #2



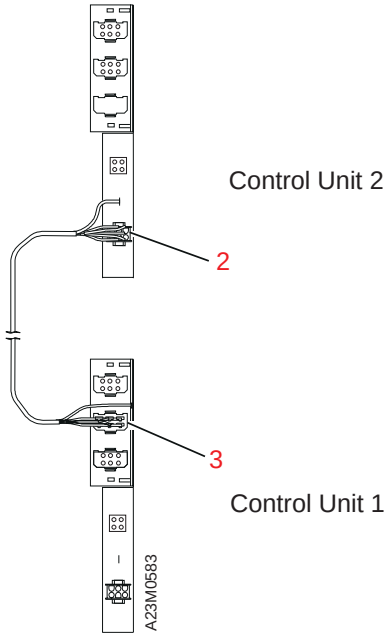
1. Power Off the printer.
2. Slide the urge unit **(2)** into the printer input area.
3. Install five cable clamps **(4)**
4. Route the power cord **(3)** of the urge unit through the clamps.
5. Secure the clamp by removing screw **(8)** from the base of the AC control box and then replacing the screw through the clamp.
6. Remove the adapter cable from the urge unit power cord if connector JA10 is present in the AC control box. If connector JA10 is not present on the AC control box, use the adapter cable that comes with the urge unit power cord.

   To use the adapter, do the following:

   - Disconnect the PJA01 connector on the AC control box.
   - Connect the JA01P connector of the adapter to the JA01 connector on the AC control box.
   - Connect the PA01J connector of the adapter to the PA01 connector that was unplugged from the AC control box.
   - Plug the power cord of the urge unit into the connector JA10 **(10)** on the AC control box.

Install the Remote Power Cable

Table 972. Installing the Remote Power Cable

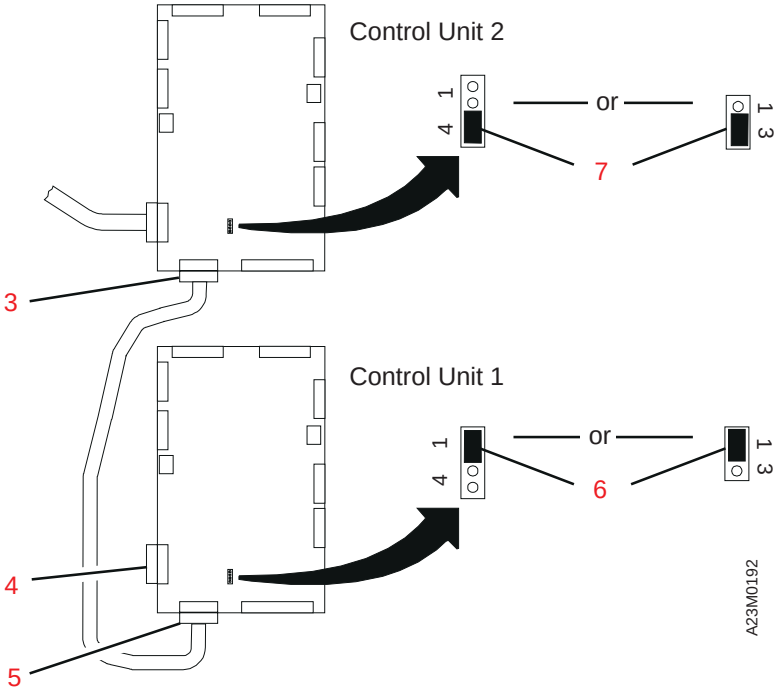


Note: If you are installing a duplex system on a raised floor, you can place the remote power cable and the MIC SSA cable together to save time.

1. Ensure that the printer is powered off and the power cord is disconnected.
2. Install the remote power cable (P/N 45G1727) from the control unit attached to Printer 1 (PJC02 tailgate connector) **(2)** to the control unit attached to Printer 2 (PJC01 tailgate connector) **(1)**.
3. Attach the 2 power cable ground wires to their respective lugs.

Install MIC SCSI Cable

Table 973. Installing MIC SCSI Cable



Control Unit 2 MIC to Control Unit 1 MIC Cable

1. Install the SCSI cable P/N 30H2752 from the control unit attached to Printer 2 MIC card PJJ08 connector **(3)** to control unit attached to Printer 1 MIC card PJJ08 connector **(5)**.
2. Verify that the SCSI terminator P/N 08H7757 is installed on MIC connector PJJ13 **(4)** in the control unit attached to Printer 1.
3. Verify that the MIC card address on the MIC card in the control unit attached to Printer 2 is jumpered for control unit 2 **(7)** (Pins 2 and 3 if there is a 3-pin connector, OR 3 and 4 if there is a 4-pin connector).
4. Verify that the MIC card address on the MIC card in the control unit attached to Printer 1 is jumpered for control unit 1 **(6)** (pins 1 and 2).

Configure and Test Printer/System Operations

This section covers all procedures that require the printer, and host system attached control unit to be powered on for either a simplex printer or duplex system installation.

DANGER

<12> During an electrical storm, do not handle channel cables, connectors, or power cords.

Set the Power Switches and Power On the System

1. Ensure that the printer is powered off and the power cord is disconnected.
2. Ensure that the Diagnostic Function Switch (thumbwheel) on the B1J11 card is set to “0”.
3. Set the switches on the power control panel (L = Local, R = Remote) according to your needs for each of the following procedures in this section.
4. Press the **Control Unit Power On** push-button on the Printer 2 control unit power control panel to power on the system.

Table 974. Power Control Panel Switches for a Duplex System

Condition	CU 2	Prt 2	CU 1	Prt 1
Power on both printers and both control units	L	R	R	R
Power on printer 2 and control unit 2	L	R	L	R
Power on printer 1 and control unit 1	L	R	L	R
Power on printer 2 only	L	L	L	R
Power on printer 1 only	L	R	L	L

The first condition, **Power on both printers and both control units**, is the recommended switch setting for a new installation. The other settings are used during troubleshooting and maintenance procedures.

Important

The control unit serial number for the printer must be entered into the “Machine Sequence” field before you perform ANY **Restart** or **Shutdown** procedure. After the first **Restart** or **Shutdown**, it is not possible to change the “Machine Sequence” values.

Install the Microcode

Locate any microcode installation instructions and follow those instructions to install any microcode update that may have been shipped with the system.

Special Features Passwords

Special features must be installed and enabled before you proceed.

Locate the “Special Features” Installation Instructions shipped with the printer and install and enable features and the customer-ordered printhead resolution .

Configuring the system

Use the “Configuration Worksheets” prepared by the customer and the procedures in the appropriate *Introduction and Planning Guide*. These worksheets cover the following areas:

- Configure Printer
- Configure Attachments
- Configure Pre/Postprocessors
- Define Forms
- Configure Enhanced Toner Loading-

Configure the Printer - Duplex System

When installing a duplex system and the customer intends to use both **Duplex** and **Dual-Simplex** modes, you must establish three sets of Configure Printer data. One set for **Duplex** mode, and one set each for Printer 1 **Simplex** mode and Printer 2 **Simplex** mode.

The system is shipped with the Configure Printer configuration item “Printer Mode” set for **Duplex** mode.

1. Set Printer 1 to Printer 2 Distance.

   Before you can load and thread forms through a duplex system, determine the length of the physical forms path between the transfer station on Printer 1 and the transfer station on Printer 2. That value then must be set in the configuration item “Length of Forms Between Transfer Points”.

   Note: The distance measurement need only be approximate. The printer increment for moving forms is always a multiple of the forms length (measured from perforation to perforation). This is derived from the “Forms Length” setting for the defined form being loaded.

Inline Installation

a. Measure the inline distance *d* between the two printer frames and determine the configuration value from Table 975.

Table 975. Configuration Value for Inline Installation

Distance (in.)	Value to Set
$d = 52$	315
$d < 52$	$315 - (52 - d)$
$d > 52$	$315 + (d - 52)$
Note: Default value = 315.	

Left-Angle Installation

a. Load the forms with the **Thread/Align Forms** procedure (see the *Operator's Guide*).

b. If the alignment mark on the forms, stops short of the alignment mark in Printer 2 do the following.

   Count how many times *n* you must press the **Feed Paper** button in Printer 2 to align the marks.

   Multiply *n* by the forms length *L* (in inches) and add 315 to get the configuration value:

   Value to Set = 315 + (*L* × *n*).

c. When you have loaded the forms, if the alignment mark on the paper stops beyond the alignment mark in Printer 2 do the following.

   Count how many complete forms *N* are between the two alignment marks.

   Multiply *N* by the forms length *L* (in inches) and subtract this amount from 315 to get the configuration value:

   Value to Set = 315 − (*L* × *N*).

2. Note the value for the "Printer Counter" (for both Printer 1 and Printer 2) on the **Printer Status** Display/Touch Screen window.
3. Select **Configure** on the menu bar of the Display/Touch Screen main window.
4. Select the **Configure Printer** on the pull down menu that appears.
5. Use the "Configuration Worksheets" prepared by the customer to enter all of the Configure Printer configuration values. Leave the default values shown if the customer has not provided input.

Note: The “Length of Forms Between Transfer Points” value was generated in step 1.

6. Compare the value in the Usage Counter (located at the rear of the printer) to the previously noted “Printer Counter” value on the **Printer Status** window. If they are different, set the “Printer Counter” configuration item value to match the Usage Counter value. This must be done for both printers.
7. Ensure that the “Date and Time” values are set properly.
8. Enter the control unit serial number, found on the right rear of the control unit frame, into the ″Machine Sequence″ field. This MUST be done before ANY **Restart** or **Shutdown** procedure is performed. After the first **Restart** or **Shutdown**, it is not possible to change the ″Machine Sequence″ values.
9. After you set the configuration items, select the **OK** push-button.
10. A **Restart** window will appear. Defer the required Restart procedure until all system configuration work is completed.
11. Go to Configure the Attachments.

Configure the Attachments

1. Select **Configure Attachments** on the **Configure** pull down menu.
2. Use the “Configuration Worksheets” prepared by the customer (see the *Introduction and Planning Guide*) to enter all of the configuration values for all of the installed attachment types. Leave the default values shown if the customer has not provided input.
3. After you set the configuration items, select the **OK** button.
4. A **Restart** window will appear. Defer the required Restart procedure until you have completed all system configuration work.
5. If you have pre or post processing devices, go to Configure the Pre/Postprocessors.

Configure the Pre/Postprocessors

Reminder

When you install postprocessing devices, the stacker, BTS, and offsetter configuration values must be set in **Configure Printer**.

1. Select **Configure Pre/Postprocessors** on the **Configure** pull down menu.
2. Use the “Configuration Worksheets” prepared by the customer (see the *Introduction and Planning Guide*) to enter all of the pre/postprocessor configuration values. Leave the default values shown if the customer has not provided input.
3. After you set the configuration items, select the **OK** button.
4. A **Restart** window will appear. Follow the restart procedures to make all of the printer, attachments, and preprocessor configuration items you have entered active.

Define Forms

Forms that the customer intends to use must be defined to the system before they can be loaded into the printer.

1. Select **Configure** on the menu bar of the Display/Touch Screen main window.
2. Select **Define Forms** on the pulldown menu that appears.
3. Use the “Define Forms Worksheets” prepared by the customer (see the *Introduction and Planning Guide*) to enter all of the required entries for each Form Name defined by the customer. If the customer has another printer at a code level of v9.2 or higher, a “Save Forms” diskette from this printer can be used to define the values to the newly installed printer. See Diagnostics, Disk Operations for the procedure.

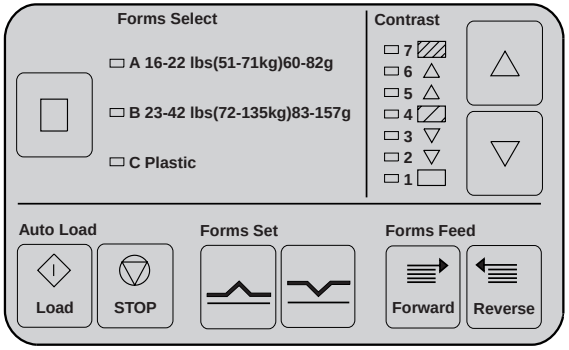
Configuration for Side 1/Side 2 Verification Checking

1. Ensure that the printer has been configured as a duplex printer.
   a. On the Display/Touch Screen menu, bar select **Configure**.
   b. On the **Configure** pull down menu that appears, select **Configure Printer**.
   c. Select the **Printer Mode** configuration item.
   d. Change to Duplex if required.
   e. Select **OK** push-button.
   f. Select the **Restart** push-button on the restart prompting window.
2. On the Display/Touch Screen menu bar, select **Configure**.
3. On the **Configure** pull down menu that appears, select **Configure Pre/Post**.
4. If you relocated a Pre/Post interface card earlier, select its name from the list.
   a. Change the configuration information for the relocated device.
      1) Set **Port** to the port number to which the card was relocated.
   b. Select **OK** to exit the menu.
5. In the **Select a Processor** box on the Configure Pre/Post window, select **Side2Verify**.
6. Change the configuration information as follows:
   a. Set **Port** to 3.
   b. Set **Enabled** to Yes.

   Note: You cannot change the Printer Number, Pre/Post Characteristics, and Pre/Post Type configurations.
7. Select **OK** to exit the menu.

Verify Printer Operation

Table 976. Verifying Printer Operation



Printer control Panel (SW721)

Note: If you are installing a duplex system, do the following procedures to *both* printers in the duplex printing system.

1. On the printer control panel (SW721), set **Contrast** to position **4** and set the **Forms Select** to position **A**.
2. Install the Pre/Postprocessing Interface Test Card to test and verify all (up to 3) pre/postprocessing interfaces in each control unit. For information about using the test card, see Pre/Postprocessing Interface Test Card.
   Note: If the customer is using pre/postprocessing equipment in the configuration, you may need to install that equipment before you load forms in the next step.
3. Enable any pre/postprocessing equipment that you have installed.
4. Load forms in the simplex printer or duplex system, according to the appropriate *Operator's Guide*, if not already done.
5. Run some print samples:
   a. Select **Analyze**.
   b. Select **Service Actions**.
   c. Select **Print**.
   d. Select **Print Log**.
   e. Select **Print Pack**.
   f. Select **How Many**.
   g. Use key pad to enter quantity (for example: 25) and select **OK**.
   h. Select **Print**.

Verifying Printer Operation (continued)

6. Check and adjust the following as necessary:
   - Light print
   - D706 errors can occur as a result of Mirror 1 moving during shipping or relocation.
     – Perform only the “Zero Beam Alignment” Check.
       - For single beam printheads, see Zero Beam Alignment Check.
       - For two beam 240 printheads, see Zero Beam Alignment Check.
       - For two beam 240/300 printheads, see Zero Beam Alignment Check.
     – Then complete the Beam Pattern Check.
       - For single beam printheads, see Beam Pattern Check.
       - For two beam 240 printheads, see Beam Pattern Check.
       - For two beam 240/300 printheads, see Beam Pattern Check.

       .
     – If the adjustment is not correct, adjust Mirror 1 to obtain the correct Beam Pattern
       - For single beam printheads, see M1 Mirror Adjustment.
       - For two beam 240 printheads, see M1 Mirror Adjustment.
       - For two beam 240/300 printheads, see M1 Mirror Adjustment.

     If the D706 error still occurs, use the MAPs to correctly identify the source of the problem.
   - Registration
   - Other obvious print quality problems.

     For more information, see the MAP 1000: Print Quality Start Map.
7. In a duplex system, you may have to adjust the contrast setting in one of the printers to balance the contrast between the two printers.
8. Perform the Print Sample Adjustments
   - For single beam printheads, see page 2715.
   - For two beam 240 printheads, see page Print Sample Adjustments.

- For two beam 240/300 printheads, see Print Sample Adjustments.

.

Save the Configuration Settings

1. Locate the **Configuration** diskette that came with the installation package. (You can use any regular DOS formatted diskette.)
2. Install the **Configuration** diskette in the diskette drive.
   a. Select **Analyze** from the menu bar on the TOP of the screen.
   b. Select **Service Actions**.
   c. Press **Enter** on the Keyboard screen.
   d. Select **Disk Operations**.
   e. Select **Back Up Disk**.
   f. Make sure that the diskette is installed correctly in the diskette drive, and select **OK**.
   g. When the configuration backup operation is complete, exit the menu, and exit the Service Actions menu.
   h. Leave the **Configuration** diskette in the diskette drive.

Test the Operator Alert Assembly

Note: If you are installing a duplex system, do the following procedures to both printers.

1. Set the splice lever to the splice position to create an error. The operator alert light should flash and the alarm should sound.
2. Adjust the alarm volume as required.
3. Touch the display touch screen. The alarm should stop, and the light should continue to flash.
4. Set the splice lever to the run position.
5. Press **Ready**. The light should turn off.

Install the Host Attachment Cables

Table 977. Installing the Host Attachment Cables

Notes:

1. The printers support five types of attachments: System/370 parallel channel, ESCON serial channels, Ethernet networks, Token Ring, and FDDI networks. Determine which attachments the customer has ordered and follow the instructions accordingly.
2. For all but the 7025 Model F50 controller, if the customer has ordered two attachments of the same kind, the controller will automatically configure the attachment that is connected to slot 2 as attachment **A**. The attachment that is connected to slot 4 will automatically configure as attachment **B**.
3. The 7025 Model F50 controller will automatically configure the attachment that is connected to slot 6 as attachment **A**. The attachment that is connected to slot 8, will automatically configure as attachment **B**.

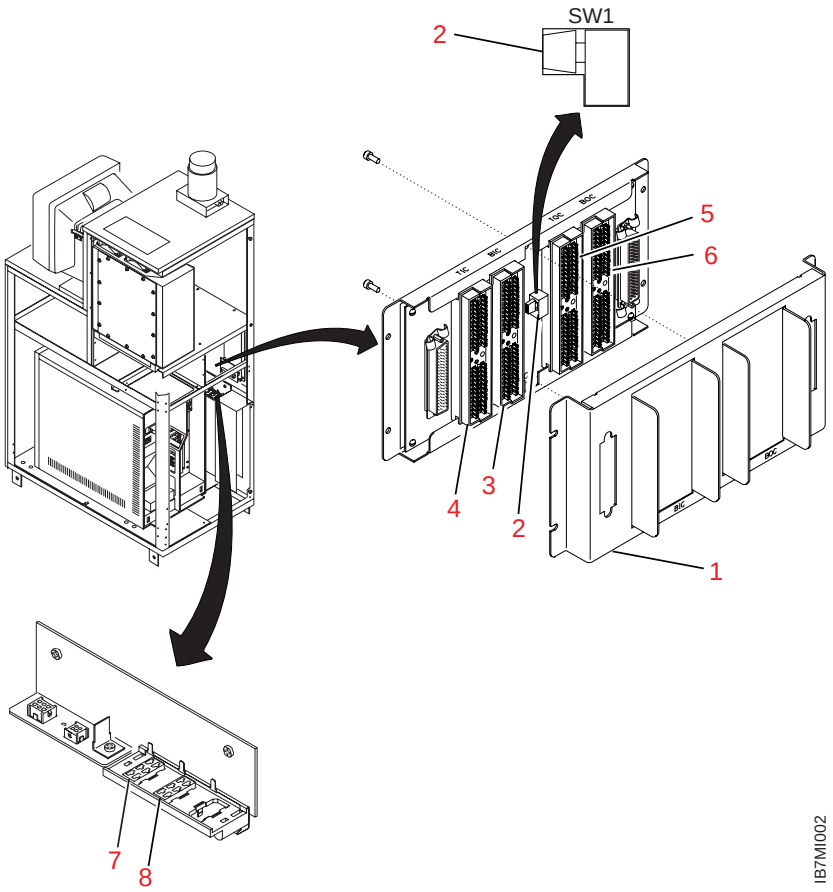
DANGER

<1-14> Switch off printer power and unplug the printer power cord before connecting or disconnecting a communication port, a teleport, or any other attachment connector.

1. Shutdown and power off the printer.
2. Determine which host attachment adapter cards are located in the controller. Determine in which adapter card slot the cards are located.
   Note: If the controller is a 7012, the Ethernet card and connectors are not located in slot 2 or 4. They are located above the adapter slot locations.
3. Perform Wrap tests on all host attachment cards before you connect to the Host system. See Attachment Diagnostics for procedures.
4. Work with the Channel/Network Administrator to ensure that it is OK to connect the cables to the Printer.

Attention: Do not connect the cables until the Channel/Network Administrator is ready. Failure to have the channel or network disabled before you attach cables could result in system problems, destruction of information, or a severe impact on system availability.

Table 977. Installing the Host Attachment Cables (continued)

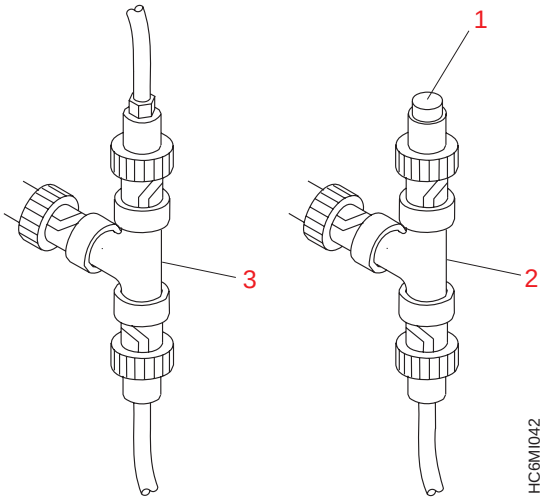


Connecting parallel channel cables (if required):

5. Before you install the tailgate assembly to the tailgate frame, remove the screws and cover **(1)** .
6. Set the priority switch **(2)** to the position required by the customer (either HIGH priority (up) or LOW priority (down) on the channel).
7. Locate the parallel channel tailgate connector slots.
8. Locate the BUS IN cable and the TAG IN cable.
   Note: The connectors are keyed for correct seating.
9. Insert the BUS IN cable connector into the BUS IN slot **(3)**.
10. Insert the TAG IN cable connector into the TAG IN slot **(4)**.
11. Attach the terminators to the BUS OUT slot **(6)** and the TAG OUT slot **(5)** if this is the last control unit in the chain. If it is not the last control unit, attach the BUS OUT and TAG OUT cable connectors to the correct slots.
12. Connect the channel remote power control cable. Select either the channel A PJC02 **(7)** or channel B PJC03 **(8)** plug depending on the customer requirement.
13. Install the remote enable/disable cable (RM1) on the mechanism interface card connector PJJ2 if this customer option is requested.

Note: Cable connectors of the same color should never be connected together. For example, the light gray cable end goes into the dark gray receptacle, and the dark gray cable end goes into the light gray receptacle.

Cable End	Cable Color	Receptacle Color
TAG OUT	Light gray	Dark gray
BUS OUT	Light gray	Dark gray
TAG IN	Dark gray	Light gray
BUS IN	Dark gray	Light gray



Thin Coax Network Connection

Connecting ESCON channel cables (if required):

14. Wrap the customer-provided ESCON channel cable around the cylinder of the cable retention bracket 2 revolutions. Attach it to the ESCON channel card connector at the back of the controller.

Connecting Ethernet network cables (if required):

Note: All cables must meet IEEE 802.3 requirements. Work with the network administrator to ensure that it is OK to connect the printer to Ethernet network.

15. **Thick Coax (10BASE5)**

    Attach the customer-supplied thick coax cable to the 15-position Ethernet connector on the controller.

16. **Thin Coax (10BASE2)**

    Attach the customer-supplied cable with a “T” BNC connector to the BNC Ethernet connector on the controller. **Note:** If this is **NOT** the last device on the Ethernet segment, connect the cable from the next Ethernet device to the other side of the “T” connector **(3)** as shown.

    If this is the last device on the Ethernet segment, connect a 50-ohm terminator **(1)** to the “T” connector **(2)** as shown.

17. **Twisted Pair (10BASET)**

    If desired, attach the extension cable (P/N 02G7434) to the 15-position D-shell Ethernet connector on the controller. Attach the transceiver (P/N 43G0278) to either the end of the extension cable or directly to the 15-position D-shell Ethernet connector on the controller.

    Attach the customer-supplied RJ45 unshielded twisted-pair cable to the transceiver.

Connecting Token Ring Cable (if required):

18. Locate the token ring cable (P/N 53F3930).
19. Attach one end of the cable to the token ring adapter card connectors that are located at the rear of the controller.
20. Attach the other end of the cable to the token ring network.

FDDI Cable Handling

The following use, handling, and installing requirements must be maintained, or you will damage the fiber cable:

24. Do not walk on the cable.
25. Do not pinch the cable between the door and frame.
26. Do not cause tight bends in the cable. Bending the cable too tight will cause increased attenuation of the signal and the breaking of the fiber.
27. Ensure that a bend does not occur at the connector.
28. Lay the FDDI cable flat. Ensure that the cable does not twist or have knots.

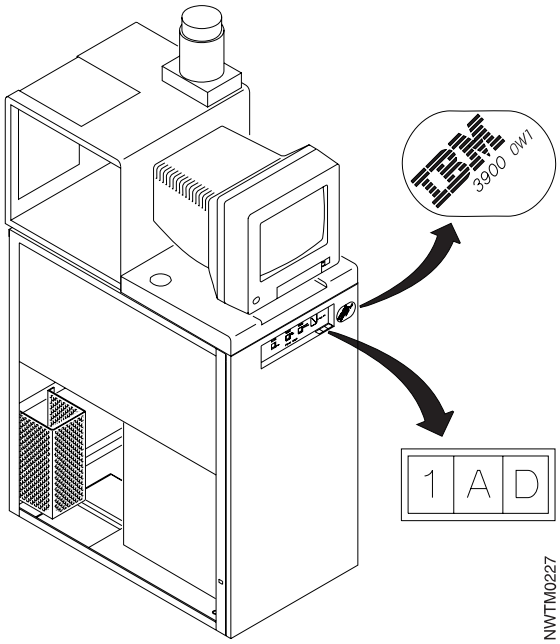
Connecting FDDI Cable (if required):

21. Locate the FDDI cable (P/N 19G4867).
22. Attach one end of the cable to the FDDI adapter card connector that is located at the rear of the controller. Check the receptacle and plug for keys and push the cable connector into the receptacle until it clicks.
23. Attach the other end of the cable to the network.

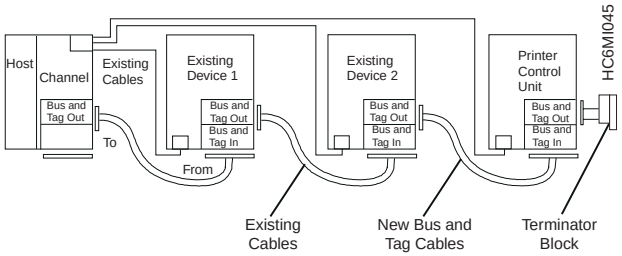
FDDI Connector Maintenance

FDDI connectors require the following procedures:

29. Keep all connectors clean by using dust caps on the cable connectors and a wrap plug on the adapter card when not in use.
30. To clean the connector, wipe the connector end with a dust-free cloth and isopropyl alcohol. Let the connector dry before you connect it.



Location of the Channel Address Holder



Bus and Tag Connections

Install the channel address holder (If required):

31. Install the channel address holder (P/N 5756324), and the printer's correct channel address (P/N 5756348) on the control unit front cover.

For duplex systems, this is the control unit that is attached to Printer 2.

Install the IBM Logo

32. Install the IBM logo.

Make the Printer System Ready for Use

1. Plug in the printer AC line cord, if not already done.
2. Power on the printer.
3. Select **Options** on the Display/Touch Screen main window.
4. Select **Enable/Disable Attachments** on the pull down menu that appears. Enable the installed host attachments.

Install Features

Ensure that the printer is completely installed before you install features.

If the customer has ordered any features that were not installed in the factory, install them now. Use the correct service code for feature installation.

Complete the Installation

1. Give one copy each of the *Operator's Guide* and the *Forms Design Reference for: Continuous Forms Advanced Function Printers* to the customer.
2. Reinstall the control unit side cover or close the two control unit side covers on the printers. Connect the ground strap and retention chain before you latch this cover.
3. Place the remaining product ship group tools and publications in the control unit or another appropriate location.
4. Reinstall any remaining printer covers and control unit covers.
5. Remove protective covering on printer cover windows.

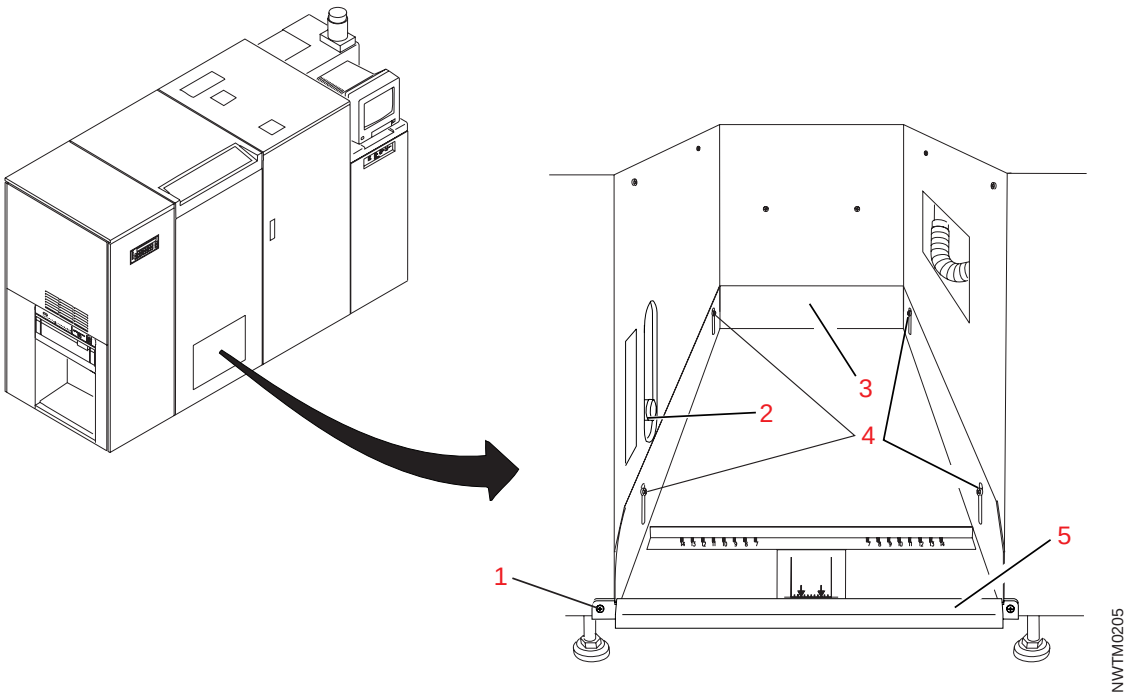
Discontinue Use

Note: A relocation and discontinuance kit (Feature 4050) and a forklift are required to complete this procedure. Do not attempt to discontinue or relocate a printer without obtaining a kit. You may order Feature 4050 and request the proper kit be sent for your printer, or contact your next level of support for the proper kit part number. Ensure that the proper kit is used, because you may be held responsible for any damage if the wrong kit is used.

Note:

A step marked with a **(2)** requires the procedure to be done on **both** printers.

1. **Disable all enabled host attachments**.
2. Verify that the host attachments communication mediums are off-line or that the host is stopped.
3. Read the developer mix usage (2).
4. Drain the developer mix (2) and write the usage on the mix bottle.
5. Lower the stacker table (2).
6. Ensure that you set the stacker gate to the 7.5 position (2).
7. Perform the **Shutdown** procedure by using the Display/Touch Screen.
8. **Power Off** the printer system.
9. Disconnect the printer AC power cord from the power outlet (2).
10. Disconnect the host attachment cables from the control unit.
11. Restore host attachment communication mediums, if required.
12. If System/370 Parallel Channels or ESCON Channels are installed, remove the associated tailgate assemblies.
13. Remove the paper from the printer (2).
14. Install the input bin and attach the shipping brace on the front of the input area (2).

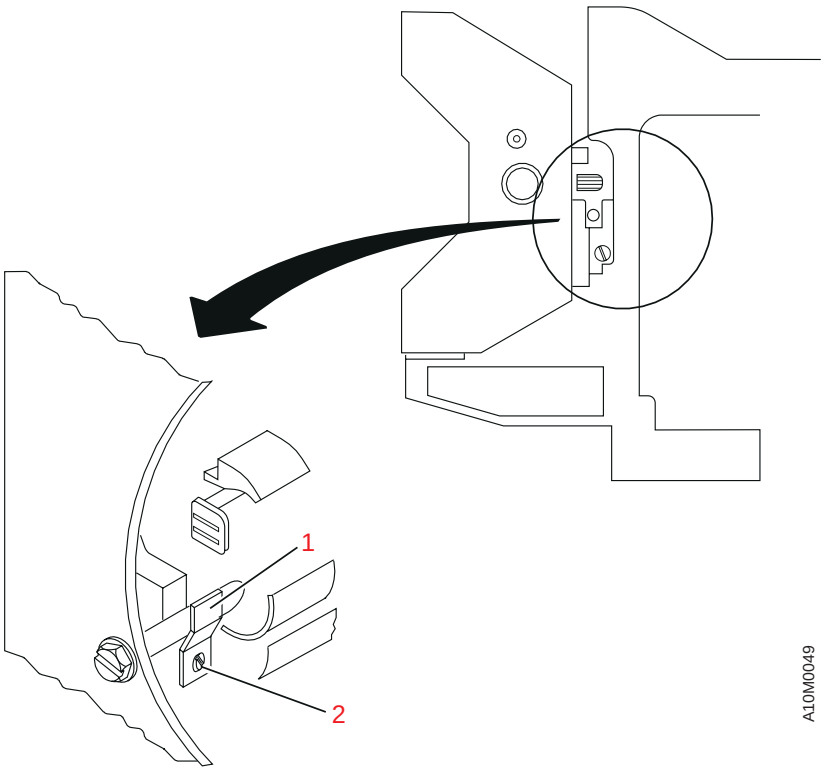


Note: If you are disposing of the printer, remove the B1J11 Card from the B1 board. This card contains a nickel-cadmium battery. Return this card to IBM as part of the IBM card-return program or dispose of it in accordance with federal, state, and local government regulations (2).

15. Remove the PC drum and place it in the PC drum bag and place the entire unit in the drum storage box (2).

Note: You MUST return all used drums to IBM through the used part return (UPR) procedure.

16. Install the transfer station shipping bracket. (2)



17. Tape a sheet of protective plastic inside the drum area to cover the developer (2).
18. Disconnect and remove the AC power cord connectors from the terminal block on the power supply in the printer, and store the power cord inside the spare parts box (2).
19. Install the yellow plate over the power cord access opening. See step 3 (2).
20. Remove the knobs that hold the control unit to the printer (2).
21. Move the control unit away from the printer (2).
22. Disconnect the cables between the control unit and the printer (2):
    a. Two coax cables, J203 and J204.
    b. Three coax cables, J203, J204 and J233.
    c. One 50-pin flat ribbon cable, J202.

d. One 9-pin Mate-N-Lock connector, PJ205.
e. One 6-pin Mate-N-Lock connector, PJ227.
f. One 20-pin flat ribbon cable, PJ232.
g. One 36-pin cable, PJ229.

23. Disconnect the cable from Control Unit 2 MIC card connector PJJ08 to Control Unit 1 MIC card connector PJJ08.
24. Disconnect the cable from Control Unit 2 tailgate connector PJC01 to Control Unit 1 tailgate connector PJC02.
25. Tape all control unit cables to the control unit front-left frame member.
26. Install the yellow cable access cover on the right end of the printer.
27. Remove the operator alert assembly and place it in the packaging that is provided in the relocation kit (2). (See page 3740.)
28. Remove the controller from the control unit and pack it in a separate container.

Note: If this is an Infoprint 4000 printer with the C20 controller, do not remove the controller.

29. Disconnect the mouse from the controller. Put it in a plastic bag and tape it to the floor of the control unit.
30. Remove the Display/Touch Screen monitor and pack it in a separate container.
31. Disconnect the pre/postprocessor interface cables from the control unit, if any are installed (2).
32. Remove the printer right end cover and place it in the box of spare parts (2).
33. Raise the leveling pads as far as possible to prevent damage to the pads during relocation or shipment, and tape them on the printer (2).
34. Tape the following areas on the printer (2):
    a. Toner cartridge holder
    b. Developer drain hose
    c. Hot roll shield
    d. Stacker table
    e. Stacker gate
    f. Secondary erase lamp (front end)
    g. Autoload bridge

h. Developer mix cover.

35. Close and tape all external covers (2).
36. Ensure that you return the ship group tools with the printer (2).
37. Place the box with the spare parts, developer mix, and tools on top of the printer (2). (If this is a multi-printer installation and there is only one set of tools, the tools stay with the remaining printers.)
38. Use the materials in the relocation and discontinuance kit to package the printer and control unit. Kit includes a packaging procedure (2).

Relocate the Printer

Use this procedure for moves within a building, where you can roll the printer to the new location on the casters.

When you use the following procedure to relocate a duplex system, note that a step marked with a **(2)** requires the procedure to be done on both printers.

1. **Disable all enabled host attachments**.
2. Perform the **Shutdown** procedure.
3. **Power off** the printer system.
4. Disconnect the printer AC power cord from the power outlet (2).
5. Remove the PC Drum from the printer (2).
6. Disconnect the host attachment cables from the control unit (for duplex systems, this is the control unit that is attached to Printer 2).
7. Disconnect pre/postprocessing device cables from the control unit (2).
8. Move the control unit away from the printer (2).
9. Disconnect the cables between the control unit and the printer (2):
   a. Two coax cables, J203 and J204.
   b. Three coax cables, J203, J204 and J233.
   c. One 50-pin flat ribbon cable, J202.
   d. One 9-pin Mate-N-Lock connector, PJ205.
   e. One 6-pin Mate-N-Lock connector, PJ227.
   f. One 20-pin flat ribbon cable, PJ232.
   g. One 36-pin cable, PJ229.
10. Disconnect the cable from Control Unit 2 MIC card connector PJJ08 to Control Unit 1 MIC card connector PJJ08.
11. Disconnect the cable from Control Unit 2 tailgate connector PJC01 to Control Unit 1 tailgate connector PJC02.

Attention: For moves outside of the building, or when it is necessary to load the printer onto a padded van or lift it by a forklift, the printer must be fully packed.

Reinstall the Printer

Note that a step marked with a **(2)** requires the procedure to be done on **both** printers.

Table 978. Procedures ReInstallation of a Printer

Step	Procedure	Reference
Follow the procedures listed in the table in order to re- install the Printer.		
1	Level Printer (2)	3679
2	Attach Control Unit Frame to Printer	3743
3	Power On the Printer	3725
4	Install PC Drum (2)	3729
5	Install the Buffer Flipper	3754
6	Install the Urge Unit	3761 or 3764
7	Set Printer 1 to Printer 2 Distance	3770
8	Verify Printer Operation	3777
9	Install Host Attachment Cables (2)	3782
10	Check the “RPQs and Features” for any additional installation instructions.	

Appendix B. Tools

Infoprint 4000 Tools 3798
Branch Office Tools 3800
Features Tools 3800
Other Tools 3800
Items from the CE Catalog 3801
Tool Usage Descriptions 3802

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Infoprint 4000 Tools

For Infoprint 4000 printers, order:

- Tool set (P/N 57G6639)
- Tool set (P/N 65F6225)
- Pre/postprocessing interface test card (P/N 45G2033)

  For 480/600 DPI printer, also order:

- Laser alignment tool, four beam and five beam (P/N 30H2978)

  For printers that have the Two–Beam printhead withthe resolution switching lens, also order:

- Laser alignment tool, two beam switchable (P/N 90H1030)

  For printers that have the Two-Beam printhead withoutthe resolution switching lens, also order:

- Laser alignment tool, two beam (P/N 08H7727)

Other Infoprint 4000 tools:

- The registration template P/N 04H0739 is useful, but not required.

Card, pre/postprocessing interface test:

- P/N 45G2033

Template, registration:

- P/N 04H0739

(continued on next page)

Tool set P/N 65F6225: (tools also used on the 3900–001)

- Brush, cleaner housing (P/N 06F1027)
- Brush, corona cleaning (P/N 06F0423)
- Extension, drum shaft (P/N 06F1025)
- Gauge, drum clearance (P/N 06F1029)
- Gauge, forms tension (P/N 88F1613)
- Gauge, path modifier(P/N 88F1609)
- Laser power tool (P/N 65F6210
- Scraper, preheat platen (P/N 06F1028)

Tractor Rebuild tool: (used for removal and installation of tractor needle bearings)

- P/N 90H2606

Tool set P/N 57G6639:

Note: This tool kit is also used for 3900–001.

- Bag, drum (P/N 06F0258) - 2
- Block, ESV probe (P/N 06F0256)
- Cable, maintenance panel (P/N 65F6227)
- Cable, pre/postprocessing interface test card (P/N 45G2088)
- Cord, RISC controller power extension (P/N 45G2081)
- Gauge, doctor/scraper, 1.0 mm (P/N 45G2039) - 2
- Gauge, doctor/scraper, 0.9 mm (P/N 45G2040) - 2
- Gauge, doctor/scraper, 0.8 mm (P/N 45G2080) - 2
- Gauge, doctor/scraper, 0.7 mm (P/N 24L4484) - 2
- Gauge, laser gap (P/N 45G2090)
- Grease, Krytox 283AC (P/N 65F6223)

Tool set P/N 57G6639: (continued)

- Laser alignment tool, single beam (P/N 57G6642)
- Laser power tool support (P//N 57G6641)
- Level (P/N 4832403)
- Plug, coupled interface wrap (P/N 45G2036)
- Plug, intelligent interface wrap (P/N 45G2037)
- Plug, MIC PJ1 wrap (P/N 45G2082)
- Plug, MIC PJ2-PJ3-PJ12 wrap (P/N 45G2084)
- Plug, MIC PJ6 wrap (P/N 45G2083)
- Plug, printer power jumper P205 (P/N 45G2038)
- Tube pressure gauge (P/N 06F0257)
- Union, BD/VD coax (P/N 45G2085)
- Wrench, line cord (P/N 88F3334); U.S. and Canada only

Null modem cable (Shipped with the printer) Used when servicing the controller.

- P/N 62H4857

Communications Diskette (Shipped with the printer) Used when servicing the controller.

- P/N 90H1644

F50 Communications Tool Kit (Used with the CE laptop)

- Cable, P/N 62H4857
- Communications diskette, P/N 90H1644

Branch Office Tools

- Gauge, pressure (P/N 03F5635)
- Power supply, 115 V ac, 60 Hz only (P/N 06F1904); or two 9-volt batteries
- Voltmeter, electrostatic (ESV), and probe (P/N 03F5634)
- AFCCU interface extension cable (P/N 24L3328)

Features Tools

The following tools are supplied when the associated attachment feature is ordered by the customer:

- Block, parallel channel bus wrap (P/N 8575337)
- Block, parallel channel tag wrap (P/N 8575338)
- Plug, ESCON (serial) channel wrap (P/N 5605670)
- Plug, Ethernet thin coax (10Base2) wrap (P/N 02G7433)
- Plug, Ethernet thick coax (10Base5) wrap (P/N 71F1167)

Other Tools

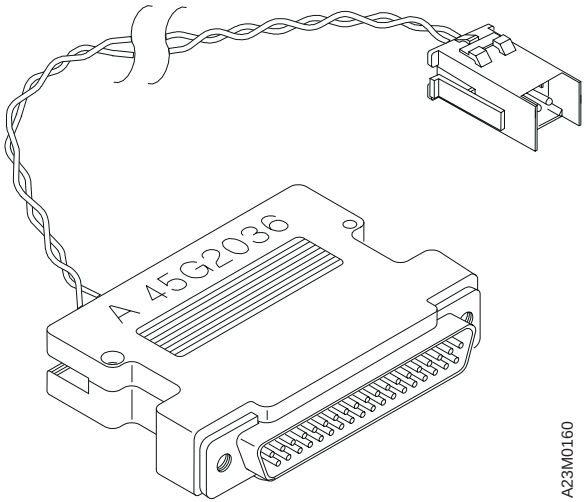
- Guage, developer profile (P/N 45G1833: drum seal)
- Guage, tractor alignment (P/N 88F3336 service cover, inner window)

Items from the CE Catalog

- Alcohol, isopropyl (P/N 2200200)
- Cloth, lint-free (P/N 2108930)
- Extractor, pin (P/N 2108398)
- Gauge, gram (P/N 450459) - EMEA only
- Gloves, plastic (P/N 2200041)
- Grease
  - IBM No. 23 (P/N 9900692)
  - IBM SBB No. 3 (P/N 1665927)
  - Molycoat G (P/N 357830)
- Magnetic tip No. 2 (P/N 9900721)
- Pliers, gas (P/N 9900064)
- Pliers, retaining ring (P/N 1864854)
- Scale, push-pull (P/N 0460870)
- Screwdriver, ratcheting (P/N 56X2974)
- Screwdriver, short (P/N 9900713)
- Solvent, cleaning (P/N 450608)
- Tape, thread-sealant (P/N 0596763)
- Vacuum cleaner (P/N 9900735)
- Wrench, leveling pad (P/N 8309875)
- Wrench, hex
  - 1.5 mm (P/N 9900717)
  - 2.0 mm (P/N 9900716)
  - 2.5 mm (P/N 9900715)

Tool Usage Descriptions

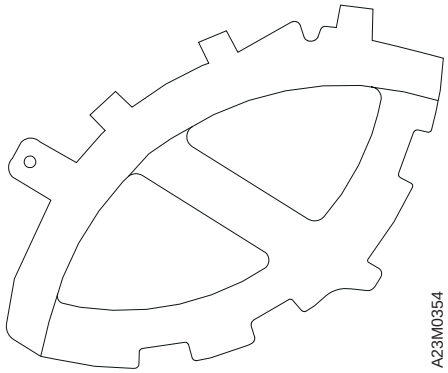
Coupled Interface Wrap Plug



Use wrap plug P/N 45G2036 (marked **A**) with the pre/postprocessing interface to (4710 interface cards only) isolate problems between an Infoprint 4000 and an attached pre- or postprocessor.

See Pre/Postprocessor Diagnostics for more information.

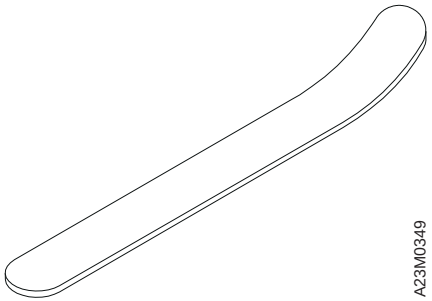
Developer Profile Gauge



The developer profile gauge (P/N 45G1883) is actually the drum seal. Reverse the seal so that the foam side is up and toward the front.

Then position the gauge firmly on mag brushes B and C, and adjust the positions of the scavenger roll, lower seal, mag brush A, and upper developer seal. See the Developer section for a description of the adjustments.

Doctor/Scraper Gauge

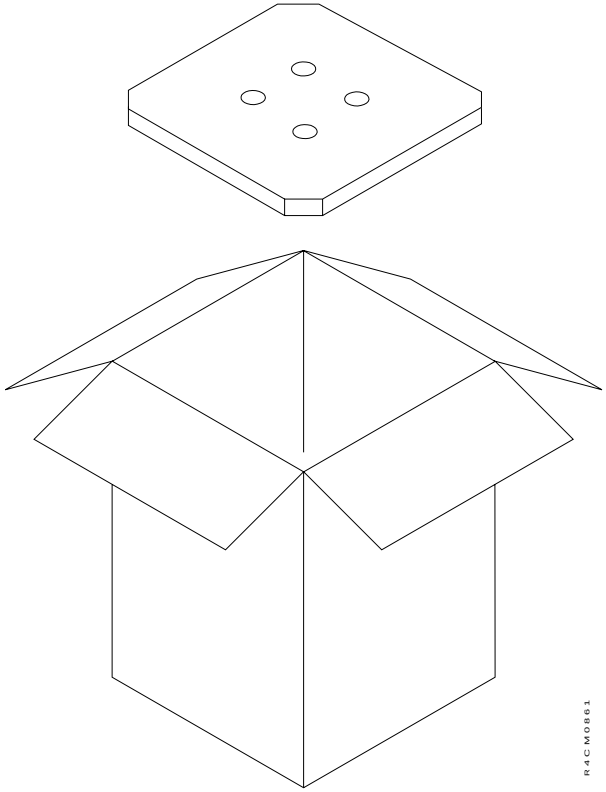


The doctor/scraper gauge is a non-magnetic feeler gauge with the correct dimension for setting the mag brush to doctor blade gap and scraper blade gap.

Two of each doctor/scraper gauge are included:

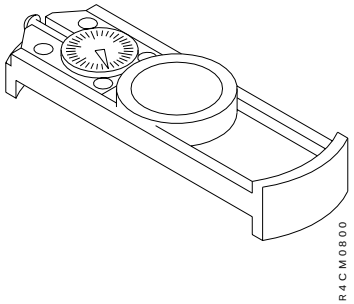
- 1.0 mm, P/N 45G2039
- 0.9 mm, P/N 45G2040
- 0.8 mm, P/N 45G2080
- 0.7 mm, P/N 24L4484

Drum Box



The photoconductor drum is shipped in a special PC drum box. Use this box to store the drum whenever it is removed from the printer. If the original box is lost or damaged, order a new one using P/N 12F1404.

Drum Clearance Gauge



Attention
The drum clearance gauge is a high-precision tool that is easily damaged.

The drum clearance gauge (P/N 06F1029) is a casting that simulates the diameter of the PC drum. A dial indicator attached to the casting is used to measure the gap between the PC drum and several parts of the printer.

Use the drum clearance gauge to check or adjust the clearance of parts around the PC drum. The gauge fits on the drum center shaft.

Reading the Indicator

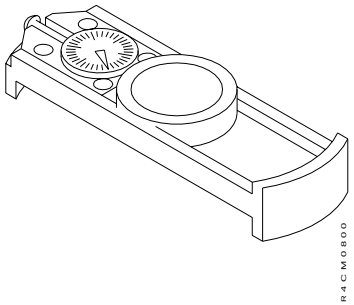
The indicator has a plunger or movable drive rod, and two scales. Each scale has a dial and a needle.
(continued on next page)

Large Dial:

The full travel of the plunger is 10 mm. Each sweep of the large dial is 1 mm. Each increment or mark on the dial is 0.01 mm. Thus, the distance between 0 and 10 on the large dial equals 0.1 mm of plunger travel.

Read the scales separately. Add the values from each scale. The Calibrating the Gauge section provides an example.
Small Dial:

The small dial keeps track of the whole millimeters that have been indicated. The full travel of the plunger is equal to the one revolution of the needle, or 10 mm. Each number on the small dial is equal to 1 mm of travel at the plunger. The distance between the 0 and the 1 on the small dial is also 1 mm.
Note: The maximum range of the drum clearance gauge is 8.0 mm.



(continued on next page)

Calibrating the Gauge

Perform a calibration before each use.

1. Depress the plunger by using a rigid straightedge, such as a 1-mm thickness gauge. Stop the plunger at a plane created by the machined flat located in front of the radius of the casting.

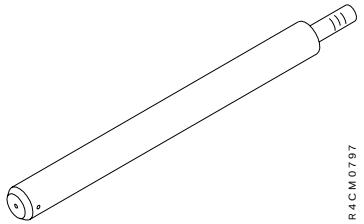
   To prevent an incorrect reading, do not allow the straightedge to contact the radius on the casting. The straightedge should touch only the machined flat.
2. Notice the number on the tool casting. For example, assume that the number is 3.40. This number is called the “calibration value” and is used *only* to calibrate the drum clearance gauge.
   - **Do not** use the calibration value for measuring or making adjustments.
   - Do use the calibration value to recheck the drum clearance gauge after all printer measurements are taken to verify that the drum clearance gauge is still calibrated and the adjustments made are accurate.
3. With the plunger held down to the machined flat, turn the large dial until the pointer is on the decimal part of the calibration value. For this example, the small scale reads 3 for 3 mm; the large scale reads 40 for 0.40 mm. The drum clearance gauge is calibrated when it is set to the calibration value.

Measuring

1. Disable the attachments.
2. Perform the Shutdown Procedure.
3. Power off the printer.
4. Remove the PC drum and store it in the drum box.
5. Remove the drum shaft extension used in removing the drum.
   Note: While the extension is mounted on the drum shaft, the weight of the extension reduces the clearance between the drum and the mag brush. Do not measure this clearance with the extension installed.
6. Clean the area that will be measured and the drum shaft by using disposable, lint-free cloths to remove all the toner and developer mix.
   Note: Continue to check the plunger for developer mix that is attracted to the plunger.
7. Install the drum clearance gauge.
8. Bring the plunger into contact with any part of the printer.
   a. Lift the indicator plunger with a thickness gauge or fingertip.
   b. Rotate the drum clearance gauge toward the area to be measured.
   c. Release the plunger. Do not hit the plunger against any printer parts.
9. Stop rotating the drum clearance gauge at the lowest numeric reading. Read the two dials. Add the two values to get the total value.
10. Subtract 5.0 from the total value.
11. Compare the remainder to the specified value. See PC Drum & Developer Clearances/Gaps.
12. Measure the values at the front and rear of the PC drum shaft.
13. Some steps must be performed before *and* after taking the readings:
    - Recheck the calibration of the drum clearance gauge.
    - Continually clean developer mix from the plunger of the indicator.
    - Recheck dimensions after tightening any adjustment or mounting screws.

Drum Shaft Extension

CAUTION:
Drum shaft threads are sharp. To avoid cutting yourself, do not use excessive pressure when wiping the threads.

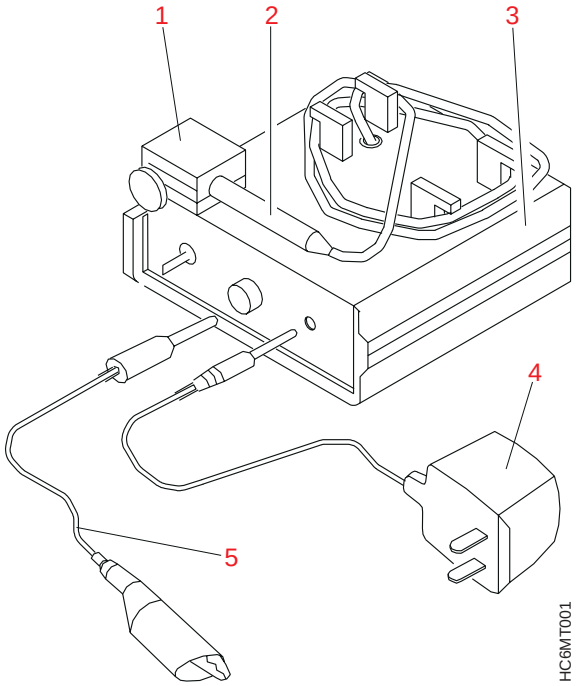


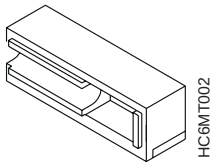
1. Remove the PC drum cover.
2. Lower the scavenger roll lever.
3. Turn the drum knob counterclockwise to remove it.

> **Attention**
> Toner on the drum shaft or drum shaft threads can cause the drum to jam. Be especially careful to clean any toner from the shaft or threads that may have fallen there during cleaning of the cleaner housing.

4. Clean the shaft extension (P/N 06F1025) and the drum shaft with a clean cloth.
5. Mount the shaft extension onto the drum shaft and turn the shaft extension clockwise until it is seated.
   Note: In order not to jam the shaft extension threads, do not seat the extension too tightly.
6. Carefully remove the PC Drum Removal.

Electrostatic Voltmeter (ESV) and Probe





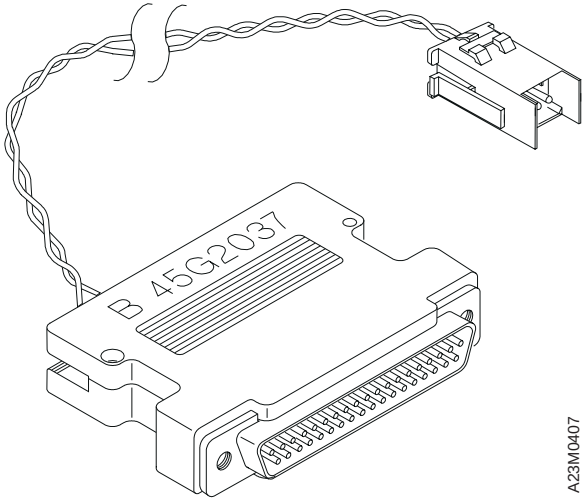
See Electrostatic Voltmeter for instructions on zeroing the voltmeter and using the electrostatic voltmeter (P/N 03F5634) and probe.

AFCCU Interface Extension Cable

The extension cable (P/N 24L3328) is provided to allow you to move the control unit away from the printer a greater distance than is possible with the standard cables, while performing service operations.

1. Always power off the printer before you connect or disconnect this cable.
2. Do not power on the printer unless the ground wire is attached to the printer.

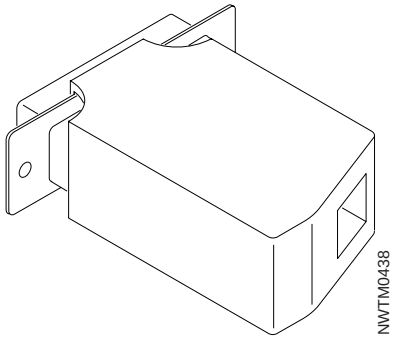
Intelligent Interface Wrap Plug



Use wrap plug P/N 45G2037 (marked **B**) with the advanced function postprocessing interface (for 4720 interface cards only) to isolate problems between the printer and an attached postprocessor.

See Pre/Postprocessor Diagnostics for more information.

Ethernet Thick Coax (10Base5) Wrap Plug

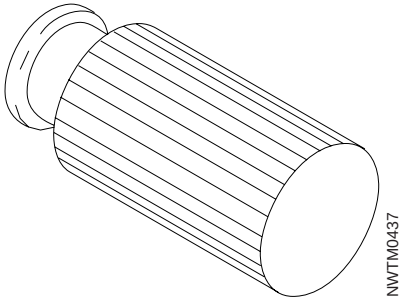


Use this 15-pin plug (P/N 71F1167) to check the input and output circuits of the Ethernet card via the 15-pin D-shell connector on the card.

1. Disable the Ethernet attachment.
2. Unplug the Ethernet cable or transceiver from the 15-pin connector at the rear of the controller.
3. Install the wrap plug on the 15-pin Ethernet connector on the rear of the RISC controller.

See Ethernet Tests for more information.

Ethernet Thin Coax (10Base2) Wrap Plug

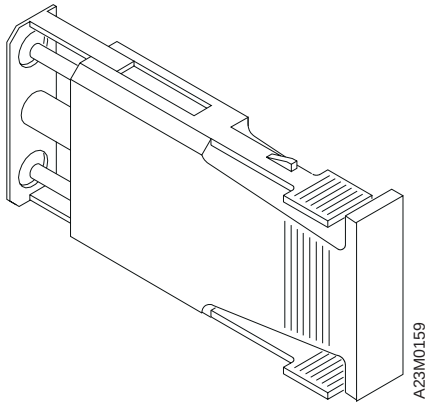


Use this coax plug (P/N 02G7433) to check the input and output circuits of the Ethernet card via the coax connector on the card.

1. Disable the Ethernet attachment.
2. Unplug the Ethernet cable from the coax connector at the rear of the controller.
3. Install the wrap plug on the Ethernet coax connector on the rear of the RISC controller.

See Ethernet Tests for more information.

ESCON (Serial) Channel Wrap Plug

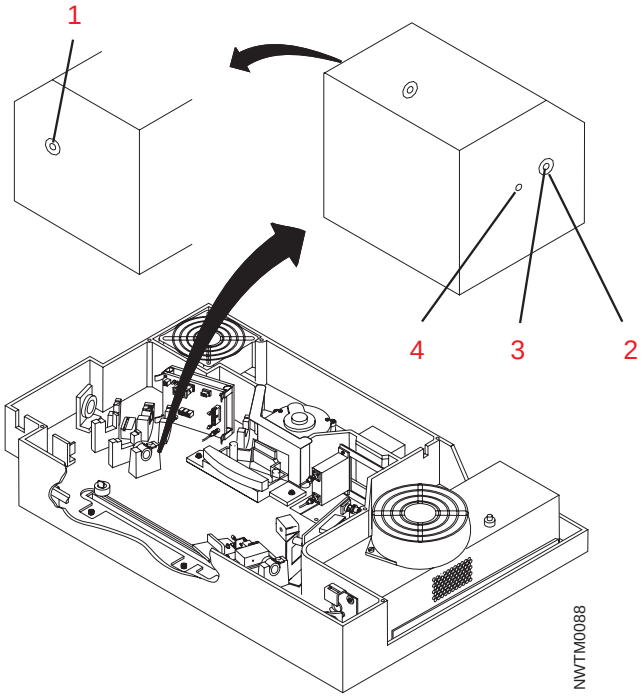


Use this fiber-optic plug (PN 5605670) to check the input and output circuits of the serial channel card.

1. Perform a Shutdown Procedure.
2. Set the RISC controller power switch to Off.
3. Install the wrap plug on the ESCON channel connector on the rear of the RISC controller.

See ESCON Channel Tests for more information.

Laser Alignment Tool (Single Beam)



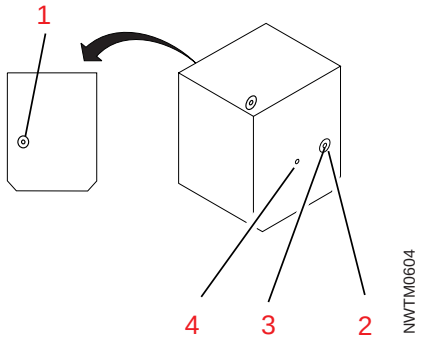
Note: Ensure that you are using the proper alignment tool. Other printheads use a different tool that is not interchangeable with this printhead configuration.

Use this tool (P/N 57G6642) to adjust the position of the laser and to ensure that the laser beam is aligned through the center of the lenses.

For more details on using the laser alignment tool see the ″Printhead″ section.

When you are finished, protect the tool from scratches before you store it.

Laser Alignment Tool (Two Beam, without Resolution Switching Lens)



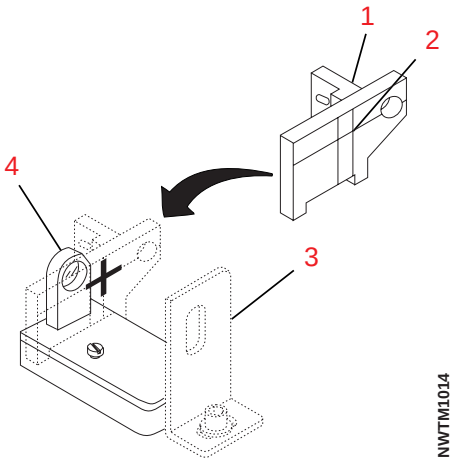
Note: Ensure that you are using the proper alignment tool. Other printheads use a different tool that is not interchangeable with this printhead configuration.

Use this tool (P/N 08H7727) to adjust the position of the laser and to ensure that the laser beam is aligned through the center of the lenses.

For more details on using the laser alignment tool see the ″Printhead″ section..

When you are finished, protect the tool from scratches before you store it.

Laser Alignment Tool (Two-Beam, Switchable 240/300 DPI)



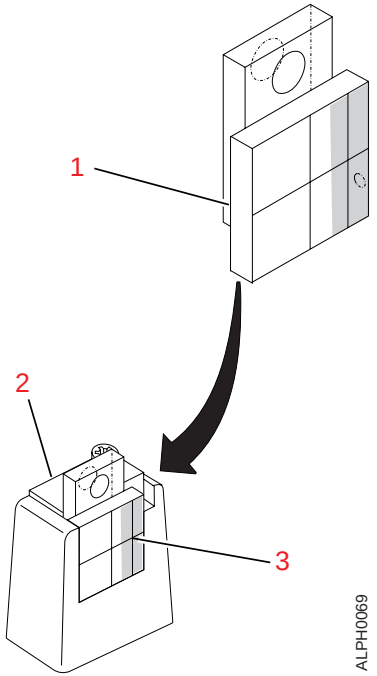
Note: Ensure that you are using the proper alignment tool. Other printheads use a different tool that is not interchangeable with this printhead configuration.

Use this tool (P/N 90H1030) to adjust the position of the laser and to ensure that the laser beam is aligned through the center of the lenses.

For more details on using the laser alignment tool see the Printhead section..

When you are finished, protect the tool from scratches before you store it.

Laser Alignment Target (Four and Five Beam)



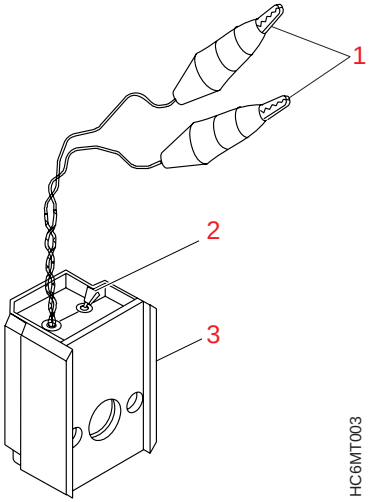
Note: Ensure that you are using the proper alignment tool. Other printheads use a different tool that is not interchangeable with this printhead configuration.

Use this tool (P/N 30H2978) to adjust the position of the laser and to ensure that the laser beam is aligned through the center of the lenses.

For more details on using the laser alignment too see the Printhead section.

When you are finished, protect the tool from scratches before you store it.

Laser Power Tool



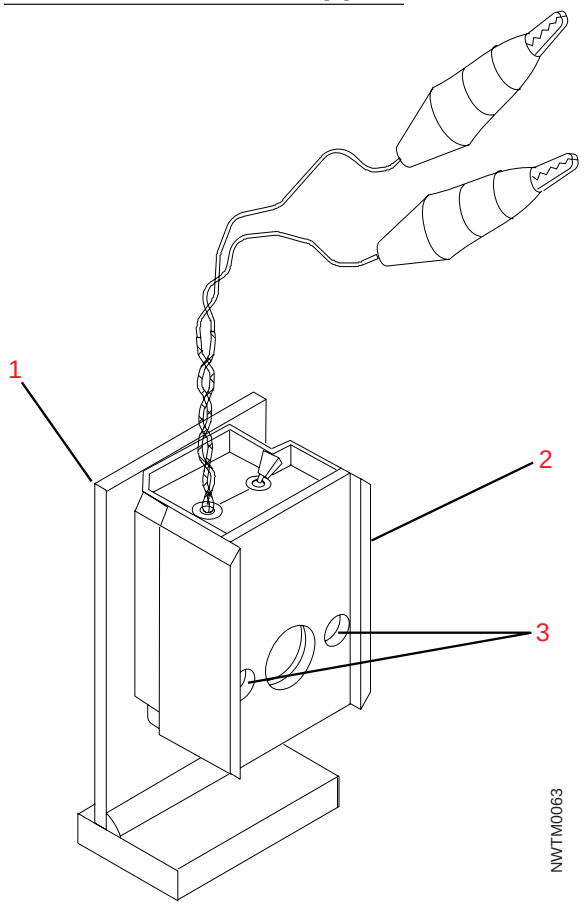
The laser power tool **(3)** (PN 65F6210) is designed for use only with the blue light of an argon laser. It has the following properties:

- With the power selection switch **(2)** on Low, the output level is 80mV dc/1.0 mW of laser beam power.
- With the power selection switch **(2)** on High, the output level is 80mV dc/10.0 mW of laser beam power

Procedure

1. Connect the laser power tool leads **(1)** to a digital multimeter.
   Note: Ensure that the probe tips do not touch each other or the printer.
2. Set the multimeter for a full-scale reading of 2 V dc.
3. Set the power selection switch **(2)** to LOW.
4. Place the lens of the tool in the laser beam path.
5. Shield the tool from room light.
6. Move the tool slightly to get the highest power reading.
7. Read the beam power in millivolts (mV).

Laser Power Tool Support



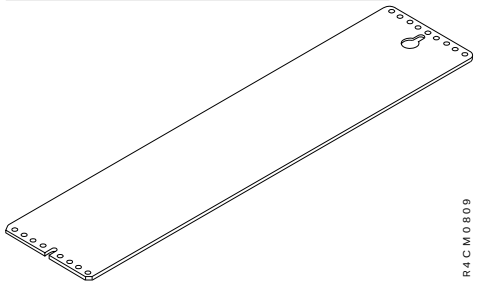
Use this tool **(1)** (PN 57G6641) to allow a steady, hands-free measurement of the laser beam power. It is especially useful when:

- Measuring the laser beam power with the printhead cover in place.
- Adjusting the acousto-optic (AO) Modulator.

Procedure

1. If the tool is new, peel off the paper from the adhesive-backed magnet strips and apply the magnets to the sides of the laser power tool**(2)**.
2. Use the magnets to hold the power tool to the support tool.
3. Ensure that the leads point upward.
4. Connect the power tool to the multimeter.
5. Position the support in the printhead as desired.

Tractor Alignment Gauge



The tractor alignment gauge (P/N 88F3336) is a metal plate used to set the positions of the rear tractors. It also serves as the maintenance switch access cover over the B1 logic unit at the rear of the printer.

This gauge is required because the distance between the left and right lower tractors must be 0.5 mm more than the distance between the left and right upper tractors. This difference creates a greater forms tension between the lower tractors than between the upper tractors.

The procedure to use this tool is described in ″Transfer Station Adjustments, Tractor Alignment″ in the Input Area and Transfer Station section of CARR. Install the outermost holes over the pins on the lower tractors. Install the second holes from the edges over the pins on the upper tractors.

Return the gauge to its access cover position for storage.

Maintenance Panel and Extension Cable

Maintenance Panel

The maintenance panel is located in the front center of the printer. It has a 4-digit LED display and a hexadecimal key pad.

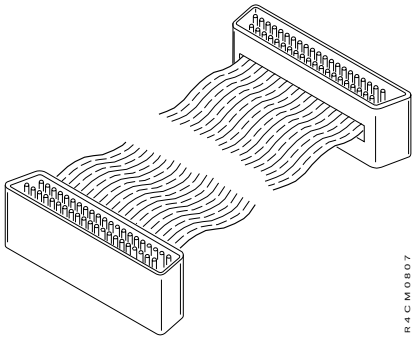
See Printer Diagnostics for instructions on how to use the panel.

To access the maintenance panel, do the following:

1. Open the front center cover of the printer.
2. On the maintenance panel cover, turn the screw counterclockwise.
3. Remove the cover
4. Slide out the maintenance panel.

Reverse these steps to put the maintenance panel away.

Extension Cable

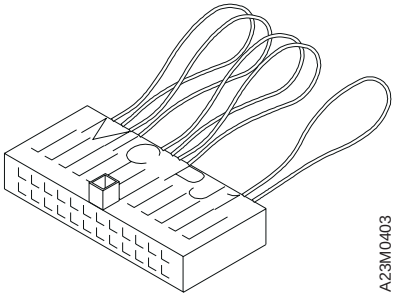


The extension cable (PN 65F6227) is provided so you can move the maintenance panel close to the place where you are working. The cable normally is stored in the control unit with other special tools. The cable connectors are keyed so that they cannot be installed incorrectly.

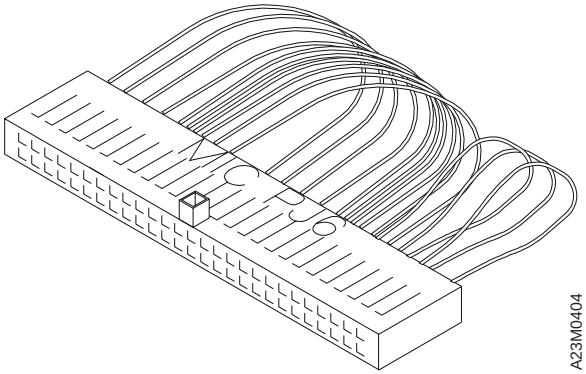
- Always power off the printer before you connect or disconnect the extension cable.
- Do not attach the panel to a vertical surface, such as a cover. The magnets are not strong enough to hold the panel, and they may scratch the paint.

MIC Wrap Plugs

Use these plugs to run the mechanism interface card (MIC) isolation wrap test:

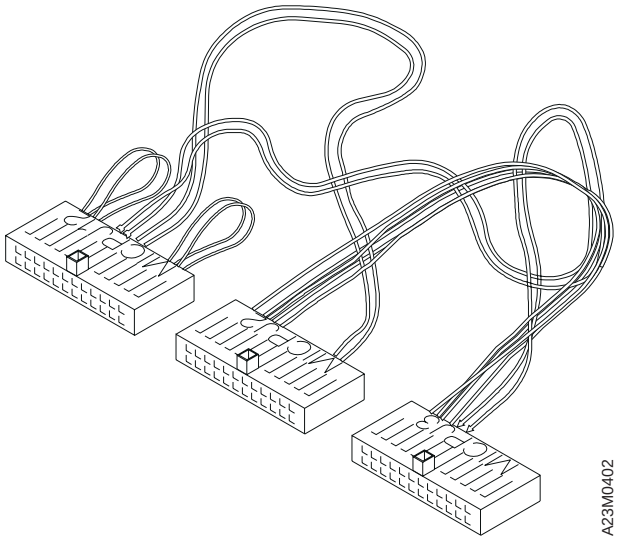


Wrap plug PJ1 (PN 45G2082)

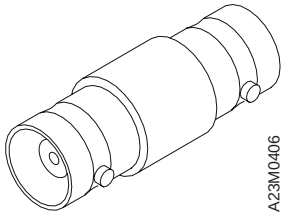


Wrap plug PJ6 (PN 45G2083)

Always power off the printer before you install or remove these tools. All of them must be installed before you run the test.



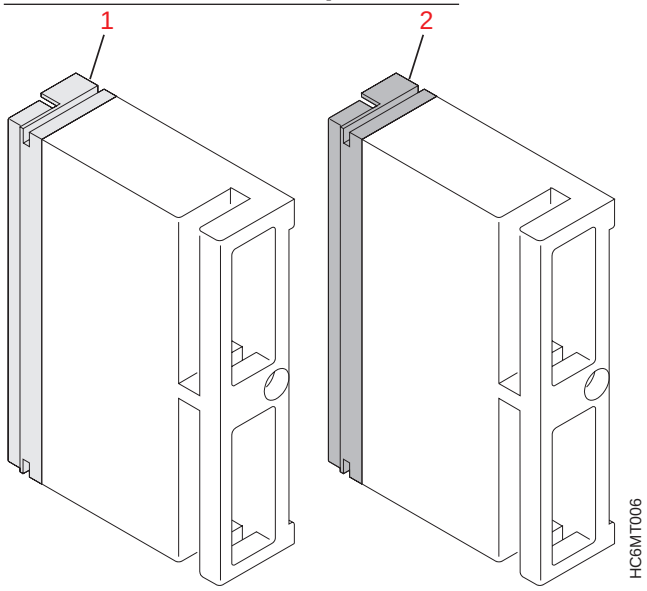
Wrap plug PJ2-PJ3-PJ12 (PN 45G2084)



BD/VD coax union (PN 45G2085)

For more information, see Mechanism Interface Card (MIC) Isolation Wrap Test.

Parallel Channel Wrap Blocks

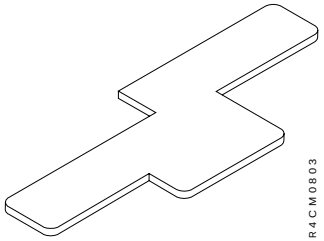


Use wrap block PN 8575337 **(1)** for the bus connector and wrap block PN 8575338 **(2)** for the tag connector to check the input and output circuits of the parallel channel at the channel tailgate. Both blocks must be installed.

1. Perform a Shutdown Procedure.
2. Set the RISC controller power switch to Off.
3. Install PN 8575337 on the parallel channel bus in-connector (BIC) on the channel tailgate, and install PN 8575338 on the parallel channel tag in-connector (TIC) on the channel tailgate.

See Parallel Channel Tests for more information.

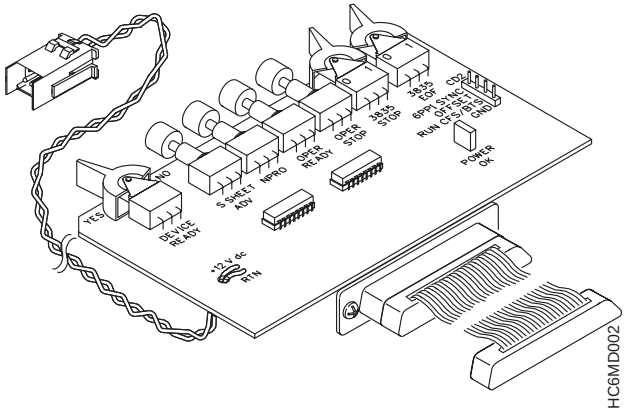
Path Modifier Gauge



The path modifier gauge (P/N 88F1609) is a multipurpose gauge plate. Use it to:

- Adjust the position of the path modifier relative to the extended retractors. For this adjustment, use the side that is 13.2 mm (approximately 0.5 in.) long. See Path Modifier Position.
- Adjust the doctor blade holder. Use this part of the gauge only if major developer disassembly is performed. When you reinstall the doctor blade holder, use the back side of the path modifier gauge to position the holder relative to the mag brush and scavenger roll.

Pre/Postprocessing Interface Test Card and Cable

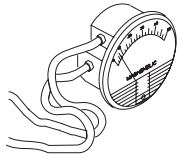


Use the pre/postprocessing interface test card (PN 45G2033) for diagnosing problems that can be caused by either the printer or a pre/postprocessing device. Install the card in place of the pre/postprocessing device. Then, if the printer operates correctly, you can assume that the problem is in the pre/postprocessing device.

See Pre/Postprocessor Diagnostics for information about using the test card.

Attention: Use the pre/postprocessing interface test card only with the 4710 interface card, not with the intelligent advanced function postprocessing 4720 interface card.

Pressure Gauge

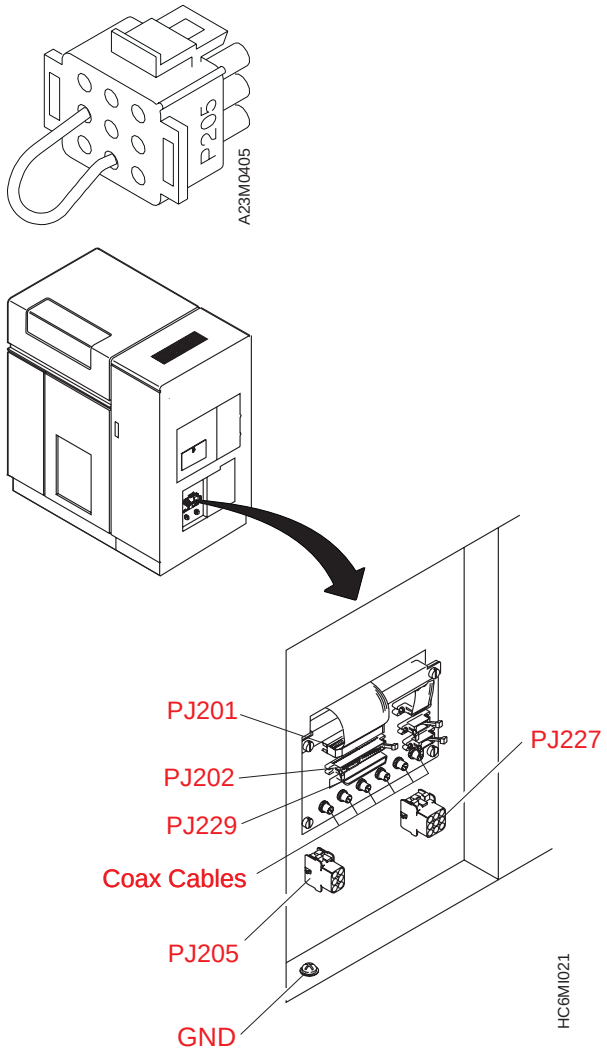


Calibrating Pressure Gauge

1. Position the pressure gauge (PN 03F5635) so that the face is vertical.
2. Turn the screw at the base of the needle until the needle points to 0.
3. Take pressure readings only when the face of the gauge is vertical.

Measuring

1. Attach one end of the tube supplied with the pressure gauge to the gauge.
   Note: Use the LO fitting on the gauge to check vacuum.
2. Remove the cap from an air test point.
3. Attach the other end of the tube to the air test point.
   Note: If you are checking a pressure differential, attach one end of another tube (miscellaneous tool P/N 06F0257) to the second test point and its other end to the HIGH fitting on the pressure gauge.
4. Read the value on the pressure gauge.
5. Remove the tube from the air test point and replace the test-point cap.

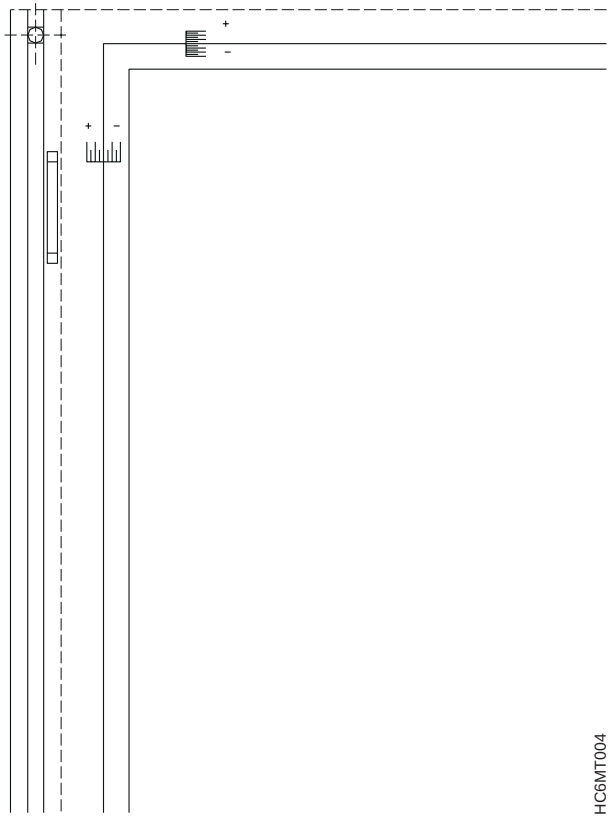


Printer Power Jumper Plug

Use the printer power jumper plug (PN 45G2038) to run the printer in stand-alone mode (that is, not connected to the control unit):

1. Perform a Shutdown Procedure.
2. Set the printer power switch on the power control panel to Off.
3. Rotate the control unit away from the printer.
4. Disconnect all cables from the control unit at the printer tailgate.
5. Install the printer power jumper plug on connector PJ205 **(1)** on the printer tailgate (it is keyed for unique positioning).
6. Open the right front cover of the printer.
7. Remove the ac power supply cover.
8. Press the switch to power-on the printer in stand-alone mode.
9. Reverse these steps to reconnect the printer to the control unit.

Registration Template



Use the registration template (P/N 04H0739) to check print registration. It provides an alternate method (rather than using a scale) to determine if the process and scan direction print registration is correct.

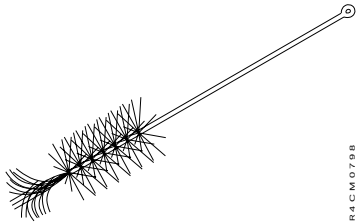
Vacuum Cleaner

The printer should be cleaned only with a vacuum cleaner approved for toner applications. PN 9900735 is an acceptable cleaner. It is listed in the “General CE Tools Reference Summary,” S131-0075.

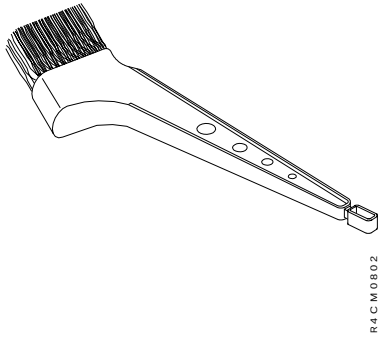
Before you use the vacuum cleaner, do the following:

1. Disable the channels.
2. Power off the printer.

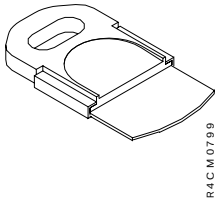
Miscellaneous Tools



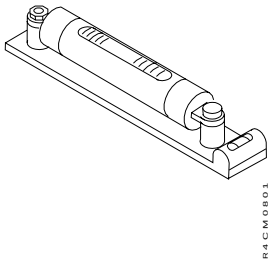
Cleaner Housing Brush



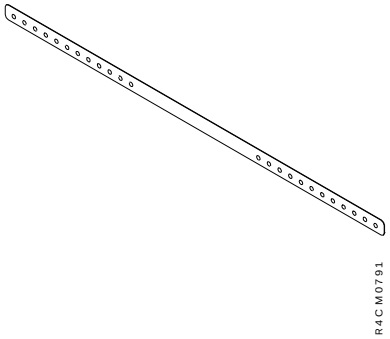
Corona Cleaning Brush



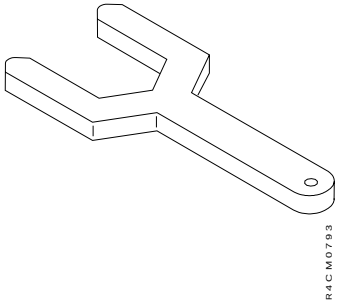
Preheat Platen Scraper



Level



Forms Tension Gauge



Line Cord Wrench

Fru List

POSSIBLE FAILING PARTS OR ADJUSTMENTS

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Printer out of level	---			3679
Air				
Cyclone Blower	%	2063	3309	2173
Cyclone Blower mechanism bind	%		3309	2173
Cyclone Blower Motor (M104)	%	2063	3309	2177
Filter Pressure Switch (S102)	40%	2053	3307	2182
Toner Collector Bottle not installed correctly	50%			2186
Toner Collector Switch (S118) mechanism	20%	2063	3305	2187
Toner Collector Switch (S118) adjustment	15%	2063	3305	2187
Toner Collector Switch (S118)	10%	2063	3305	2187
Vacuum Blower Motor (M105)	%	2063	3309	2191
Auto Load Bridge				

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Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Bridge Feed Motor (M605)	%	2059	3423	2198
Bridge Lift Motor (M606) and drive circuitry	%	2059	3421	2202
Bridge Down Switch (S609)	%	2059	3423	2195
Bridge Up Switch (S608)	%	2059	3421	2209
Bridge parallelism adjustment	---			2199
Cards/Boards				
B1J1 Card	%	B1 Logic Card Links		
B1J3 Card	%	B1 Logic Card Links		
B1J5 Card	%	B1 Logic Card Links		
B1J7 Card	%	B1 Logic Card Links		
B1J8 Card	%	B1 Logic Card Links		
B1J9 Card	%	B1 Logic Card Links		
B1J10 Card	%	B1 Logic Card Links		
B1J11 Card	%	B1 Logic Card Links		
Forms Length Sensor Board (FL061)	%	2120	3465	2960
Fuser Control Card FSxxx	%	2131	3499	2528
Hot Roll Control Card HR091	%	2064	3397	2534

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mechanism Interface Card (MIC)	%	Control Unit Links		
MIC Memory Card	%	Control Unit Links		
Mirror Motor Driver Board (MDxxx)	%	Printhead Links		
PQE Card	%	Control Unit Links		
Pre/Postprocessing Card	%	Control Unit Links		
Printer Interface Card (IFxxx))	01%	Printer Interface Links		
Forms Width Sensor Board (PW091)	%	2123	3333	3046
Relay Board RB091/RB092	%	2135, 2136	3501	
Relay Board (RB092)	%	2136	3501	
Relay Board (RB241)	03%	2062	3205	
Side1/Side2 Verification Control Card	%	Control Unit Links		
Stacker Control Card SCxxx	%	2120	3457	3019
Stacker Length Rotary Board (FL041)	%	2120	3473	3001
SQ081/SQ082 Card	%	2142	3507 (200 V) 3509 (400 V)	2642
SR081 Card	%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	2643

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Control Card PCxxx	%	2053	3199	2402
Toner Control Card PC551	%	2053	3199	2402
YS011 Card	%	2116	3363	2627
CB2 on YS011 tripped because of a short or defect	%	2116	3363	2627
Cleaner				
Cleaner Brush	%	2082	3225	2220
Cleaner Brush Drive Belt	%		3221	2222
Cleaner Brush Drive mechanism	%		3223	
Cleaner Brush Motor (M108)	%	2053	3221	2228
Cleaner Brush Rotation Sensor (S114)	%	2055	3223	2230
Cleaner Housing Motor (M106)	%	2053	3219	2233
Cleaner Housing mechanism	%	2082	3219	
Cleaner Housing Position Switch (S103)	%	2053	3219	2233
Cleaner Housing Position Switch (S103) adjustment	---	2053	3219	2233

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Connectors				
Connector PJ609	%	2131		
Connector PJ612	%	2131		
Connector PJ619	%	2080		
Connector PJ661	%	2076		
Connector PJ662	%	2076		
Connector PJ667	%	2076		
Connector PJ668	%	2076		
Control Unit				
Contorl Unit AC Control Box	%	Control Unit Links		
DC Power Supply	%	Control Unit Links		
Display/Touch Screen	%	Control Unit Links		
Operator Attention Accessory Contacts Fuse	%	Control Unit Links		
Operator Attention Accessory Contacts Relay	%	Control Unit Links		
Operator Attention Alarm Speaker	%	Control Unit Links		
Operator Attention Alarm Volume Control potentiometer	%	Control Unit Links		

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Operator Attention Circuit Board	%	Control Unit Links		
Operator Attention Light Bulb	%	Control Unit Links		
Power Control Panel	%	Control Unit Links		
UEPO Switch	%	Control Unit Links		
Coronas				
Charge Corona	%	2082	3211	2313
Charge Corona Wire	%	2082	3211	2313
Charge Corona gap	%	- -	- -	2316
Dirty Charge Corona	%	2082	3211	2314
Mag Brush Bias voltage adjustment	%	--	--	2330
Precharge Corona	%	2082	3209	2320
Precharge Corona Wire	%	2082	3209	2320
Dirty Precharge Corona	%	2082	3209	2321
Precharge voltage adjustment	%	---	---	2339
Preclean Corona Wire	%	2082	3209	2320
Dirty Preclean Corona	%	2082	3209	2321
Preclean Corona voltage adjustment	%	---	---	2339
Preclean Corona to PC Drum Gap	%	- -	- -	2323

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Transfer Corona	%	2123	3337	2320
Transfer Corona dirty	%	2123	3337	2321
Transfer Corona Wire	%	2123	3337	2320
Transfer Corona voltage adjustment	%	--	--	2339
Covers				
Operator Panel		2081	3187	2351
Buffer Card		2081	3187	2351
Developer				

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Developer adjustments • Conveyor Roll Angle 2440 • Conveyor Roll Lift Plate 2441 • Developer Housing Vacuum Seal Gap 2444 • Developer to PC Drum Gap 2446 • Initialize Mag Brush Rolls Position 2451 • Mag Brush Rolls to Doctor Blade 2453 • Mag Brush C to Scraper Gap 2459 • Mag Brush A to Scraper Gap 2462 • Mag Brush Angle 2464	%			2440
Conveyor roll	%	2067	3237	2363
Conveyor Roll Rotation Sensor (S113)	%	2067	3243	2368
Developer Drain Lever Sensor (S112)	90%	2068	3231	2383
Developer Run Switch (S107)	90%	2068	3231	2387
Mag Brush Belt	%		3237	2369

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Mag Brush Motor (M101)	%	2070	3241	2389
Mag Brush Rolls	%	2067	3237	2392
Mag Brush Roll A	15%	2067	3237	2392
Mag Brush Roll B	%	2067	3237	2392
Mag Brush Roll C	%	2067	3237	2392
Toner Auger Pulley	10%	2066	3249	2431
Toner Auger mechanism	09%	2066	3249	2431
Toner Control Belt	%		3253	2369
Toner Control Motor (M103)	%	2067	3247	2407
Toner Control Motor (M103) gear head assembly	%	2067	3199	2407
Toner Control Sensor (L101)	%	2068	3253	2412
Toner Empty Sensor (S106)	%	2068	3257	2414
Toner Feed Belt	%		3257	2369
Toner Feed mechanism	%		3257	
Toner Feed Motor (M102)	%	2067	3257	2419
Toner Feed Motor (M102) gear head	%	2067	3257	2419
Toner Feed Scraper Blade	%		3255	2421

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Toner Feed Shaft Pulley	%	2066	3255	2425
Toner Supply Motor (M112)	03%	2068	3251	2431
Toner Supply Switch (S121)	60%	2068	3231	2438
Toner Supply Motor (M112)	03%	2068	3251	2431
Drum				
Drum Motor (M107)	%	2053	3259	2479
PC Drum grounding	%			2478
PC Drum	%	2082	3261	2467
PC Drum Cover Interlock Switch (S122)	%	2055	3203	2476
Drum Surface Voltage	%	- -	- -	2331
Erase Lamp				
Primary Erase Lamp (PL102)	%	2082	3207	2490
Primary Erase Lamp Sensor (Q101)	%	2055	3215	2492
Primary Erase Lamp Starter (ST102)	%	2059	3207	2498
Secondary Erase Lamp (PL101)	%	2082	3211	2493
Secondary Erase Lamp Starter (ST101)	%	2059	3207	2498

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Secondary Erase Lamp Sensor (Q102)	%	2055	3213	2495
Fuser				
Backup Roll	%	2073	3431	2503
Backup Roll Motor (M603)	%	2076	3393	2521
Backup Roll Motor (M603) gear head	%	2076	3393	2521
Backup Roll Position Encoder (EN131)	%	2073	3407	2507
Backup Idler Roll	%	2073	3241	2522
Backup Idler Roll Motor (M609)	%	2076	3393	2524
Backup Idler Roll Motor (M609) gear head	%	2073	3393	2524
BIR Position Encoder (EN131)	%	2073	3407	2526
Upper Rear Fuser Fan (B605)	%	2073	3395	2529
Fuser Filter	%	2073	3415	
Fuser Wrap Sensors (S617 & S618)	%	2073	3387	2530
Fuser Wrap Sensor (S620)	%	2073	3387	2532
Hot Roll	%	2073	3387	2537

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Hot Roll Bearings	%			2535
Hot Roll Blower Motor (B602)	%	2076	3393	2546
Hot Roll Collars	%	2073	3387	2537
Hot Roll Lamp 1	80%	2073	3389	2550
Hot Roll Lamp Repectacle Contacts	10%		3385	2556
Hot Roll Motor (M607)	%	2076	3391	2541
Hot Roll Over-temperature Sensor (S613)	05%	2073	3415	2560
Hot Roll Temperature Control Sensor (L601)	20%	2073	3415	2558
Hot Roll Thermistor (S621)	40%	2073	3417	2613
Hot Roll Thermistor (S622)	40%	2073	3417	2613
Hot Roll Thermistor (S623)	40%	2073	3417	2613
Oiler Belt End Switch (S610)	10%	2073	3447	2613
Oiler Belt End Switch (S610) adjustment	25%	2073	3447	2562
Oiler-Belt Motor (M706)	%	2073	3443	2564

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Oil Empty Sensor (S702) binding	50%	2059	3395	2569
Oiler Gate Open Switch (S605) adjustment	75%	2073	3397	2566
Oiler Gate Open Switch (S605)	20%	2073	3397	2566
Oil Pump Asm with Oil Empty Sensor (S702)	45%	2059	3395	2569
Oil Pump (Lxxx)	%	2059	3395	2569
Preheat Control	35%	2081	3513	2583
Lower Preheat Platen (PH602)	15%	2073	3429	2576
Upper Preheat Platen (PH601)	15%	2073	3429	2576
Preheat Platen Vacuum adjustment	---			2189
Relay (K601)	80%	2080	3499	
Soft Start Thermal Sensor 1 (S601) or 2 (S602)	05%	2080	3499	
Solid State Relay (SR601)	15%	2080	3499	
Solid State Relay (SR602)	15%	2080	3499	
Solid State Relay (SR603)	15%	2080	3499	

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Solid State Relay (SR604)	15%	2080	3499	
Solid State Relay (SR605)	70%	2080	3499	
Solid State Relay (SR606)	70%	2080	3499	
Solid State Relay (SR607)	01%	2080	3499	
Solid State Relay (SR608)	01%	2080	3499	
Scuff Pressure Rolls	10%	2073	3379	2586
Scuff Rolls	%	2073	3405	2590
Scuff Roll Motor (M604)	%	2073	3403	2592
Scuff Roll Drive Belt	%	2073	3405	2592
Skew Sensor (D603)	%	2064	3435	2604
Steering Motor (M601)	%	2064	3431	2611
Broken or loose Vacuum Shutter drive cable	40%		3435	2596
Bind in the Vacuum Shutter mechanism	25%		3431	2596
Vacuum Shutter Home Sensor (S604) adjustment	15%	2064	3433	2599
Vacuum Shutter Home Sensor (S604)	10%	2064	3433	2599

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Shutter Control Motor (M602)	05%	2064	3431	2603
Input Area				
EOF LED (PL103)	15%	2081	3197	2619
EOF Sensor (Q103)	15%	2055	3203	2619
Printer Control Panel (SW721)	90%	2116	3363	2622
Splice Lever Switch (S101)	35%	2116	3359	2623
Splice Lever Switch (S101) adjustment	20%	2116	3359	2623
Power				
Printer AC Power Supply	%	2084	3507 (200V) 3509 (400V)	2635
Circuit Breaker CB501	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Circuit Breaker CB503	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
Circuit Breaker CB504	01%	2088 (200 V) 2092 (400 V)	3507 (200V) 3509 (400V)	
DC 1 Power Supply	%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2637
DC 2 Power Supply	%	2088 (200 V) 2092 (400 V)	3507 (200 V) 3509 (400 V)	2641

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
High Voltage Power Supply	%	2059	3205	2328
HV Connector or Cable	%	2059	3231	2328
Relay (K501)	%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Relay (K503)	%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Relay (K505)	07%	2088 (200V) 2092 (400V)	3507 (200V) 3509 (400V)	
Relay Board (RB101)	%	2084	3507 (200V) 3509 (400V)	
Printhead				
Beam Detect Card (BDxxx)	%	Printhead Links		
Laser	%	Printhead Links		
Laser Power Supply	05%	Printhead Links		
Mirror Motor (M201)	%	Printhead Links		
Printhead Interface Card (VIxxx)	%	Printhead Links		
Resolution Switching Lens Motor (M202)	%	Printhead Links		
Resolution Switching Lens Motor Position Sensor (S202)	%	Printhead Links		

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Resolution Switching Lens Motor Postion Sensor adjustment	%	Printhead Links		
Loose or binding Resolution mechanism	%	Printhead Links		
R5/VR4 adjustment.	---	Printhead Links		
Stacker				
Capacitor (C702) (part of M701 Motor Asm)	%	2118	3475	2984
Capacitor (C703) (part of M702 Motor Asm)	%	2118	3481	2990
Capacitor (C704) (part of M703 Motor Asm)	%	2057	3455	2959
Stacker Control Panel (SW511)	%	2118	3455	2957
Finger belts broken, loose, or worn	%	2118	3475 (left) 3481 (right)	2984 (left) 2990 (right)
Left Finger Belt Motor (M701)	%	2118	3475	2984
Left Finger Belt Motor (M701) drive belt	%	2118	3475	2984
Right Finger Belt Motor (M702)	%	2118	3481	2990
Right Finger Belt Motor (M702) drive belt	%	2117	3481	2990

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Forms Length Mechanism and Sensor Adjustment	%			2961
Pendulum	%	2117	3461	3004
Pendulum Drive Belt	%	2117	3461	3004
Pendulum Motor (M704)	%	2117	3461	3004
Pendulum Position Sensor (S619) out of adjustment	%	2117	3463	3007
Stacker Gate Open Switch (S712)	95%	2117	3467	2967
Stacker Gate Safety Switch Finger Bar binding	%	2118	3479	
Stacker Gate Safety Switches (S713) and (S714) adjustment	%	2118	3479	2968
Stacker height LEDs and photosensors dirty, out of adjustment, or defective	%	2117 (sensors) 2118 (LEDs)	3471 (left) 3483 (right)	2973
Left Stacker Height LED (PL703) and Sensor (Q703) adjustment	%	2117 (sensor) 2118 (LED)	3471	2973
Right Stacker Height LED (PL702) and Sensor (Q702) adjustment	%	2118	3483	2973

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Stacker Jam LED (PL701)	%	2117	3471	2978
Stacker Jam Sensor (Q701)	%	2117	3471	2978
Stacker Jam Sensor dirty	%	2117	3471	2978
Stacker Jam Sensor out of adjustment	%	2117	3471	2978
Stacker Length Motor (M707)	%	2120	3467	2997
Stacker Table Lower Limit Switch (S701)	%	2118	3489	3015
Stacker Table Upper Limit Switch (S704)	%	2118	3489	3017
Stacker Table mechanism	%	2120	3491	
Stacker Table Motor (M803)	%	2120	3491	3013
Stacker Table Motor (M803) gear head	%	2120	3491	3013
Transfer Station				
Capstan Pinch Roll Motor (M301)	%	2125	3321	3028
Capstan Pinch Roll Open Switch (S301)	40%	2122	3341	3031
Path Modifier Resistor	%	2123	3351	3051

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Retractor Motor (M304)	%	2122	3349	3057
Retractor mechanism binding	%	2123	3351	3059 (lower), 3061 (upper)
Tension Arm Encoder Board (EN123)	%	2125	3321	3090
Tension Arm Encoder Board (EN122)	%	2125	3321	3090
Tractor Motor (M303)	%	2125	3325	3111
Tractor Motor Drive Belt	15%	2125	3325	3111
Tractor motor brushes	%	2125	3325	3111
Transfer Corona Shield	%	2123	3331	3154

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Transfer Station adjustments affecting the forms tension: 1. Capstan Pinch Roll Adjustment 3025 2. Deflector Plate to PC Drum Gap 3040 3. Tension Arm Position 3106 4. Tension Arm Parallelism 3105 5. Tractor alignment 3142 6. Path Modifier position 3052 7. Lower Tractor timing adjustment 3146 8. Upper Tractor Timing Adjustment 3150 9. Retractor Detent 3063 10. Retractor to PC Drum gap 3066 11. Premeasure Unit Gap 3055 12. Upper Forms Guide 3044	---			3160

Item	Probablilty	Locations Link	Parts Link	Removals & Adjustments Link
Transfer Station Latch mechansim	40%		3337	
Transfer Station Open Sensor (S302)	35%	2055	3215	3158
Trasnsfer Station Open Sensor (S302) adjustment	20%	2055	3215	3158
Upper Tractor Jam Sensor (Q301)	%	2123	3317	3152

Part Number Index

Part Number	Asm–Index	Page
0091610	43–8A	3536
00G2223	49–35	3554
00G3277	49–61	3558
00G3283	49–21	3552
00G3368	49–51	3556
00G3524	49–3	3550
02N6400	42–17A	3524
02N7864	7–40	3230
02N7865	7–39	3230
0338169	42–14A	3524
0438551	42–16A	3524
04H0210	35–18	3508
04H0210	36–16	3510
04H0212	14–123	3326
04H0212	26–18	3462
04H0277	20–89D	3384
04H0288	23–66	3448
04H0289	20–154	3396
04H0290	13–79	3312
04H0368	12–12A	3264
04H0369	12–22A	3264
04H0370	12–24A	3264
04H0371	12–25A	3264
04H0372	20–36	3380
04H0372	20–73D	3382
04H0396	14–16S	3348
04H0476	20–78	3390
04H0477	20–79	3390
04H0478	20–86	3390
04H0479	20–87	3390
04H0480	20–82	3390
04H0481	20–83	3390
04H0503	20–256D	3410
04H0504	20–270D	3412
04H0505	20–233D	3408
04H0544	20–136D	3394
04H0559	7–72	3232
04H0560	7–73	3232
04H0561	7–77	3232
04H0572	52–4S	3592
04H0574	14–15S	3348
04H0574	52–3S	3592
04H0693	42–16B	3528
04H0725	20–231D	3408
04H0726	20–236D	3408
04H0760	42–15B	3528
04H0761	42–15B	3528
04H0764	28–5	3476
04H0764	29–4	3482
04H0769	12–96S	3294
04H0769	12–96T	3280
04H0776	20–257	3404
04H0777	20–269	3406
04H0778	28–26	3476
04H0779	28–27	3476
04H0780	6–111	3226
04H0784	31–38	3496
04H0788	12–162S	3300
04H0788	12–162T	3286
04H0789	12–164S	3300

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Part Number	Asm–Index	Page
04H0789	12–164T	3286
04H0790	12–165S	3300
04H0790	12–165T	3286
04H0791	12–166S	3300
04H0791	12–166T	3286
04H0792	12–169S	3300
04H0792	12–169T	3286
04H0793	12–170S	3300
04H0793	12–170T	3286
04H0794	12–171S	3300
04H0794	12–171T	3286
04H0796	12–179S	3302
04H0796	12–179T	3288
04H0797	12–182S	3302
04H0797	12–182T	3288
04H0798	12–184S	3302
04H0798	12–184T	3288
04H0799	12–187S	3302
04H0799	12–187T	3288
04H0801	12–35S	3290
04H0801	12–35T	3276
04H0802	12–42S	3292
04H0802	12–42T	3276
04H0803	12–65S	3292
04H0803	12–65T	3278
04H0805	12–75T	3280
04H0807	12–146S	3298
04H0807	12–146T	3284
04H0810	12–62S	3292
04H0810	12–62T	3278
04H0812	12–97S	3294
04H0812	12–97T	3280
04H0820	12–108S	3294
04H0820	12–108T	3280
04H0822	12–74	3268
04H0822	12–74S	3294
04H0822	12–74T	3280
04H0823	12–72S	3294
04H0823	12–72T	3280
04H0829	12–6S	3290
04H0829	12–6T	3276
04H0833	12–103S	3294
04H0834	4–60	3202
04H0842	4–57	3200
04H0845	12–2S	3290
04H0845	12–2T	3276
04H0847	12–56T	3278
04H0877	31–41	3496
04H0887	9–125	3250
04H0888	9–164	3252
04H0889	9–122	3250
04H0890	9–165	3252
04H0891	9–167	3252
04H0893	9–153	3252
04H0894	4–123A	3204
04H0896	4–160	3206
04H0897	9–152	3252
04H0898	9–166	3252
04H0899	9–123	3250
04H0900	14–78A	3322
04H0901	4–156	3206
04H0913	9–150	3252
04H0978	4–57	3200
04H1055	14–14	3316
04H1056	14–207	3334
04H1058	22–100	3436

Part Number	Asm–Index	Page
04H1060	20–227D	3408
04H1087	8–56	3240
04H1088	8–58	3240
04H1088	8–63	3242
04H1089	8–12	3238
04H1090	8–50	3238
04H1091	8–94	3242
04H1092	9–103A	3248
04H1093	10–95	3258
04H1094	10–90	3258
04H1095	10–86	3258
04H1096	10–91	3258
04H1099	8–93	3242
04H1103	20–5	3380
04H1103	20–55D	3382
04H1104	20–244D	3410
04H1104	20–258D	3410
04H1105	20–242D	3410
04H1106	20–232D	3408
04H1106	20–235D	3408
04H1107	20–234D	3408
04H1108	20–225D	3408
04H1109	20–223D	3408
04H1124	10–57	3256
05L5440	16–202	3370
05L5441	16–209	3370
05L5442	16–210	3370
05L5443	16–212	3370
05L5448	16–219	3370
05L5449	16–220	3370
05L5450	16–222	3370
05L5971	16–225	3370
06F0028	31–16	3494
06F0038	11–8	3260
06F0041	13–51	3310
06F0051	6–57	3222
06F0052	6–58	3222
06F0054	14–114	3326
06F0054	14–305	3342
06F0054	14–308	3342
06F0054	14–42	3318
06F0054	6–108	3226
06F0054	6–72	3224
06F0059	7–70	3232
06F0072	11–58	3262
06F0081	11–52	3262
06F0081	9–109	3248
06F0089	5–35	3208
06F0091	5–19	3208
06F0106	14–228	3336
06F0110	28–6	3476
06F0110	29–5	3482
06F0111	26–22	3462
06F0116	14–183	3332
06F0134	22–2	3428
06F0143	20–166	3398
06F0144	20–224	3402
06F0144	20–231	3402
06F0144	20–237D	3408
06F0147	20–135	3394
06F0147	20–135D	3394
06F0149	20–67	3388
06F0150	20–225	3402
06F0150	20–238D	3408
06F0153	20–56D	3382
06F0153	20–6	3380

Part Number	Asm–Index	Page
06F0154	20–265	3406
06F0155	20–264	3406
06F0156	20–262	3406
06F0158	20–267	3406
06F0158	22–163	3440
06F0163	23–8	3444
06F0164	23–7	3444
06F0172	32–5	3500
06F0173	32–16	3500
06F0174	20–187	3398
06F0194	13–20	3306
06F0194	20–142	3396
06F0194	25–46	3456
06F0194	31–4	3494
06F0194	4–142	3204
06F0194	4–31	3198
06F0194	4–43	3200
06F0194	5–115	3214
06F0194	5–53	3210
06F0194	7–62	3232
06F0195	30–111	3492
06F0196	30–109	3492
06F0198	30–40	3486
06F0206	28–52	3480
06F0207	27–54	3468
06F0213	14–331	3346
06F0213	20–171	3398
06F0213	22–15	3428
06F0213	22–48	3432
06F0214	13–95	3314
06F0214	27–59	3470
06F0214	27–72	3470
06F0214	27–86	3470
06F0214	29–31	3482
06F0214	30–83	3490
06F0220	28–8	3476
06F0220	29–7	3482
06F0223	26–26	3462
06F0224	26–27	3462
06F0227	26–10	3462
06F0228	26–48	3464
06F0291	6–100	3226
06F0292	14–111	3326
06F0292	14–121	3326
06F0292	14–91	3322
06F0292	20–121	3392
06F0292	20–194	3400
06F0292	22–123	3438
06F0292	22–54	3432
06F0292	26–19	3462
06F0292	26–7	3462
06F0292	6–117	3226
06F0342	13–63	3312
06F0348	23–77	3448
06F0357	23–22	3444
06F0358	23–20	3444
06F0359	23–18	3444
06F0361	23–17	3444
06F0369	14–245	3338
06F0389	4–60	3202
06F0401	1–104	3184
06F0401	1–82	3184
06F0401	10–10	3254
06F0401	11–10	3260
06F0401	11–24	3260
06F0401	11–25	3260

Part Number	Asm–Index	Page
06F0401	11–38	3260
06F0401	11–42	3260
06F0401	11–61	3262
06F0401	12–105	3270
06F0401	12–105S	3294
06F0401	12–105T	3280
06F0401	12–125	3272
06F0401	12–125S	3296
06F0401	12–125T	3282
06F0401	12–137	3272
06F0401	12–210S	3302
06F0401	12–95	3270
06F0401	13–101	3314
06F0401	13–12	3306
06F0401	13–50	3310
06F0401	14–181	3332
06F0401	14–283	3342
06F0401	14–333	3346
06F0401	14–80	3322
06F0401	14–9	3316
06F0401	15–22	3350
06F0401	15–51	3352
06F0401	15–66	3354
06F0401	16–10	3356
06F0401	16–105	3360
06F0401	16–107	3360
06F0401	16–48	3358
06F0401	20–150	3396
06F0401	20–153	3396
06F0401	20–167	3398
06F0401	20–21	3380
06F0401	20–218	3400
06F0401	20–229D	3408
06F0401	20–239	3402
06F0401	20–242	3402
06F0401	20–293	3416
06F0401	20–58	3386
06F0401	20–60	3386
06F0401	20–71D	3382
06F0401	21–77	3424
06F0401	22–107	3436
06F0401	22–111	3436
06F0401	22–136	3438
06F0401	22–136	3438
06F0401	22–174	3440
06F0401	22–70	3432
06F0401	23–7A	3450
06F0401	27–100	3472
06F0401	27–55	3468
06F0401	28–53	3480
06F0401	29–45	3484
06F0401	29–51	3484
06F0401	30–57	3490
06F0401	31–17	3494
06F0401	4–115	3204
06F0401	4–118	3204
06F0401	4–13	3198
06F0401	4–153	3206
06F0401	5–101	3214
06F0401	5–121	3214
06F0401	5–141	3216
06F0401	5–144	3216
06F0401	5–146	3216
06F0401	5–172	3218
06F0401	5–31	3208
06F0401	5–96	3214

Part Number	Asm–Index	Page
06F0401	54–	3598
06F0401	6–34	3220
06F0401	6–39	3220
06F0401	6–40	3220
06F0401	6–56	3222
06F0401	6–90	3224
06F0401	7–68	3232
06F0401	9–141	3250
06F0401	9–30	3244
06F0401	9–43	3244
06F0401	9–94	3248
06F0401	9–96	3248
06F0402	10–68	3258
06F0402	14–17S	3348
06F0402	14–21	3316
06F0402	14–2S	3348
06F0402	14–4S	3348
06F0402	21–131	3426
06F0402	26–49	3464
06F0402	28–22	3476
06F0402	42–2S	3534
06F0402	54–	3599
06F0402	9–115	3248
06F0402	9–140	3250
06F0403	11–31	3260
06F0403	12–119	3272
06F0403	12–119S	3296
06F0403	12–119T	3282
06F0403	12–120	3272
06F0403	12–120S	3296
06F0403	12–120T	3282
06F0403	12–12S	3290
06F0403	12–12T	3276
06F0403	12–177S	3302
06F0403	12–177T	3288
06F0403	12–24	3264
06F0403	12–49S	3292
06F0403	12–49T	3276
06F0403	12–63	3268
06F0403	12–63S	3292
06F0403	12–63T	3278
06F0403	12–77	3268
06F0403	12–92	3270
06F0403	12–9S	3290
06F0403	12–9T	3276
06F0403	13–15	3306
06F0403	13–58	3310
06F0403	14–125	3326
06F0403	14–140	3328
06F0403	14–240	3338
06F0403	14–337	3346
06F0403	15–25	3350
06F0403	15–45	3352
06F0403	20–195	3400
06F0403	20–32	3380
06F0403	22–180	3442
06F0403	22–92	3434
06F0403	23–28A	3450
06F0403	28–32	3476
06F0403	28–50	3478
06F0403	30–117	3492
06F0403	30–15	3486
06F0403	30–28	3486
06F0403	54–	3601
06F0403	7–25	3228
06F0404	10–24	3254

Part Number	Asm–Index	Page
06F0404	10–60	3256
06F0404	10–92	3258
06F0404	12–175S	3302
06F0404	20–274	3416
06F0404	20–303	3418
06F0404	28–20	3476
06F0404	29–19	3482
06F0404	30–68	3490
06F0404	54–	3603
06F0404	6–11	3220
06F0404	7–11	3228
06F0404	7–119	3236
06F0404	7–36	3230
06F0404	7–85	3232
06F0405	1–102	3184
06F0405	10–89	3258
06F0405	10–94	3258
06F0405	12–13S	3290
06F0405	12–13T	3276
06F0405	12–149S	3298
06F0405	12–149T	3284
06F0405	12–14S	3290
06F0405	12–14T	3276
06F0405	12–174S	3300
06F0405	12–174T	3286
06F0405	12–193S	3302
06F0405	12–193T	3288
06F0405	12–21	3264
06F0405	13–96	3314
06F0405	14–108A	3324
06F0405	14–126	3326
06F0405	14–127	3326
06F0405	14–231	3336
06F0405	14–232	3336
06F0405	14–278	3340
06F0405	14–327	3346
06F0405	14–58	3320
06F0405	14–67	3320
06F0405	14–77	3322
06F0405	15–63	3354
06F0405	16–19	3356
06F0405	16–20	3356
06F0405	20–11	3380
06F0405	20–12	3380
06F0405	20–173	3398
06F0405	20–58D	3382
06F0405	20–61D	3382
06F0405	20–62D	3382
06F0405	20–8	3380
06F0405	21–117	3426
06F0405	21–99	3424
06F0405	22–95	3434
06F0405	22–96	3434
06F0405	28–49	3478
06F0405	29–32	3482
06F0405	30–16	3486
06F0405	30–17	3486
06F0405	30–29	3486
06F0405	30–30	3486
06F0405	30–67	3490
06F0405	32–18	3500
06F0405	4–5	3198
06F0405	4–6	3198
06F0405	54–	3604
06F0405	9–143	3250
06F0406	1–22	3180

Part Number	Asm–Index	Page
06F0406	1–33	3180
06F0406	10–25	3254
06F0406	10–84	3258
06F0406	10–88	3258
06F0406	10–93	3258
06F0406	12–8S	3290
06F0406	12–8T	3276
06F0406	13–57	3310
06F0406	14–162	3330
06F0406	14–191	3332
06F0406	14–243	3338
06F0406	14–7	3316
06F0406	15–60	3354
06F0406	16–147	3364
06F0406	16–25	3356
06F0406	20–227	3402
06F0406	21–118	3426
06F0406	28–12	3476
06F0406	29–11	3482
06F0406	5–122	3214
06F0406	5–97	3214
06F0406	54–	3604
06F0406	7–12	3228
06F0406	7–120	3236
06F0406	7–37	3230
06F0406	9–79	3246
06F0406	9–91	3248
06F0407	1–60	3182
06F0407	1–89	3184
06F0407	12–126	3272
06F0407	12–126S	3296
06F0407	12–126T	3282
06F0407	12–17S	3290
06F0407	12–17T	3276
06F0407	14–190	3332
06F0407	14–230	3336
06F0407	14–239	3338
06F0407	14–246	3338
06F0407	14–40	3318
06F0407	14–51	3320
06F0407	15–14	3350
06F0407	16–117	3362
06F0407	16–123	3362
06F0407	16–171	3364
06F0407	16–21	3356
06F0407	16–36	3356
06F0407	16–80	3360
06F0407	16–82	3360
06F0407	16–89	3360
06F0407	2–141	3194
06F0407	20–102	3392
06F0407	20–281	3416
06F0407	20–284R	3414
06F0407	20–287R	3414
06F0407	20–29	3380
06F0407	20–79D	3384
06F0407	21–132	3426
06F0407	21–97	3424
06F0407	22–61	3432
06F0407	22–97	3436
06F0407	23–29A	3450
06F0407	25–43	3456
06F0407	25–45	3456
06F0407	28–33	3476
06F0407	32–17	3500
06F0407	5–126	3214

Part Number	Asm–Index	Page
06F0407	54–	3605
06F0407	6–10	3220
06F0407	7–107	3236
06F0407	7–43	3230
06F0407	8–97	3242
06F0408	10–8	3254
06F0408	11–33	3260
06F0408	11–40	3260
06F0408	20–222	3402
06F0408	20–226	3402
06F0408	20–258	3404
06F0408	23–39	3446
06F0408	28–15	3476
06F0408	29–14	3482
06F0408	30–104	3492
06F0408	30–25	3486
06F0408	54–	3605
06F0408	6–113	3226
06F0408	9–29	3244
06F0409	11–20	3260
06F0409	14–74	3322
06F0409	20–232	3402
06F0409	20–256	3404
06F0409	20–296	3416
06F0409	22–164	3440
06F0409	27–82	3470
06F0409	30–105	3492
06F0409	30–26	3486
06F0409	30–92	3492
06F0409	30–99	3492
06F0409	54–	3606
06F0409	6–110	3226
06F0409	6–73	3224
06F0409	6–77	3224
06F0410	13–62	3312
06F0410	14–188	3332
06F0410	54–	3607
06F0411	1–86	3184
06F0411	12–142	3274
06F0411	12–142S	3298
06F0411	12–142T	3284
06F0411	12–172S	3300
06F0411	12–172T	3286
06F0411	12–3	3264
06F0411	12–3S	3290
06F0411	12–3T	3276
06F0411	12–79	3268
06F0411	12–80	3268
06F0411	12–95S	3294
06F0411	12–95T	3280
06F0411	12–99S	3294
06F0411	12–99T	3280
06F0411	13–60	3310
06F0411	13–61	3312
06F0411	13–81	3312
06F0411	13–84	3312
06F0411	14–187	3332
06F0411	14–301	3342
06F0411	14–310	3344
06F0411	16–164	3364
06F0411	16–43	3358
06F0411	20–110	3392
06F0411	20–14	3380
06F0411	20–16	3380
06F0411	20–18	3380
06F0411	20–217	3400

Part Number	Asm–Index	Page
06F0411	20–228D	3408
06F0411	20–285R	3414
06F0411	20–48	3386
06F0411	20–54	3386
06F0411	20–57	3386
06F0411	20–63D	3382
06F0411	20–66D	3382
06F0411	20–68D	3382
06F0411	21–122	3426
06F0411	22–189	3442
06F0411	22–21	3428
06F0411	22–52	3432
06F0411	22–78	3432
06F0411	23–10	3444
06F0411	23–21	3444
06F0411	23–9A	3450
06F0411	27–44	3468
06F0411	31–6	3494
06F0411	32–3	3500
06F0411	4–12	3198
06F0411	5–22	3208
06F0411	5–29	3208
06F0411	54–	3598
06F0411	6–32	3220
06F0411	6–59	3222
06F0411	7–42	3230
06F0411	7–45	3230
06F0411	8–24	3238
06F0411	8–26	3238
06F0411	9–135	3250
06F0412	12–109	3272
06F0412	12–109S	3294
06F0412	12–109T	3280
06F0412	12–130S	3296
06F0412	12–130T	3282
06F0412	14–10S	3348
06F0412	14–185	3332
06F0412	14–229	3336
06F0412	14–270	3340
06F0412	14–39	3318
06F0412	14–9S	3348
06F0412	20–255D	3410
06F0412	20–260D	3412
06F0412	20–280	3416
06F0412	20–76	3390
06F0412	22–159	3440
06F0412	23–15	3444
06F0412	26–11	3462
06F0412	26–28	3462
06F0412	28–18	3476
06F0412	28–39	3478
06F0412	29–17	3482
06F0412	54–	3600
06F0413	1–54	3182
06F0413	12–202S	3302
06F0413	13–23	3308
06F0413	13–3	3306
06F0413	14–124	3326
06F0413	14–131	3326
06F0413	14–19	3316
06F0413	14–199	3332
06F0413	14–217	3336
06F0413	14–221	3336
06F0413	14–234	3336
06F0413	14–235	3336
06F0413	14–264	3338

Part Number	Asm–Index	Page
06F0413	14–276	3340
06F0413	14–289	3342
06F0413	14–290	3342
06F0413	14–302	3342
06F0413	14–311	3344
06F0413	14–339	3346
06F0413	14–49	3320
06F0413	14–50	3320
06F0413	14–75	3322
06F0413	14–95	3322
06F0413	15–28	3350
06F0413	16–155	3364
06F0413	16–161	3364
06F0413	16–179	3364
06F0413	16–18	3356
06F0413	16–62	3358
06F0413	16–68	3360
06F0413	16–91	3360
06F0413	2–103	3194
06F0413	2–51	3190
06F0413	2–54	3190
06F0413	2–57	3190
06F0413	2–83	3192
06F0413	2–96	3194
06F0413	20–109	3392
06F0413	20–144	3396
06F0413	20–161	3398
06F0413	20–216	3400
06F0413	20–44	3386
06F0413	20–65	3388
06F0413	21–107	3424
06F0413	21–46	3420
06F0413	25–48	3456
06F0413	27–103	3472
06F0413	27–115	3474
06F0413	27–21	3466
06F0413	27–24	3466
06F0413	27–85	3470
06F0413	28–7	3476
06F0413	29–6	3482
06F0413	30–27	3486
06F0413	31–5	3494
06F0413	32–37	3500
06F0413	32–6	3500
06F0413	32–8	3500
06F0413	4–102	3204
06F0413	4–144	3204
06F0413	4–33	3198
06F0413	4–44	3200
06F0413	4–92	3202
06F0413	5–117	3214
06F0413	5–157	3218
06F0413	5–174	3218
06F0413	5–33	3208
06F0413	5–55	3210
06F0413	5–80	3212
06F0413	54–	3600
06F0413	7–106	3236
06F0413	7–96	3234
06F0413	7–97	3234
06F0413	8–34	3238
06F0414	1–3	3180
06F0414	11–11	3260
06F0414	11–13	3260
06F0414	11–26	3260
06F0414	11–66	3262

Part Number	Asm–Index	Page
06F0414	12–144	3274
06F0414	12–144S	3298
06F0414	12–144T	3284
06F0414	12–224S	3304
06F0414	12–229S	3304
06F0414	13–54	3310
06F0414	14–109	3326
06F0414	14–118	3326
06F0414	20–116	3392
06F0414	20–119	3392
06F0414	30–114	3492
06F0414	4–8	3198
06F0414	5–183	3218
06F0414	54–	3602
06F0414	8–95	3242
06F0414	8–96	3242
06F0414	9–16	3244
06F0415	1–101	3184
06F0415	1–69	3182
06F0415	10–14	3254
06F0415	10–39	3254
06F0415	12–100	3270
06F0415	12–101	3270
06F0415	12–106	3270
06F0415	12–106S	3294
06F0415	12–106T	3280
06F0415	12–110	3272
06F0415	12–110S	3294
06F0415	12–110T	3280
06F0415	12–113	3272
06F0415	12–113S	3296
06F0415	12–113T	3282
06F0415	12–121S	3296
06F0415	12–121T	3282
06F0415	12–148	3274
06F0415	12–148S	3298
06F0415	12–148T	3284
06F0415	12–152	3274
06F0415	12–152S	3298
06F0415	12–152T	3284
06F0415	12–178S	3302
06F0415	12–180S	3302
06F0415	12–180T	3288
06F0415	12–188S	3302
06F0415	12–188T	3288
06F0415	12–194S	3302
06F0415	12–194T	3288
06F0415	12–204S	3302
06F0415	12–206S	3302
06F0415	12–213S	3302
06F0415	12–216S	3304
06F0415	12–221S	3304
06F0415	12–27	3264
06F0415	12–33	3266
06F0415	12–33S	3290
06F0415	12–33T	3276
06F0415	12–40	3266
06F0415	12–40S	3290
06F0415	12–40T	3276
06F0415	12–47	3266
06F0415	12–47S	3292
06F0415	12–47T	3276
06F0415	12–49	3266
06F0415	12–51	3266
06F0415	12–51S	3292
06F0415	12–51T	3276

Part Number	Asm–Index	Page
06F0415	12–57	3268
06F0415	12–57S	3292
06F0415	12–57T	3278
06F0415	12–59	3268
06F0415	12–61	3268
06F0415	12–61S	3292
06F0415	12–61T	3278
06F0415	12–70	3268
06F0415	12–70S	3294
06F0415	12–70T	3280
06F0415	12–76	3268
06F0415	12–76S	3294
06F0415	12–76T	3280
06F0415	12–79S	3294
06F0415	12–79T	3280
06F0415	12–7S	3290
06F0415	12–7T	3276
06F0415	12–80S	3294
06F0415	12–80T	3280
06F0415	12–82	3268
06F0415	12–82S	3294
06F0415	12–82T	3280
06F0415	12–83	3268
06F0415	12–83S	3294
06F0415	12–83T	3280
06F0415	12–87	3268
06F0415	12–87S	3294
06F0415	12–87T	3280
06F0415	12–91	3270
06F0415	13–4	3306
06F0415	13–43	3310
06F0415	13–48	3310
06F0415	13–72	3312
06F0415	13–74	3312
06F0415	14–111A	3324
06F0415	14–112	3326
06F0415	14–120	3326
06F0415	14–192	3332
06F0415	14–275	3340
06F0415	14–299	3342
06F0415	14–324	3346
06F0415	14–57	3320
06F0415	14–64	3320
06F0415	14–92	3322
06F0415	15–15	3350
06F0415	15–53	3352
06F0415	16–173	3364
06F0415	16–181	3366
06F0415	16–23	3356
06F0415	16–77	3360
06F0415	20–107	3392
06F0415	20–115	3392
06F0415	20–122	3392
06F0415	20–175	3398
06F0415	20–220D	3408
06F0415	20–243D	3410
06F0415	20–245D	3410
06F0415	20–247D	3410
06F0415	20–253D	3410
06F0415	20–257D	3410
06F0415	20–262D	3412
06F0415	20–289	3416
06F0415	21–53	3422
06F0415	21–59	3422
06F0415	22–103	3436
06F0415	22–11	3428

Part Number	Asm–Index	Page
06F0415	22–124	3438
06F0415	22–127	3438
06F0415	22–128	3438
06F0415	22–134	3438
06F0415	22–141	3440
06F0415	22–25	3428
06F0415	22–32	3430
06F0415	22–55	3432
06F0415	22–62	3432
06F0415	23–36	3446
06F0415	25–12	3454
06F0415	25–4	3454
06F0415	26–20	3462
06F0415	26–45	3464
06F0415	26–8	3462
06F0415	27–10	3466
06F0415	27–45	3468
06F0415	27–75	3470
06F0415	30–102	3492
06F0415	30–13	3486
06F0415	30–50	3488
06F0415	30–84	3490
06F0415	4–152	3206
06F0415	4–154	3206
06F0415	5–152	3216
06F0415	5–177	3218
06F0415	54–	3602
06F0415	6–114	3226
06F0415	6–118	3226
06F0415	6–16	3220
06F0415	6–18	3220
06F0415	6–96	3224
06F0415	7–110	3236
06F0415	7–86	3232
06F0415	7–87	3232
06F0415	8–54	3240
06F0415	9–56	3244
06F0416	12–167S	3300
06F0416	12–167T	3286
06F0416	12–16S	3290
06F0416	12–16T	3276
06F0416	12–77S	3294
06F0416	12–77T	3280
06F0416	28–44	3478
06F0416	54–	3603
06F0417	10–40	3254
06F0417	10–47	3256
06F0417	10–9	3254
06F0417	12–154S	3298
06F0417	12–154T	3284
06F0417	12–192S	3302
06F0417	12–192T	3288
06F0417	12–226S	3304
06F0417	14–146	3330
06F0417	14–151	3330
06F0417	14–304	3342
06F0417	14–319	3346
06F0417	14–338	3346
06F0417	14–78	3322
06F0417	15–6	3350
06F0417	15–61	3354
06F0417	16–11	3356
06F0417	16–152	3364
06F0417	16–17	3356
06F0417	16–174	3364
06F0417	16–187	3366

Part Number	Asm–Index	Page
06F0417	16–81	3360
06F0417	16–88	3360
06F0417	20–106	3392
06F0417	20–114	3392
06F0417	20–221D	3408
06F0417	20–238	3402
06F0417	20–246D	3410
06F0417	20–248D	3410
06F0417	20–252D	3410
06F0417	20–260	3406
06F0417	20–263D	3412
06F0417	20–288	3416
06F0417	20–31	3380
06F0417	21–124	3426
06F0417	21–66	3422
06F0417	21–90	3424
06F0417	22–10	3428
06F0417	22–115	3436
06F0417	22–133	3438
06F0417	22–140	3438
06F0417	22–190	3442
06F0417	22–33	3430
06F0417	22–6	3428
06F0417	22–73	3432
06F0417	22–85	3434
06F0417	23–16	3444
06F0417	23–35	3446
06F0417	23–6A	3450
06F0417	26–46	3464
06F0417	27–61	3470
06F0417	28–16	3476
06F0417	28–17	3476
06F0417	29–15	3482
06F0417	29–16	3482
06F0417	32–43	3500
06F0417	54–	3605
06F0417	6–42	3220
06F0417	9–154	3252
06F0417	9–31	3244
06F0417	9–57	3244
06F0417	9–65	3246
06F0418	12–219S	3304
06F0418	13–17	3306
06F0418	13–36	3308
06F0418	13–6	3306
06F0418	13–93	3314
06F0418	15–31	3350
06F0418	15–39	3352
06F0418	16–35	3356
06F0418	16–8	3356
06F0418	20–170	3398
06F0418	20–261	3406
06F0418	20–50	3386
06F0418	20–87D	3384
06F0418	21–17	3420
06F0418	21–18	3420
06F0418	21–56	3422
06F0418	21–57	3422
06F0418	21–68	3422
06F0418	22–16	3428
06F0418	22–195	3442
06F0418	22–29	3430
06F0418	22–99	3436
06F0418	23–19	3444
06F0418	23–37A	3450
06F0418	23–4	3444

Part Number	Asm–Index	Page
06F0418	23–53	3446
06F0418	23–54	3446
06F0418	23–56	3446
06F0418	27–117	3474
06F0418	27–6	3466
06F0418	30–39	3486
06F0418	30–49	3488
06F0418	30–69	3490
06F0418	30–80	3490
06F0418	30–97	3492
06F0418	54–	3606
06F0418	6–87	3224
06F0418	7–117	3236
06F0418	7–55	3232
06F0418	8–59	3240
06F0418	8–64	3242
06F0418	8–69	3242
06F0418	9–72	3246
06F0418	9–87	3248
06F0419	13–42	3310
06F0419	16–63	3358
06F0419	54–	3607
06F0420	1–10	3180
06F0420	1–21	3180
06F0420	1–28	3180
06F0420	1–29	3180
06F0420	1–42	3180
06F0420	1–47	3180
06F0420	1–48	3180
06F0420	1–70	3182
06F0420	1–83	3184
06F0420	10–18	3254
06F0420	10–20	3254
06F0420	10–29	3254
06F0420	10–37	3254
06F0420	10–4	3254
06F0420	10–43	3256
06F0420	10–49	3256
06F0420	10–55	3256
06F0420	10–67	3258
06F0420	10–71	3258
06F0420	10–72	3258
06F0420	11–41	3260
06F0420	11–54	3262
06F0420	12–130	3272
06F0420	12–139	3272
06F0420	12–139S	3298
06F0420	12–139T	3284
06F0420	12–23	3264
06F0420	12–64	3268
06F0420	12–64S	3292
06F0420	12–64T	3278
06F0420	13–102	3314
06F0420	13–11	3306
06F0420	13–25	3308
06F0420	13–27	3308
06F0420	13–30	3308
06F0420	13–33	3308
06F0420	13–38	3310
06F0420	13–44	3310
06F0420	13–75	3312
06F0420	13–77	3312
06F0420	13–86	3312
06F0420	13–92	3314
06F0420	13–97	3314
06F0420	13–98	3314

Part Number	Asm–Index	Page
06F0420	14–101	3324
06F0420	14–102	3324
06F0420	14–113A	3324
06F0420	14–115A	3324
06F0420	14–132	3326
06F0420	14–133	3326
06F0420	14–139	3328
06F0420	14–142	3328
06F0420	14–157	3330
06F0420	14–158	3330
06F0420	14–161	3330
06F0420	14–167	3330
06F0420	14–170	3332
06F0420	14–174	3332
06F0420	14–189	3332
06F0420	14–196	3332
06F0420	14–202	3334
06F0420	14–225	3336
06F0420	14–23	3316
06F0420	14–233	3336
06F0420	14–244	3338
06F0420	14–255	3338
06F0420	14–256	3338
06F0420	14–266	3340
06F0420	14–284	3342
06F0420	14–287	3342
06F0420	14–292	3342
06F0420	14–303	3342
06F0420	14–307	3342
06F0420	14–313	3344
06F0420	14–317	3344
06F0420	14–318	3344
06F0420	14–341	3346
06F0420	14–46	3320
06F0420	14–52	3320
06F0420	14–65	3320
06F0420	14–79	3322
06F0420	14–85	3322
06F0420	14–93	3322
06F0420	15–40	3352
06F0420	15–59	3352
06F0420	15–7	3350
06F0420	16–104	3360
06F0420	16–109	3360
06F0420	16–129	3364
06F0420	16–134	3364
06F0420	16–146	3364
06F0420	16–153	3364
06F0420	16–16	3356
06F0420	16–188	3366
06F0420	16–197	3366
06F0420	16–22	3356
06F0420	16–24	3356
06F0420	16–30	3356
06F0420	16–52	3358
06F0420	2–10	3190
06F0420	2–108	3194
06F0420	2–109	3194
06F0420	2–114	3194
06F0420	2–118	3194
06F0420	2–128	3194
06F0420	2–131	3194
06F0420	2–132	3194
06F0420	2–136	3194
06F0420	2–144	3194
06F0420	2–15	3190

Part Number	Asm–Index	Page
06F0420	2–16	3190
06F0420	2–31	3190
06F0420	2–4	3190
06F0420	2–43	3190
06F0420	2–45	3190
06F0420	2–60	3190
06F0420	2–61	3190
06F0420	2–67	3190
06F0420	2–68	3190
06F0420	2–80	3190
06F0420	2–84	3192
06F0420	2–91	3192
06F0420	20–130	3394
06F0420	20–133	3394
06F0420	20–134	3394
06F0420	20–137	3394
06F0420	20–137D	3394
06F0420	20–145	3396
06F0420	20–147	3396
06F0420	20–162	3398
06F0420	20–163	3398
06F0420	20–176	3398
06F0420	20–181	3398
06F0420	20–185	3398
06F0420	20–190	3400
06F0420	20–193	3400
06F0420	20–201	3400
06F0420	20–212	3400
06F0420	20–228	3402
06F0420	20–240D	3408
06F0420	20–241D	3410
06F0420	20–247	3404
06F0420	20–248	3404
06F0420	20–250	3404
06F0420	20–259	3404
06F0420	20–266D	3412
06F0420	20–268	3406
06F0420	20–269D	3412
06F0420	20–272	3406
06F0420	20–284	3416
06F0420	20–286R	3414
06F0420	20–292	3416
06F0420	20–302	3418
06F0420	20–304	3418
06F0420	20–311	3418
06F0420	20–314	3418
06F0420	20–37	3380
06F0420	20–40	3386
06F0420	20–46	3386
06F0420	20–72	3388
06F0420	20–74D	3382
06F0420	20–83D	3384
06F0420	20–85D	3384
06F0420	20–89	3390
06F0420	20–90D	3384
06F0420	20–91D	3384
06F0420	20–92	3390
06F0420	21–10	3420
06F0420	21–111	3424
06F0420	21–114	3426
06F0420	21–30	3420
06F0420	21–40	3420
06F0420	21–62	3422
06F0420	21–67	3422
06F0420	21–80	3424
06F0420	21–89	3424

Part Number	Asm–Index	Page
06F0420	22–105	3436
06F0420	22–112	3436
06F0420	22–116	3436
06F0420	22–138	3438
06F0420	22–145	3440
06F0420	22–149	3440
06F0420	22–152	3440
06F0420	22–157	3440
06F0420	22–17	3428
06F0420	22–171	3440
06F0420	22–177	3442
06F0420	22–24	3428
06F0420	22–30	3430
06F0420	22–39	3430
06F0420	22–47	3432
06F0420	23–26	3444
06F0420	23–30	3444
06F0420	23–31	3444
06F0420	23–60	3448
06F0420	23–64	3448
06F0420	23–69	3448
06F0420	23–74	3448
06F0420	25–10	3454
06F0420	25–13	3454
06F0420	25–17	3454
06F0420	25–20	3454
06F0420	25–23	3454
06F0420	25–25	3454
06F0420	25–26	3454
06F0420	25–29	3454
06F0420	25–32	3454
06F0420	25–44	3456
06F0420	25–49	3456

Part Number	Asm–Index	Page
06F0420	25–5	3454
06F0420	25–53	3456
06F0420	25–55	3458
06F0420	25–57	3458
06F0420	25–74	3458
06F0420	25–78	3458
06F0420	25–8	3454
06F0420	25–85	3460
06F0420	25–91	3460
06F0420	26–16	3462
06F0420	26–32	3462
06F0420	26–36	3462
06F0420	26–4	3462
06F0420	26–42	3464
06F0420	26–52	3464
06F0420	27–102	3472
06F0420	27–105	3472
06F0420	27–107	3472
06F0420	27–118	3474
06F0420	27–22	3466
06F0420	27–23	3466
06F0420	27–37	3466
06F0420	27–40	3468
06F0420	27–50	3468
06F0420	27–51	3468
06F0420	27–56	3468
06F0420	27–58	3468
06F0420	27–62	3470
06F0420	27–7	3466
06F0420	27–92	3470
06F0420	27–94	3470
06F0420	28–11	3476
06F0420	28–13	3476

Part Number	Asm–Index	Page
06F0420	28–25	3476
06F0420	28–31	3476
06F0420	28–48	3478
06F0420	28–55	3480
06F0420	28–57	3480
06F0420	28–63	3480
06F0420	29–10	3482
06F0420	29–12	3482
06F0420	29–24	3482
06F0420	29–30	3482
06F0420	29–34	3484
06F0420	29–36	3484
06F0420	29–39	3484
06F0420	29–42	3484
06F0420	29–48	3484
06F0420	29–53	3484
06F0420	30–112	3492
06F0420	30–120	3492
06F0420	30–14	3486
06F0420	30–52	3488
06F0420	30–54	3488
06F0420	30–62	3490
06F0420	30–65	3490
06F0420	30–70	3490
06F0420	30–76	3490
06F0420	30–86	3490
06F0420	31–67	3498
06F0420	31–68	3498
06F0420	31–75	3498
06F0420	32–19	3500
06F0420	32–44	3500
06F0420	4–124	3204
06F0420	4–131	3204
06F0420	4–135	3204
06F0420	4–139	3204
06F0420	4–25	3198
06F0420	4–34	3198
06F0420	4–37	3198
06F0420	4–42	3200
06F0420	4–55	3200
06F0420	4–56	3200
06F0420	4–61	3202
06F0420	4–64	3202
06F0420	4–65	3202
06F0420	4–66	3202
06F0420	5–107	3214
06F0420	5–108	3214
06F0420	5–12	3208
06F0420	5–130	3214
06F0420	5–133	3214
06F0420	5–14	3208
06F0420	5–153	3216
06F0420	5–163	3218
06F0420	5–165	3218
06F0420	5–169	3218
06F0420	5–186	3218
06F0420	5–187	3218
06F0420	5–192	3218
06F0420	5–195	3218
06F0420	5–27	3208
06F0420	5–36	3208
06F0420	5–39	3208
06F0420	5–57	3210
06F0420	54–	3608
06F0420	6–115	3226
06F0420	6–21	3220

Part Number	Asm–Index	Page
06F0420	6–33	3220
06F0420	6–67	3224
06F0420	6–93	3224
06F0420	6–99	3224
06F0420	7–102	3236
06F0420	7–115	3236
06F0420	7–15	3228
06F0420	7–17	3228
06F0420	7–20	3228
06F0420	7–33	3228
06F0420	7–38	3230
06F0420	7–48	3230
06F0420	7–53	3232
06F0420	7–57	3232
06F0420	8–14	3238
06F0420	8–16	3238
06F0420	8–47	3238
06F0420	8–71	3242
06F0420	8–9	3238
06F0420	9–100	3248
06F0420	9–101	3248
06F0420	9–107	3248
06F0420	9–108	3248
06F0420	9–156	3252
06F0420	9–20	3244
06F0420	9–24	3244
06F0420	9–26	3244
06F0420	9–54	3244
06F0420	9–55	3244
06F0420	9–60	3246
06F0420	9–73	3246
06F0420	9–80	3246
06F0420	9–88	3248
06F0429	54–	3608
06F0463	13–103	3314
06F0463	13–64	3312
06F0463	4–109	3204
06F0482	6–17	3220
06F0483	6–15	3220
06F0492	13–67	3312
06F0492	22–86	3434
06F0495	6–30	3220
06F0509	5–170	3218
06F0510	5–168	3218
06F0512	11–29	3260
06F0516	11–9	3260
06F0517	11–6	3260
06F0518	11–4	3260
06F0519	11–3	3260
06F0522	14–277	3340
06F0523	11–39	3260
06F0525	11–35	3260
06F0534	16–7	3356
06F0535	16–5	3356
06F0569	12–124	3272
06F0569	12–124S	3296
06F0569	12–124T	3282
06F0569	20–143	3396
06F0569	20–43	3386
06F0569	25–47	3456
06F0569	25–83	3460
06F0569	25–88	3460
06F0569	4–32	3198
06F0569	7–41	3230
06F0616	10–7	3254
06F0616	9–27	3244

Part Number	Asm–Index	Page
06F0621	28–29	3476
06F0621	29–28	3482
06F0635	12–138	3272
06F0635	12–138S	3298
06F0635	12–138T	3284
06F0637	12–134	3272
06F0637	12–134S	3298
06F0637	12–134T	3284
06F0650	20–168	3398
06F0669	12–183S	3302
06F0669	12–183T	3288
06F0684	14–184	3332
06F0687	26–6	3462
06F0690	15–58	3352
06F0695	14–169	3332
06F0695	9–93	3248
06F0695	9–95	3248
06F0729	13–55	3310
06F0731	13–53	3310
06F0734	16–131	3364
06F0736	13–35	3308
06F0745	20–205	3400
06F0754	20–101	3392
06F0760	27–29	3466
06F0775	22–3	3428
06F0789	9–126	3250
06F0796	22–84	3434
06F0797	22–90	3434
06F0798	22–88	3434
06F0803	23–29	3444
06F0804	23–25	3444
06F0805	23–24	3444
06F0806	23–14	3444
06F0808	23–9	3444
06F0809	23–3	3444
06F0811	23–45A	3450
06F0811	23–59	3446
06F0848	20–17	3380
06F0848	20–67D	3382
06F0848	21–29	3420
06F0848	21–61	3422
06F0848	21–9	3420
06F0863	20–57D	3382
06F0863	20–7	3380
06F0868	13–29	3308
06F0870	20–207	3400
06F0905	27–57	3468
06F0912	28–14	3476
06F0912	29–13	3482
06F0914	28–10	3476
06F0926	28–43	3478
06F0931	29–9	3482
06F0957	12–104	3270
06F0957	12–104S	3294
06F0957	12–104T	3280
06F0964	30–101	3492
06F0969	30–90	3492
06F0987	30–75	3490
06F0991	30–82	3490
06F0992	30–81	3490
06F1015	6–82	3224
06F1022	32–14	3500
06F1023	32–15	3500
06F1031	54–	3608
06F1032	54–	3608
06F1033	54–	3608

Part Number	Asm–Index	Page
06F1034	54–	3608
06F1035	54–	3608
06F1036	54–	3608
06F1037	54–	3608
06F1038	54–	3608
06F1039	54–	3608
06F1049	28–19	3476
06F1049	29–18	3482
06F1054	14–269	3340
06F1056	4–101	3202
06F1069	20–298	3418
06F1116	16–111	3362
06F1117	16–113	3362
06F1118	16–119	3362
06F1120	16–127	3364
06F1121	16–128	3364
06F1122	16–94	3360
06F1123	16–95	3360
06F1124	16–96	3360
06F1126	16–98	3360
06F1127	16–99	3360
06F1128	16–100	3360
06F1129	16–101	3360
06F1130	16–102	3360
06F1131	16–180	3366
06F1132	16–182	3366
06F1140	16–6	3356
06F1158	10–13	3254
06F1158	20–92D	3384
06F1158	21–78	3424
06F1162	1–5	3180
06F7017	38–6	3514
06H2792	50–30	3564
06H7082	50–3	3560
06H7697	50–7	3560
06H8631	50–35	3564
07F0406	20–239D	3408
08H7668	12–5S	3290
08H7670	12–11S	3290
08H7670	12–11T	3276
08H7673	12–32T	3276
08H7674	12–44T	3276
08H7675	12–54T	3278
08H7676	12–55S	3292
08H7676	12–55T	3278
08H7722	1–75	3182
08H7757	52–	3586
08H7757	52–21	3568
08H7757	52–25	3572
08J6472	50–16B	3562
09G7012	38–2	3514
09L2061	50–16	3560
11H8156	50–26	3564
11L5156	12–146S	3298
11L5157	12–56S	3292
11L5159	31–34	3494
11L5160	31–30	3494
11L5161	20–221	3402
11L5165	9–22	3244
11L5177	20–297	3418
11L5178	20–301	3418
11L5179	20–77	3390
11L5180	20–78	3390
11L5181	20–79	3390
11L5182	20–80	3390
11L5183	20–85	3390

Part Number	Asm–Index	Page
11L5184	20–86	3390
11L5185	20–87	3390
11L5186	20–88	3390
11L5187	20–81	3390
11L5189	20–83	3390
11L5190	20–84	3390
11L5192	14–24	3316
11L5197	35–7	3508
11L5199	25–84	3460
11L5278	42–4S	3534
11L6063	40–6C	3518
11L6131	20–278	3416
11L6132	32–39	3500
11L6149	42–16B	3528
11L6176	25–	3458
11L6177	25–79	3458
11L6201	42–15B	3528
11L6204	25–79	3458
11L6276	25–79	3458
11L6278	31–36	3494
11L6279	31–38	3496
11L6280	31–43	3498
11LL188	20–82	3390
12H1331	49–41	3556
13J3742	16–214	3370
13J6714	16–208	3370
1621071	43–6A	3536
1621173	49–24	3554
1621174	49–28	3554
1621190	38–8	3514
1621192	49–19	3552
1621192	49–33	3554
1621192	49–47	3556
1621193	49–14	3552
1621198	49–20	3552
1621204	17–50	3372
1621211	49–11	3552
1621211	49–22	3552
1621211	49–37	3556
1621217	49–15	3552
1621286	17–60	3374
1621321	17–35	3372
1621342	42–16C	3532
1621510	17–38	3372
1621510	17–42	3372
1621519	17–55	3374
1621519	53–12	3594
1621519	53–12	3596
1621519	53–16	3594
1621519	53–16	3596
1621519	53–5A	3596
1621544	56–	3616
1621594	42–7C	3532
1621844	49–9	3552
1621862	41–14A	3520
1622276	42–26C	3532
1622276	42–9C	3532
1622302	14–12S	3348
1622302	14–3S	3348
1622302	14–5S	3348
1622302	16–202	3368
1622302	49–12	3552
1622303	42–13A	3524
1622303	42–13B	3528
1622303	42–35B	3530
1622304	41–10A	3520

Part Number	Asm–Index	Page
1622304	42–21C	3532
1622304	42–4A	3524
1622304	42–4B	3528
1622304	43–18A	3536
1622305	43–13A	3536
1622305	49–46	3556
1622306	42–6C	3532
1622316	14–6S	3348
1622319	53–13	3594
1622319	53–13	3596
1622319	53–15	3594
1622319	53–15	3596
1622321	42–18C	3532
1622346	41–2A	3520
1622346	43–2A	3536
1622346	49–14	3552
1622346	49–19	3552
1622347	53–11	3594
1622347	53–11	3596
1622348	41–12A	3520
1622393	41–9A	3520
1622401	14–13S	3348
1622401	16–203	3368
1622403	41–22A	3520
1622403	42–2C	3532
1622403	42–5A	3524
1622403	42–5B	3528
1622403	43–1A	3536
1622403	49–14	3552
1622403	49–31	3554
1622404	43–14A	3536
1622408	42–14C	3532
1622437	42–19C	3532
1622529	17–52	3374
1693629	40–5C	3518
2129665	44–202	3540
2179914	43–4A	3536
21H5172	50–32	3564
22F9503	49–43	3556
22F9685	49–30	3554
23141	1–115	3186
23F0168	49–16	3552
24107	53–6	3594
24107	53–6	3596
24H7986	25–56	3458
24H7992	27–89	3470
24H7993	25–19	3454
24H7995	25–51A	3456
24H7996	12–133S	3298
24H7996	12–133T	3284
24H8004	52–42	3582
24H8012	32–39	3500
24H8013	22–75	3432
24H8014	31–36	3494
24H8015	25–70	3458
24H8024	4–57	3200
24H8025	4–128	3204
24H8026	4–123	3204
24H8028	31–38	3496
24H8035	25–80	3460
24H8035	25–89	3460
24H8038	42–15B	3528
24H8041	12–176S	3302
24H8041	12–176T	3288
24H8057	10–96	3258
24H8058	10–97	3258

Part Number	Asm–Index	Page
24H8118	52–20	3568
24H8118	52–24	3572
24H8118	52–50	3586
24H8141	42–4S	3534
24H8148	23–36A	3450
24H8150	23–31A	3450
24H8163	23–22A	3450
24H8164	23–20A	3450
24H8165	23–18A	3450
24H8166	23–15A	3450
24H8167	23–14A	3450
24H8168	23–10A	3450
24H8169	23–8A	3450
24H8170	23–5A	3450
24H8171	23–4A	3450
24H8173	23–41A	3450
24H8184	7–1	3228
24H8185	7–2	3228
24H8225	20–313	3418
24H8323	31–38	3496
24H8325	4–60	3202
24H8327	31–36	3494
24H8366	23–35A	3450
24H8378	22–31	3430
24H8379	22–38	3430
24H8380	22–42	3432
24H8385	20–281R	3414
24H8386	20–68	3388
24L3297	17–36	3372
24L3299	17–48	3372
24L3301	17–59	3374
24L3302	17–54	3374
24L3304	17–49	3372
24L3305	17–57	3374
24L3306	17–34	3372
24L3307	17–47	3372
24L3308	17–43	3372
24L4358	32–39	3500
24L4434	20–243	3402
24L4435	20–268D	3412
24L4551	31–39	3496
24L4916	17–62	3374
24L5329	31–39	3496
24L5330	31–39	3496
24L5331	31–39	3496
24L9752	31–39	3496
2546641	49–32	3554
25627	17–44	3372
25627	17–46	3372
2597855	49–14	3552
25F9401	42–2A	3524
25F9401	42–2B	3528
30F9882	16–203	3370
30H2748	4–161	3206
30H2748	9–161	3252
30H2748	9–162	3252
30H2748	9–163	3252
30H2748	9–168	3252
30H2751	52–49	3586
30H2752	52–26	3572
30H2755	28–9	3476
30H2755	29–8	3482
30H2756	52–20	3568
30H2756	52–24	3572
30H2767	10–19	3254
30H2769	54–	3612

Part Number	Asm–Index	Page
30H2784	1–127	3188
30H2786	12–107S	3294
30H2786	12–107T	3280
30H2788	31–36	3494
30H2789	20–68	3388
30H2799	20–249D	3410
30H2800	20–264D	3412
30H2804	2–56	3190
30H2805	14–18	3316
30H2817	42–15A	3524
30H2868	43–16A	3536
30H2885	41–16A	3520
30H2919	41–21A	3520
30H2934	8–19	3238
30H2935	8–20	3238
30H2936	8–21	3238
30H2956	42–24C	3532
30H2957	42–10C	3532
30H2958	42–23C	3532
30H2959	42–12C	3532
30H2962	41–19A	3520
30H2967	41–17A	3520
30H2968	41–20A	3520
30H2974	44–35	3538
30H2976	1–123	3188
30H2985	42–11C	3532
30H2986	42–13C	3532
30H2989	40–2C	3518
30H2995	23–50	3446
30H3033	42–5C	3532
30H3075	42–20C	3532
30H3098	20–68	3388
30H3100	42–6A	3524
30H3100	42–6B	3528
30H3100	42–8C	3532
30H3157	12–29S	3290
30H3157	12–29T	3276
30H3176	14–227	3336
30H3177	22–110	3436
30H3190	43–7A	3536
30H5518	14–107A	3324
30H5518	14–13	3316
30H5519	14–109A	3324
30H5520	14–110A	3324
30H5521	14–112A	3324
30H6508	12–28A	3264
30H6509	12–26A	3264
30H6520	41–16A	3520
30H6521	41–23A	3520
30H6586	14–263	3338
30H6586	5–45	3210
30H6586	5–62	3210
30H6586	5–85	3212
30H6587	23–79	3448
30H6594	23–78	3448
30H6610	26–13	3462
30H6611	27–106	3472
30H6648	1–123	3188
30H6650	1–123	3188
30H6652	1–123	3188
30H6654	44–35	3538
30H6656	44–35	3538
30H6658	1–123	3188
30H6660	1–123	3188
30H6662	1–110A	3186
30H6667	1–	3186

Part Number	Asm–Index	Page
30H6693	10–52	3256
30H6695	12–56S	3292
30H6696	12–94S	3294
30H6696	12–94T	3280
30H6698	12–173S	3300
30H6698	12–173T	3286
30H6700	12–191S	3302
30H6700	12–191T	3288
30H6702	42–8A	3524
30H6719	43–15A	3536
30H6727	12–86S	3294
30H6727	12–86T	3280
30H6728	12–93S	3294
30H6728	12–93T	3280
30H6734	12–136S	3298
30H6734	12–136T	3284
30H6737	12–30S	3290
30H6737	12–30T	3276
30H6749	20–265	3406
30H6777	7–1	3228
30H6778	7–2	3228
30H6779	7–1	3228
30H6780	7–2	3228
30H6782	42–18A	3524
30H6798	42–33A	3526
30H6798	42–33B	3530
30H6799	42–34A	3526
30H6799	42–34B	3530
30H6813	12–205S	3302
30H6814	12–209S	3302
30H6819	12–201S	3302
30H6821	12–203S	3302
30H6831	40–8C	3518
30H6837	42–26A	3526
30H6837	42–26B	3530
30H6847	8–33	3238
30H6867	12–103S	3294
30H6867	12–103T	3280
30H6872	40–1C	3518
30H6873	40–	3518
30H6873	41–11A	3520
30H6874	40–9C	3518
30H6875	40–	3518
30H6875	41–1A	3520
30H6876	40–7C	3518
30H6877	40–	3518
30H6877	41–7A	3520
30H6878	41–8A	3520
30H6879	41–25A	3522
30H6880	41–15A	3520
30H6882	40–6C	3518
30H6888	20–288R	3414
30H6915	6–57	3222
30H6916	6–58	3222
30H6921	6–19	3220
30H6930	5–135	3216
30H6934	5–41	3210
30H6935	52–34	3578
30H6936	52–35	3578
30H6937	52–33	3576
30H6938	52–36	3578
30H6939	52–31	3574
30H6940	52–30	3574
30H6941	52–39	3580
30H6942	52–32	3576
30H6943	52–38	3580

Part Number	Asm–Index	Page
30H6944	52–37	3578
30H6947	52–40	3582
31F4217	49–	3558
31G9211	49–51	3556
32H1466	52–51	3588
32H1466	52–52	3588
33F8354	50–8	3560
34H1465	52–55	3588
34H1465	52–58	3588
38L1525	50–16B	3562
39H8084	50–16A	3562
39H8835	49–34	3554
39H8925	49–42	3556
39H9164	49–36	3556
39H9272	49–54	3556
39H9274	49–23	3554
40H1424	50–12	3560
40H1433	50–12	3560
40H3126	50–33	3564
40H7442	49–55	3556
40H7517	49–39	3556
41F0636	49–8	3552
42F6510	49–11	3552
42F7434	49–14	3552
43G0538	49–42	3556
43G1796	49–40	3556
4511305	43–5A	3536
4586927	42–23A	3524
4586927	42–23B	3528
45F3904	16–207	3370
45F4351	16–198A	3370
45F4589	16–200	3370
45F4590	16–206	3370
45F4593	16–205	3370
45F5166	16–201	3370
45G1718	52–26	3572
45G1722	1–120	3188
45G1727	52–23	3570
45G1728	52–19	3568
45G1728	52–41	3582
45G1729	52–18	3568
45G1736	1–119	3188
45G1741	44–32	3538
45G1750	1–121	3188
45G1751	44–28	3538
45G1753	44–35	3538
45G1755	44–35	3538
45G1757	44–35	3538
45G1759	44–35	3538
45G1761	44–35	3538
45G1839	14–1	3316
45G1843	35–17	3508
45G1843	36–15	3510
45G1844	35–16	3508
45G1844	36–14	3510
45G1856	4–151	3206
45G1857	16–168	3364
45G1859	35–11	3508
45G1859	36–10	3510
45G1860	4–128	3204
45G1862	32–56	3502
45G1863	12–103	3270
45G1866	10–74	3258
45G1868	35–12	3508
45G1868	36–11	3510
45G1869	35–5	3508

Part Number	Asm–Index	Page
45G1870	36–5	3510
45G1871	35–7	3508
45G1872	35–9	3508
45G1873	35–10	3508
45G1873	36–7	3510
45G1874	36–9	3510
45G1875	35–4	3508
45G1875	36–4	3510
45G1876	35–1	3508
45G1876	36–1	3510
45G1877	10–22	3254
45G1881	10–66	3258
45G1882	7–31	3228
45G1884	16–169	3364
45G1891	35–13	3508
45G1892	35–14	3508
45G1892	36–12	3510
45G1893	4–10	3198
45G1895	10–2	3254
45G1895	9–22	3244
45G1896	9–113	3248
45G1897	8–58	3240
45G1897	8–63	3242
45G1897	8–68	3242
45G1898	8–93	3242
45G1899	8–94	3242
45G1900	10–64	3258
45G1901	20–254	3404
45G1902	20–244	3402
45G1903	8–30	3238
45G1904	9–71	3246
45G1904	9–86	3248
45G1905	20–251D	3410
45G1906	1–	3188
45G1965	1–117	3188
45G1975	1–123	3188
45G1976	1–123	3188
45G1977	1–123	3188
45G1978	1–123	3188
45G1979	1–123	3188
45G1999	1–118	3188
45G2026	53–	3594
45G2031	1–88	3184
45G2035	1–126	3188
45G2043	53–4	3594
45G2043	53–4	3596
45G2045	53–9	3594
45G2045	53–9	3596
45G2047	53–1	3594
45G2047	53–1	3596
45G2048	53–7	3594
45G2048	53–7	3596
45G2049	53–2	3594
45G2049	53–2	3596
45G2051	53–8	3594
45G2051	53–8	3596
45G2053	53–5	3594
45G2053	53–5	3596
45G2059	53–3	3594
45G2059	53–3	3596
45G2063	42–4C	3532
45G2064	1–	3186
45G2064	4–161	3206
45G2064	42–3C	3532
45G2091	41–13A	3520
45G2098	42–30A	3526

Part Number	Asm–Index	Page
45G2098	42–30B	3530
45G2098	52–22A	3568
45G2106	8–27	3238
45G2111	16–206	3368
45G2112	16–205	3368
45G4592	16–204	3370
49G6111	42–31A	3526
49G6111	42–31B	3530
49G6111	52–22B	3568
49G8819	12–107	3270
49G9570	4–107	3204
49G9613	8–4	3238
51G9700	49–7	3550
51G9701	49–2	3550
51G9702	49–1	3550
51G9703	49–6	3550
51G9869	49–48	3556
51G9876	49–18	3552
51G9876	49–4	3550
52G3380	49–51	3556
52G4337	52–20	3568
52G4430	49–26	3554
53F1607	41–6A	3520
53F1609	40–4C	3518
53F1663	41–24A	3520
53F1663	42–22A	3524
53F1663	42–22B	3528
53F1663	53–10	3594
53F1663	53–10	3596
53F1664	1–125	3188
53F1664	17–66	3374
53F1665	17–40	3372
53F1665	41–3A	3520
53F1665	42–22C	3532
53F1665	42–36B	3530
53F1665	42–3S	3534
53F1665	42–7A	3524
53F1665	42–7B	3528
53F1665	43–11A	3536
53F1667	40–3C	3518
53F1672	1–124	3188
53F1672	42–12B	3528
53F1678	42–15C	3532
53F1722	4–	3202
53F1723	4–	3202
53F1724	4–	3202
53F1725	4–	3202
53F1752	35–6	3508
53F1752	36–6	3510
53F1761	36–8	3510
53F1764	35–3	3508
53F1764	36–3	3510
53F1773	32–56	3502
53F1774	32–9	3500
53F1775	27–111	3472
53F1776	27–110	3472
53F1777	4–146	3206
53F1778	16–49	3358
53F1783	4–113	3204
53F1784	4–40	3198
53F1787	25–41	3456
53F1788	1–25	3180
53F1790	14–82	3322
53F1791	14–206	3334
53F1792	14–81	3322
53F1793	16–97	3360

Part Number	Asm–Index	Page
53F1793	21–75	3422
53F1793	30–56	3490
53F1793	6–28	3220
53F1794	14–182	3332
53F1795	14–37	3318
53F1797	14–6	3316
53F1798	14–36	3318
53F1799	14–24	3316
53F1800	14–108	3326
53F1801	20–118	3392
53F1802	14–88	3322
53F1803	14–96	3322
53F1804	15–20	3350
53F1805	14–89	3322
53F1806	14–97	3322
53F1808	14–12	3316
53F1808	20–254D	3410
53F1808	20–261D	3412
53F1810	14–219	3336
53F1811	15–29	3350
53F1814	14–70	3322
53F1815	32–10	3500
53F1816	14–144	3328
53F1816	14–314	3344
53F1817	14–100	3324
53F1817	14–156	3330
53F1818	14–119	3326
53F1819	14–213	3334
53F1824	4–2	3198
53F1829	13–49	3310
53F1829	5–139	3216
53F1829	6–88	3224
53F1829	7–66	3232
53F1829	9–41	3244
53F1832	8–91	3242
53F1838	9–114	3248
53F1839	29–44	3484
53F1841	10–41	3256
53F1841	8–45	3238
53F1841	8–7	3238
53F1841	9–151	3252
53F1841	9–58	3246
53F1842	10–36	3254
53F1842	9–53	3244
53F1843	10–11	3254
53F1845	9–127	3250
53F1847	10–46	3256
53F1848	10–73	3258
53F1849	10–32	3254
53F1858	12–14	3264
53F1859	12–133	3272
53F1860	12–123	3272
53F1860	12–123S	3296
53F1860	12–123T	3282
53F1861	20–215	3400
53F1861	20–42	3386
53F1862	12–72	3268
53F1865	4–134	3204
53F1866	5–38	3208
53F1867	5–171	3218
53F1868	5–100	3214
53F1869	5–156	3216
53F1869	5–95	3214
53F1870	11–21	3260
53F1872	6–24	3220
53F1873	6–71	3224

Part Number	Asm–Index	Page
53F1875	21–76	3424
53F1877	21–70	3422
53F1878	21–96	3424
53F1879	21–71	3422
53F1880	21–98	3424
53F1882	21–54	3422
53F1883	21–55	3422
53F1884	20–34	3380
53F1884	20–53D	3382
53F1885	21–48	3420
53F1886	29–50	3484
53F1887	20–230D	3408
53F1887	20–241	3402
53F1890	20–278	3416
53F1891	20–188	3400
53F1958	22–89	3434
53F1959	22–109	3436
53F1960	20–291	3416
53F1961	20–73	3388
53F1962	20–136	3394
53F1964	22–79	3432
53F1965	20–127	3394
53F1965	25–51	3456
53F1966	20–113	3392
53F1967	20–63	3388
53F1968	20–120	3392
53F1970	20–66	3388
53F1971	20–61	3388
53F1972	20–246	3404
53F1974	20–269	3406
53F1976	30–98	3492
53F1978	22–101	3436
53F1979	20–131	3394
53F1980	20–203	3400
53F1982	20–51	3386
53F1983	20–307	3418
53F1984	23–73	3448
53F1986	13–32	3308
53F1987	13–40	3310
53F1988	13–41	3310
53F1991	15–27	3350
53F1994	25–40	3456
53F1995	27–113	3474
53F1996	27–43	3468
53F1997	27–95	3472
53F1998	27–96	3472
53F2000	30–110	3492
53F3930	50–	3564
53F3930	52–22	3568
5756324	56–	3616
5756348	56–	3616
57F6794	13–78	3312
57G1218	1–122	3188
57G4358	12–96	3270
57G4379	56–	3616
57G4380	6–51	3222
57G4381	6–52	3222
57G4382	6–65	3222
57G4383	6–111	3226
57G4384	6–112	3226
57G4395	56–	3616
57G4406	8–25	3238
57G4407	8–23	3238
57G4408	8–12	3238
57G4410	8–67	3242
57G4411	8–66	3242

Part Number	Asm–Index	Page
57G4412	8–62	3242
57G4413	8–61	3242
57G4414	8–57	3240
57G4415	8–56	3240
57G4417	8–92	3242
57G4423	10–16	3254
57G4425	10–75	3258
57G4426	10–63	3258
57G4428	10–54	3256
57G4429	10–53	3256
57G4433	10–83	3258
57G4436	9–25	3244
57G4437	9–18	3244
57G4438	9–78	3246
57G4439	10–82	3258
57G4439	9–77	3246
57G4439	9–90	3248
57G4442	9–70	3246
57G4443	9–69	3246
57G4444	9–63	3246
57G4446	9–46	3244
57G4447	9–45	3244
57G4449	9–116	3248
57G4450	9–110	3248
57G4451	9–106	3248
57G5957	9–105	3248
57G5958	9–104	3248
57G5959	9–103	3248
57G5959	9–103A	3248
57G5961	9–92	3248
57G5964	9–85	3248
57G5965	9–84	3246
57G5966	9–121	3250
57G5966	9–160	3252
57G5971	7–22	3228
57G5974	7–71	3232
57G5978	7–63	3232
57G5979	7–61	3232
57G5980	7–60	3232
57G5981	7–58	3232
57G5982	7–56	3232
57G5984	7–46	3230
57G5987	7–114	3236
57G5988	7–113	3236
57G5989	7–109	3236
57G5990	7–95	3234
57G5991	7–84	3232
57G5992	7–83	3232
57G5993	7–82	3232
57G5994	7–81	3232
57G5997	52–21	3568
57G5997	52–25	3572
57G5998	14–128	3326
57G5998	14–137	3328
57G6409	12–2	3264
57G6409	12–2S	3290
57G6440	1–123	3188
57G6441	1–123	3188
57G6442	1–123	3188
57G6443	1–123	3188
57G6444	1–123	3188
57G6455	20–77	3390
57G6458	20–80	3390
57G6460	22–75	3432
57G6461	11–68	3262
57G6462	6–104	3226

Part Number	Asm–Index	Page
57G6482	42–14B	3528
57G6487	16–198	3368
57G6488	16–201	3368
57G6489	16–199	3368
57G6489	16–199	3370
57G6490	16–200	3368
57G6491	16–207	3368
57G6491	17–58	3374
57G6493	16–204	3368
57G6493	17–64	3374
57G6494	16–208	3368
57G6499	14–214	3336
57G6500	14–222	3336
57G6501	15–41	3352
57G6502	15–42	3352
57G6503	14–263	3338
57G6503	5–45	3210
57G6503	5–62	3210
57G6503	5–85	3212
57G6504	5–82	3212
57G6505	14–260	3338
57G6505	5–41	3210
57G6505	5–60	3210
57G6507	15–49	3352
57G6508	5–70	3212
57G6509	21–47	3420
57G6510	20–287	3416
57G6511	22–51	3432
57G6513	22–106	3436
57G6515	26–3	3462
57G6516	31–28	3494
57G6517	31–30	3494
57G6518	31–32	3494
57G6519	31–34	3494
57G6522	31–41	3496
57G6523	31–43	3498
57G6525	16–141	3364
57G6526	32–39	3500
57G6527	25–70	3458
57G6528	20–183	3398
57G6529	27–36	3466
57G6530	8–1	3238
57G6534	9–7	3244
57G6536	20–81	3390
57G6539	20–84	3390
57G6541	20–85	3390
57G6544	20–88	3390
57G6545	22–31	3430
57G6546	22–38	3430
57G6547	31–24	3494
57G6570	12–159	3274
57G6582	56–	3616
57G6586	4–41	3200
57G6587	4–45	3200
57G6591	56–	3616
57G6598	53–14	3594
57G6598	53–14	3596
57G6618	20–59D	3382
57G6629	12–108	3270
57G6633	38–1	3514
57G6634	2–105	3194
57G6652	8–73	3242
57G6653	8–74	3242
57G6654	12–35	3266
57G6655	12–36	3266
57G6655	12–36S	3290

Part Number	Asm–Index	Page
57G6655	12–36T	3276
57G6656	12–38	3266
57G6656	12–38S	3290
57G6656	12–38T	3276
57G6657	49–51	3556
57G6658	10–26	3254
57G6659	25–50	3456
57G6660	25–54	3456
57G6676	2–55	3190
57G6686	4–59	3200
57G6687	4–81	3202
57G6688	4–82	3202
57G6696	5–16	3208
57G6697	5–17	3208
57G6698	5–20	3208
57G6700	5–68	3210
57G6711	5–154	3216
57G6713	5–159	3218
57G6714	5–161	3218
57G6715	5–167	3218
57G6716	5–173	3218
57G6719	16–13	3356
57G6726	6–116	3226
57G6731	7–88	3234
57G6739	7–116	3236
57G6740	7–118	3236
57G6741	8–53	3240
57G6749	9–147	3250
57G6751	10–1	3254
57G6754	10–34	3254
57G6761	11–65	3262
57G6762	42–31B	3530
57G6765	12–5	3264
57G6768	12–29	3264
57G6769	12–30	3264
57G6771	12–42	3266
57G6773	12–54	3266
57G6774	12–55	3266
57G6775	12–62	3268
57G6779	12–90	3270
57G6781	12–98	3270
57G6781	12–98S	3294
57G6781	12–98T	3280
57G6795	13–88	3312
57G6796	14–10	3316
57G6796	14–16	3316
57G6797	14–11	3316
57G6797	14–15	3316
57G6799	14–66	3320
57G6800	14–68	3320
57G6802	14–208	3334
57G6803	14–215	3336
57G6805	14–282	3342
57G6809	15–47	3352
57G6813	20–9	3380
57G6816	20–20	3380
57G6816	20–70D	3382
57G6818	20–25	3380
57G6818	20–75D	3382
57G6819	20–26	3380
57G6819	20–76D	3382
57G6825	20–148	3396
57G6830	20–251	3404
57G6833	20–255	3404
57G6835	20–285	3416
57G6843	22–57	3432

Part Number	Asm–Index	Page
57G6852	23–47	3446
57G6853	23–33A	3450
57G6853	23–48	3446
59F2977	49–49	3556
59F4088	49–	3554
59F4089	49–45	3556
59H6259	50–34	3564
59H7210	50–34	3564
60G1066	50–	3564
60X5703	49–29	3554
61X7052	49–	3554
6226855	56–	3616
6279235	49–27	3554
63H6574	40–	3518
63H6575	40–1C	3518
63H6643	52–	3584
63H7088	17–39	3372
63H7096	17–45	3372
63H7537	6–51	3222
63H7538	6–52	3222
65F6156	28–26	3476
65F6156	29–25	3482
65F6157	28–27	3476
65F6157	29–26	3482
65F6158	27–17	3466
65F6158	30–22	3486
65F6159	30–36	3486
65F6160	30–35	3486
65F6161	27–5	3466
65F6161	30–48	3488
65F6163	27–16	3466
65F6164	27–30	3466
65F6165	28–30	3476
65F6165	29–29	3482
65F6190	56–	3616
65F6243	56–	3616
65F6252	56–	3616
65F6254	56–	3616
65G1918	49–19	3552
70F9921	49–5	3550
70F9973	50–16C	3562
71F0902	49–	3554
71H2461	16–213	3370
71H2467	16–221	3370
7320140	56–	3616
73H0870	50–31	3564
73H0898	50–2	3560
73H1513	49–58	3558
73H1881	50–27	3564
73H1925	50–37	3564
73H2588	49–53	3556
73H3405	50–16	3560
73H3520	50–9	3560
73H3525	50–9	3560
73H3529	50–9	3560
73H3531	50–10	3560
73H3568	50–16	3560
73H3577	50–12	3560
73H4288	49–44	3556
73H4746	50–6	3560
73H4768	50–17	3562
74H8397	16–211	3370
76H2697	50–34	3564
76H5084	49–	3558
78X8993	49–38	3556
8184794	49–13	3552

Part Number	Asm–Index	Page
8184811	49–50	3556
81F7977	49–29	3554
81X0068	56–	3616
81X0280	42–17C	3532
81X0295	41–4A	3520
82G3278	50–	3564
845762	56–	3616
8492368	44–34	3538
855251	44–201	3540
85X6837	42–24A	3524
85X6837	42–24B	3528
86H2123	49–51	3556
88F0415	12–17	3264
88F0415	12–17A	3264
88F0930	2–97	3194
88F1192	56–	3616
88F1194	56–	3616
88F1196	56–	3616
88F1626	1–100	3184
88F1626	1–19	3180
88F1626	1–32	3180
88F1626	1–64	3182
88F1626	10–48	3256
88F1626	10–78	3258
88F1626	12–11	3264
88F1626	12–15	3264
88F1626	12–185S	3302
88F1626	12–185T	3288
88F1626	14–116	3326
88F1626	14–268	3340
88F1626	14–38	3318
88F1626	16–69	3360
88F1626	20–10	3380
88F1626	20–105	3392
88F1626	20–228D	3408
88F1626	20–240	3402
88F1626	20–279	3416
88F1626	20–28	3380
88F1626	20–60D	3382
88F1626	20–64	3388
88F1626	20–70	3388
88F1626	20–78D	3384
88F1626	21–116	3426
88F1626	21–87	3424
88F1626	21–95	3424
88F1626	22–7	3428
88F1626	27–101	3472
88F1626	27–31	3466
88F1626	30–42	3488
88F1626	32–35	3500
88F1626	4–3	3198
88F1626	5–160	3218
88F1626	54–	3609
88F1626	6–36	3220
88F1626	6–68	3224
88F1626	7–74	3232
88F1626	9–155	3252
88F1626	9–67	3246
88F1627	14–104	3324
88F1627	14–106	3324
88F1627	14–138	3328
88F1627	14–147	3330
88F1627	14–180	3332
88F1627	14–212	3334
88F1627	14–248	3338
88F1627	14–258	3338

Part Number	Asm–Index	Page
88F1627	14–321	3346
88F1627	14–328	3346
88F1627	14–332	3346
88F1627	14–41	3318
88F1627	14–71	3322
88F1627	15–64	3354
88F1627	20–19	3380
88F1627	20–309	3418
88F1627	20–55	3386
88F1627	20–69D	3382
88F1627	21–16	3420
88F1627	21–64	3422
88F1627	22–165	3440
88F1627	22–168	3440
88F1627	22–169	3440
88F1627	22–194	3442
88F1627	27–15	3466
88F1627	27–76	3470
88F1627	30–34	3486
88F1627	30–66	3490
88F1627	4–4	3198
88F1627	4–9	3198
88F1627	5–9	3208
88F1627	54–	3610
88F1627	6–22	3220
88F1627	6–81	3224
88F1627	8–13	3238
88F1627	8–52	3238
88F1629	1–30	3180
88F1629	14–160	3330
88F1630	12–94	3270
88F1630	4–126	3204
88F1630	4–47	3200
88F1631	4–48	3200
88F1632	14–261	3338
88F1632	5–48	3210
88F1632	5–64	3210
88F1633	14–262	3338
88F1633	5–49	3210
88F1633	5–65	3210
88F1634	14–267	3340
88F1634	5–162	3218
88F1636	10–45	3256
88F1636	9–62	3246
88F1637	14–322	3346
88F1637	14–325	3346
88F1637	15–62	3354
88F1638	14–105	3324
88F1638	21–14	3420
88F1639	14–165	3330
88F1639	14–295	3342
88F1640	14–274	3340
88F1640	14–298	3342
88F1641	15–5	3350
88F1644	16–170	3364
88F1644	25–42	3456
88F1646	20–310	3418
88F1646	20–56	3386
88F1647	20–222D	3408
88F1647	20–237	3402
88F1649	21–15	3420
88F1649	21–63	3422
88F1653	30–103	3492
88F1653	30–24	3486
88F1654	12–10	3264
88F1654	12–56	3268

Part Number	Asm–Index	Page
88F1655	1–9	3180
88F1656	1–15	3180
88F1658	1–26	3180
88F1675	2–1	3190
88F1681	2–44	3190
88F1683	2–50	3190
88F1686	2–59	3190
88F1687	2–66	3190
88F2378	2–79	3190
88F2379	2–81	3192
88F2380	2–90	3192
88F2387	2–113	3194
88F2389	2–125	3194
88F2390	2–126	3194
88F2391	2–127	3194
88F2392	4–1	3198
88F2393	4–11	3198
88F2395	4–21	3198
88F2396	4–22	3198
88F2397	4–23	3198
88F2398	4–24	3198
88F2399	4–26	3198
88F2401	4–36	3198
88F2413	4–99	3202
88F2414	4–100	3202
88F2415	30–60	3490
88F2416	4–106	3204
88F2417	4–108	3204
88F2418	4–123	3204
88F2420	4–137	3204
88F2421	5–6	3208
88F2426	5–26	3208
88F2427	5–32	3208
88F2428	5–37	3208
88F2434	5–89	3212
88F2435	5–90	3214
88F2438	5–106	3214
88F2443	5–125	3214
88F2444	5–127	3214
88F2446	5–129	3214
88F2447	5–131	3214
88F2448	5–132	3214
88F2450	5–136	3216
88F2451	5–138	3216
88F2452	5–143	3216
88F2453	5–145	3216
88F2454	5–149	3216
88F2455	5–151	3216
88F2470	6–23	3220
88F2471	6–26	3220
88F2472	6–31	3220
88F2473	6–37	3220
88F2474	6–38	3220
88F2475	6–43	3220
88F2478	6–55	3222
88F2479	6–66	3224
88F2480	6–69	3224
88F2481	6–70	3224
88F2482	6–74	3224
88F2483	6–75	3224
88F2484	6–76	3224
88F2485	6–79	3224
88F2486	6–80	3224
88F2487	6–86	3224
88F2488	6–92	3224
88F2489	6–97	3224

Part Number	Asm–Index	Page
88F2490	6–106	3226
88F2491	6–107	3226
88F2492	6–109	3226
88F2494	7–16	3228
88F2499	7–24	3228
88F2504	7–54	3232
88F2507	7–59	3232
88F2522	7–100	3236
88F2523	7–101	3236
88F2524	7–105	3236
88F2525	8–2	3238
88F2536	8–90	3242
88F2541	9–4	3244
88F2542	9–5	3244
88F2543	9–8	3244
88F2554	9–99	3248
88F2560	9–128	3250
88F2562	9–130	3250
88F2563	9–131	3250
88F2564	9–132	3250
88F2565	9–133	3250
88F2566	9–134	3250
88F2567	9–136	3250
88F2568	9–137	3250
88F2569	9–138	3250
88F2570	9–139	3250
88F2571	9–142	3250
88F2573	9–145	3250
88F2574	9–146	3250
88F2576	9–149	3250
88F2578	9–157	3252
88F2579	9–158	3252
88F2580	9–159	3252
88F2582	10–15	3254
88F2598	10–76	3258
88F2604	11–17	3260
88F2605	11–18	3260
88F2606	11–23	3260
88F2607	11–30	3260
88F2608	11–34	3260
88F2609	11–36	3260
88F2610	11–50	3262
88F2611	11–53	3262
88F2612	11–59	3262
88F2613	11–69	3262
88F2617	12–9	3264
88F2618	12–12	3264
88F2619	12–13	3264
88F2620	12–16	3264
88F2621	12–19	3264
88F2622	12–22	3264
88F2623	12–25	3264
88F2629	12–37	3266
88F2629	12–37S	3290
88F2629	12–37T	3276
88F2631	12–39	3266
88F2631	12–39S	3290
88F2631	12–39T	3276
88F2633	12–43	3266
88F2633	12–43S	3292
88F2633	12–43T	3276
88F2636	12–48	3266
88F2636	12–48S	3292
88F2636	12–48T	3276
88F2643	12–65	3268
88F2644	12–66	3268

Part Number	Asm–Index	Page
88F2644	12–66S	3292
88F2644	12–66T	3278
88F2645	12–67	3268
88F2645	12–67S	3292
88F2645	12–67T	3278
88F2646	12–68	3268
88F2646	12–68S	3292
88F2646	12–68T	3278
88F2647	12–69	3268
88F2647	12–69S	3292
88F2647	12–69T	3278
88F2648	12–73	3268
88F2648	12–73S	3294
88F2648	12–73T	3280
88F2662	12–151	3274
88F2662	12–151S	3298
88F2662	12–151T	3284
88F2664	13–68	3312
88F2666	13–9	3306
88F2667	13–10	3306
88F2668	13–26	3308
88F2669	13–16	3306
88F2670	13–31	3308
88F2671	13–2	3306
88F2673	13–5	3306
88F2674	13–8	3306
88F2675	13–37	3308
88F2676	13–7	3306
88F2677	13–14	3306
88F2678	13–13	3306
88F2679	13–65	3312
88F2680	13–66	3312
88F2681	13–69	3312
88F2682	13–105	3314
88F2684	13–28	3308
88F2703	13–39	3310
88F2705	13–45	3310
88F2706	13–46	3310
88F2707	13–47	3310
88F2708	13–52	3310
88F2709	13–56	3310
88F2710	13–18	3306
88F2711	13–70	3312
88F2712	13–71	3312
88F2713	13–34	3308
88F2717	13–59	3310
88F2718	14–300	3342
88F2719	14–286	3342
88F2720	14–193	3332
88F2721	14–194	3332
88F2722	14–195	3332
88F2723	14–166	3330
88F2723	14–296	3342
88F2729	14–205	3334
88F2730	14–207	3334
88F2733	14–122	3326
88F2735	14–130	3326
88F2736	14–129	3326
88F2736	14–320	3346
88F2737	14–134	3328
88F2738	14–135	3328
88F2739	14–136	3328
88F2740	14–107	3326
88F2741	14–110	3326
88F2742	14–113	3326
88F2743	14–115	3326

Part Number	Asm–Index	Page
88F2745	14–154	3330
88F2745	14–98	3324
88F2746	14–155	3330
88F2746	14–99	3324
88F2748	14–329	3346
88F2749	14–330	3346
88F2750	14–247	3338
88F2751	14–249	3338
88F2754	14–250	3338
88F2755	14–251	3338
88F2756	14–252	3338
88F2757	14–253	3338
88F2758	14–254	3338
88F2759	14–257	3338
88F2760	14–61	3320
88F2761	14–62	3320
88F2762	14–63	3320
88F2765	14–211	3334
88F2768	14–218	3336
88F2770	14–141	3328
88F2770	14–312	3344
88F2771	14–143	3328
88F2772	14–315	3344
88F2773	14–316	3344
88F2774	14–145	3330
88F2774	20–196	3400
88F2775	14–326	3346
88F2777	14–87	3322
88F2778	14–90	3322
88F2781	14–285	3342
88F2786	14–281	3342
88F2788	14–45	3318
88F2789	14–56	3320
88F2790	14–59	3320
88F2791	14–43	3318
88F2792	14–44	3318
88F2792	14–60	3320
88F2793	14–72	3322
88F2794	14–73	3322
88F2795	14–336	3346
88F2796	14–76	3322
88F2797	14–53	3320
88F2798	14–55	3320
88F2799	14–8	3316
88F2800	14–176	3332
88F2801	14–271	3340
88F2802	14–175	3332
88F2803	14–177	3332
88F2804	14–178	3332
88F2805	14–179	3332
88F2806	14–186	3332
88F2812	14–201	3334
88F2818	12–18	3264
88F2818	14–22	3316
88F2820	14–14	3316
88F2821	14–306	3342
88F2821	14–309	3344
88F2823	14–236	3338
88F2824	14–237	3338
88F2826	14–241	3338
88F2828	14–293	3342
88F2829	14–294	3342
88F2830	14–163	3330
88F2831	14–164	3330
88F2832	14–83	3322
88F2833	14–291	3342

Part Number	Asm–Index	Page
88F2834	14–84	3322
88F2835	14–273	3340
88F2836	14–173	3332
88F2838	14–198	3332
88F2839	14–197	3332
88F2840	14–94	3322
88F2841	14–279	3340
88F2842	14–159	3330
88F2843	14–259	3338
88F2844	14–288	3342
88F2848	12–118	3272
88F2848	12–118S	3296
88F2848	12–118T	3282
88F2851	15–1	3350
88F2854	15–10	3350
88F2855	15–11	3350
88F2857	15–17	3350
88F2858	15–18	3350
88F2859	15–19	3350
88F2860	15–21	3350
88F2861	15–23	3350
88F2862	4–91	3202
88F2863	15–30	3350
88F2863	20–197	3400
88F2864	15–32	3350
88F2865	15–33	3350
88F2866	15–34	3352
88F2867	15–35	3352
88F2868	15–36	3352
88F2869	15–37	3352
88F2870	15–38	3352
88F2874	15–56	3352
88F2876	16–2	3356
88F2878	16–4	3356
88F2882	16–33	3356
88F2883	16–34	3356
88F2884	16–46	3358
88F2885	16–47	3358
88F2887	16–64	3358
88F2889	4–105	3204
88F2898	16–108	3360
88F2899	16–125	3362
88F2900	16–130	3364
88F2906	16–176	3364
88F2909	20–100	3392
88F2911	20–184	3398
88F2914	20–160	3398
88F2917	20–271	3406
88F2919	20–169	3398
88F2920	20–104	3392
88F2921	20–282	3416
88F2922	20–172	3398
88F2924	20–103	3392
88F2924	20–174	3398
88F2925	20–164	3398
88F2926	20–165	3398
88F2928	20–178	3398
88F2934	20–62	3388
88F2935	20–111	3392
88F2936	20–90	3390
88F2937	20–112	3392
88F2939	20–47	3386
88F2940	20–52	3386
88F2942	20–53	3386
88F2943	20–49	3386
88F2944	20–59	3386

Part Number	Asm–Index	Page
88F2945	20–117	3392
88F2946	14–117	3326
88F2946	20–123	3392
88F2947	20–69	3388
88F2948	20–297	3418
88F2949	20–300	3418
88F2950	20–301	3418
88F2951	20–306	3418
88F2952	20–308	3418
88F2955	20–221	3402
88F2956	20–211	3400
88F2956	20–223	3402
88F2957	20–229	3402
88F2958	20–230	3402
88F2959	20–226D	3408
88F2959	20–233	3402
88F2960	20–234	3402
88F2961	20–224D	3408
88F2961	20–235	3402
88F2962	20–236	3402
88F2963	20–305	3418
88F2965	20–125	3394
88F2966	20–126	3394
88F2967	20–128	3394
88F2968	20–129	3394
88F2969	20–132	3394
88F2974	20–253	3404
88F2975	20–257	3404
88F2976	20–263	3406
88F2977	20–266	3406
88F2979	20–245	3404
88F2980	20–199	3400
88F2981	20–200	3400
88F2982	20–202	3400
88F2983	20–204	3400
88F2984	20–206	3400
88F2994	20–294	3416
88F2996	4–155	3206
88F2998	20–74	3390
88F3013	20–295	3416
88F3019	20–198	3400
88F3020	20–189	3400
88F3021	20–191	3400
88F3022	20–192	3400
88F3025	20–186	3398
88F3026	20–290	3416
88F3027	20–275	3416
88F3028	20–276	3416
88F3029	20–277	3416
88F3041	20–149	3396
88F3043	20–151	3396
88F3045	20–141	3396
88F3046	20–283	3416
88F3052	21–5	3420
88F3054	21–11	3420
88F3066	21–37	3420
88F3070	21–45	3420
88F3073	21–58	3422
88F3075	21–60	3422
88F3077	21–69	3422
88F3078	21–72	3422
88F3079	21–73	3422
88F3080	21–74	3422
88F3081	21–79	3424
88F3083	21–82	3424
88F3084	21–83	3424

Part Number	Asm–Index	Page
88F3086	21–85	3424
88F3087	21–86	3424
88F3090	21–93	3424
88F3091	21–94	3424
88F3092	5–28	3208
88F3093	21–104	3424
88F3096	21–121	3426
88F3097	21–125	3426
88F3098	21–126	3426
88F3099	21–127	3426
88F3100	21–128	3426
88F3101	21–129	3426
88F3102	21–130	3426
88F3104	22–5	3428
88F3105	22–9	3428
88F3106	22–13	3428
88F3107	22–14	3428
88F3108	22–19	3428
88F3109	22–20	3428
88F3112	22–26	3428
88F3118	22–36	3430
88F3118	22–36A	3430
88F3118	22–37	3430
88F3119	22–41	3432
88F3122	22–49	3432
88F3123	22–53	3432
88F3125	22–58	3432
88F3126	22–59	3432
88F3127	20–250D	3410
88F3127	22–69	3432
88F3128	20–267D	3412
88F3128	22–71	3432
88F3129	22–72	3432
88F3131	22–81	3434
88F3132	22–82	3434
88F3133	22–83	3434
88F3134	22–91	3434
88F3135	22–93	3434
88F3136	22–94	3434
88F3137	22–98	3436
88F3138	22–100	3436
88F3139	22–102	3436
88F3142	22–113	3436
88F3148	22–137	3438
88F3149	22–143	3440
88F3151	22–147	3440
88F3155	22–162	3440
88F3156	22–167	3440
88F3161	23–33	3446
88F3162	23–34	3446
88F3163	23–38	3446
88F3166	23–68	3448
88F3167	23–72	3448
88F3181	25–52	3456
88F3219	27–9	3466
88F3222	27–18	3466
88F3226	27–26	3466
88F3228	27–28	3466
88F3230	27–46	3468
88F3233	27–49	3468
88F3235	27–53	3468
88F3237	27–71	3470
88F3238	27–74	3470
88F3239	27–81	3470
88F3240	27–83	3470
88F3241	27–84	3470

Part Number	Asm–Index	Page
88F3245	27–93	3470
88F3249	27–104	3472
88F3252	27–109	3472
88F3255	27–116	3474
88F3256	27–119	3474
88F3257	27–120	3474
88F3260	28–35	3476
88F3261	28–37	3478
88F3262	28–42	3478
88F3264	28–46	3478
88F3267	28–56	3480
88F3272	29–33	3484
88F3274	29–38	3484
88F3276	29–46	3484
88F3277	29–47	3484
88F3278	29–52	3484
88F3280	30–11	3486
88F3281	30–21	3486
88F3282	30–23	3486
88F3284	30–32	3486
88F3285	30–33	3486
88F3286	30–37	3486
88F3287	30–38	3486
88F3288	30–41	3488
88F3289	30–46	3488
88F3290	30–47	3488
88F3295	30–64	3490
88F3299	30–91	3492
88F3300	30–95	3492
88F3301	30–96	3492
88F3302	30–119	3492
88F3311	32–7	3500
88F3312	32–11	3500
88F3313	32–32	3500
88F3314	32–33	3500
88F3315	32–34	3500
88F3316	32–50	3502
88F3317	32–51	3502
88F3318	32–52	3502
88F3335	5–30	3208
88F3336	2–42	3190
88F3338	4–16	3198
88F3339	14–238	3338
88F3340	14–340	3346
88F3341	26–24	3462
88F3342	26–25	3462
88F3349	14–272	3340
88F3349	5–74	3212
88F3350	9–124	3250
88F3351	9–129	3250
88F3352	9–148	3250
88F3355	14–297	3342
88F3356	16–70	3360
88F3358	21–102	3424
88F3359	22–114	3436
88F3360	23–37	3446
88F3361	23–40	3446
88F3365	14–168	3330
88F3365	20–124	3392
88F3368	32–31	3500
88F3370	15–24	3350
88F3371	4–19	3198
88F3373	14–2	3316
88F3377	12–75	3268
88F3378	14–323	3346
88F3380	28–28	3476

Part Number	Asm–Index	Page
88F3381	29–27	3482
88F3383	20–91	3390
88F3386	35–19	3508
88F3386	36–17	3510
88F3387	35–20	3508
88F3387	36–18	3510
88F3388	7–19	3228
88F3389	12–81	3268
88F3389	12–81S	3294
88F3389	12–81T	3280
88F3390	12–157	3274
88F3390	12–157S	3298
88F3390	12–157T	3284
88F3391	12–158	3274
88F3391	12–158S	3298
88F3391	12–158T	3284
88F3391	27–36	3466
88F3391	5–40	3208
88F3397	1–80	3184
88F3398	1–81	3184
88F3399	1–84	3184
88F3401	1–85	3184
88F3405	1–92	3184
88F3406	1–93	3184
88F3407	1–94	3184
88F3408	1–95	3184
88F3409	1–96	3184
88F3410	1–97	3184
88F3411	1–98	3184
88F3412	1–99	3184
88F3416	1–103	3184
88F3417	1–105	3184
88F3418	1–106	3184
88F3423	14–14S	3348
88F3424	20–299	3418
88F3431	14–43	3318
88F3432	14–59	3320
88F3440	12–155	3274
88F3440	12–155S	3298
88F3440	12–155T	3284
88F3447	14–69A	3320
88F3448	14–69B	3320
88F3449	14–69C	3320
88F3457	27–73	3470
88F3458	14–3	3316
88F3459	14–4	3316
88F3569	54–	3611
88F3689	44–200	3540
88F3699	38–4	3514
88F3700	38–5	3514
88F3710	38–7	3514
88G3894	49–52	3556
88G4768	49–59	3558
88G5747	52–49	3586
88G5750	52–50	3586
89H5651	50–16E	3562
89H9659	35–5	3508
89H9660	36–5	3510
89H9661	35–11	3508
89H9661	36–10	3510
89H9676	31–	3498
89H9677	1–	3186
89H9762	42–35A	3526
89H9762	42–38B	3530
89H9768	1–	3186
89H9831	42–21A	3524

Part Number	Asm–Index	Page
89H9835	42–12A	3524
89H9838	52–2S	3590
89H9933	52–44	3584
89H9934	52–45	3584
89H9935	52–46	3584
89H9936	52–47	3584
89H9937	52–48	3584
89H9938	52–43	3584
89H9991	9–89	3248
89H9992	9–75	3246
89H9998	8–91	3242
89H9999	8–93	3242
90H0878	52–32	3576
90H0987	42–16B	3528
90H1029	4–160	3206
90H1032	22–38	3430
90H1036	5–88	3212
90H1037	5–87	3212
90H1038	5–86	3212
90H1044	32–39	3500
90H1106	22–130	3438
90H1107	22–156A	3440
90H1108	22–126	3438
90H1110	25–70	3458
90H1117	22–19	3428
90H1131	12–75S	3294
90H1133	12–54S	3292
90H1150	42–21A	3524
90H1154	12–217S	3304
90H1155	5–82	3212
90H1155	5–82	3212
90H1274	31–38	3496
90H1276	12–107S	3294
90H1277	4–134	3204
90H1280	31–36	3494
90H1281	31–32	3494
90H1283	20–148	3396
90H1284	23–50	3446
90H1291	25–70	3458
90H1294	8–91	3242
90H1295	8–93	3242
90H1296	8–94	3242
90H1301	31–41	3496
90H1302	31–43	3498
90H1315	42–16B	3528
90H1362	31–38	3496
90H1363	4–60	3202
90H1364	31–43	3498
90H1365	25–70	3458
90H1365	25–70	3458
90H1369	23–35A	3450
90H1371	31–36	3494
90H1373	8–50	3238
90H1376	25–56	3458
90H1561	16–145	3364
90H1562	53–	3596
90H1638	20–280R	3414
90H1655	16–226	3370
90H1732	11–68	3262
90H1744	41–18A	3520
90H1751	35–5	3508
90H1752	36–5	3510
90H1757	20–68	3388
90H1758	23–41A	3450
90H1763	7–2	3228
90H1764	7–1	3228

Part Number	Asm–Index	Page
90H1765	7–2	3228
90H1766	7–1	3228
90H1783	25–79	3458
90H2301	8–94	3242
90H2346	1–23	3180
90H2347	1–34	3180
90H2348	1–36	3180
90H2349	1–38	3180
90H2350	1–40	3180
90H2351	1–46	3180
90H2352	1–49	3180
90H2353	1–51	3180
90H2354	1–53	3180
90H2355	1–55	3182
90H2356	1–57	3182
90H2357	1–58	3182
90H2358	1–61	3182
90H2359	1–62	3182
90H2360	1–81A	3184
90H2361	1–91	3184
90H2363	25–79	3458
90H2363	25–79	3458
90H2395	8–3	3238
90H2396	8–61	3242
90H2402	22–121	3438
90H2403	22–122	3438
90H2406	22–132	3438
90H2406	22–185	3442
90H2407	22–154	3440
90H2411	22–183	3442
90H2415	22–187	3442
90H2416	22–188	3442
90H2418	22–193	3442
90H2421	22–200	3442
90H2444	49–51	3556
90H2449	56–	3616
90H2451	56–	3616
90H2539	42–17A	3524
90H2620	14–	3318
90H2627	42–8A	3524
90H2642	20–68	3388
90H2651	56–	3616
90H2665	41–16A	3520
90H2678	41–18B	3520
90H2681	27–110	3472
90H2681	27–111	3472
90H2681	27–95	3472
90H2681	27–96	3472
90H2681	29–44	3484
90H2681	29–50	3484
90H2707	20–265D	3412
90H2710	5–155	3216
90H2714	27–48	3468
90H2715	29–35	3484
90H2754	31–39	3496
91610	44–30	3538
91610	44–31	3538
91610	44–33	3538
91F1066	49–25	3554
93F2361	50–29	3564
93H1816	50–4	3560
93H2166	50–20	3562
93H2534	50–16	3560
93H2641	50–14	3560
93H2922	50–5	3560
93H3144	50–18	3562

Part Number	Asm–Index	Page
93H3145	50–19	3562
93H4214	50–13	3560
93H4297	50–28	3564
93H4340	52–53	3588
93H4340	52–54	3588
93H4340	52–56	3588
93H4340	52–57	3588
93H4700	50–15	3560
93H4702	50–15	3560
93H6280	50–11	3560
93H6321	50–17	3562
93H6321	50–20	3562
93H6809	50–23	3562
93H8055	50–25	3562
93H8407	50–16	3560
93H9018	50–17	3562
94F3592	49–17	3552
94H0823	50–16B	3562
94H1038	50–16	3560
96H3126	41–18	3520

Search Index

Special Characters

(−12 V) voltage distribution - CD95 2000
(+12 V) voltage distribution - CD94 1999
(+24 VB) voltage distribution - CD97 2002
(+24 VD) voltage distribution - CD127 2032
(+24 VD) voltage distribution - CD96 2001
(+24 VE) voltage distribution - CD98 2003
(+24 VH) voltage distribution - CD99 2004
(+42 V) voltage distribution - CD100 2005
(+5 V) voltage distribution - CD93 1998
(+5 VM/+12 VM and +120/+140/+260 V) voltage distribution - CD101 2006
(24 VD) power supply - CD105 2010
+24 VD input (AM202), location 2101

Numerics

1.5 Mft procedure 3627
12 Mft procedure 3635
18 Mft procedure 3637
200 VAC blowers - WD26 1810
200 VAC blowers - WD28 1813
3-digit display, location 2158
3 Mft procedure 3629
3 phase AC motors (M101, M104, M105 M108) - WD29 1814
6 Mft procedure 3631
6 PPI sync voltage test 1592
9 Mft procedure 3633

A

AC blowers - WD26 1810
AC blowers - WD28 1813
AC circuits
- 200 VAC blowers - WD26 1810
- 200 VAC blowers - WD28 1813
- 3 phase AC motors (M101, M104, M105 M108) - WD29 1814
- AC distribution to hot roll lamps - WD34 1819
- AC distribution to preheat platen - WD35 1820
- AC motor M112 - WD32 1817
- AC motors (M603, M605, M606 & M609) - WD31 1816
- AC motors (M604, M701, M702 & M803) - WD33 1818
- AC power control (simplex) - WD23 1805
- control unit AC control box (duplex) - WD22.1 1804
- control unit AC control box (simplex) - WD22 1803
- control unit AC power control (duplex) - WD21.1 1802
- control unit AC power control (simplex) - WD21 1801
- low voltage power supply, MIC fan - WD20 1798
- low voltage power supply, MIC fan - WD20.1 1799
- low voltage power supply, MIC fan - WD20.2 1800
- motors B602, B703 & 200 VAC blowers - WD27 1812
- printer AC power supply - WD16 1792
- printer AC power supply - WD17 1793
- printer AC power supply - WD17.1 1794
- printer AC power supply - WD18 1795
- printer AC power supply - WD19 1796
- printer AC power supply - WD19.1 1797
- printer DC power units and sequence card - WD24 1807
- printer sequence card - WD25 1808
- single phase AC motors (M102, M103, M301 & M302) - WD30 1815
- urge unit (duplex) - WD69 1870

AC control box (duplex), control unit - WD22.1 1804
AC control box, location 2146, 2148
ac control box, removal 2240

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AC control box (simplex), control unit - WD22 1803
AC current protection 1791
AC/DC power tables 1790
  AC current protection 1791
  DC output 1790
  over temperature protection 1791
AC distribution to hot roll lamps - WD34 1819
AC distribution to preheat platen - WD35 1820
AC input/output tables
  input 1789
  output 1789
AC input table 1789
AC motor M112 - WD32 1817
AC motors (M101, M104, M105 M108), 3 phase - WD29 1814
AC motors (M102, M103, M301 &M302), single phase - WD30 1815
AC motors (M603, M605, M606 & M609) - WD31 1816
AC motors (M604, M701, M702 & M803) - WD33 1818
AC output table 1789
AC power control (duplex), control unit - WD21.1 1802
AC power control (simplex) - WD23 1805
AC power control (simplex), control unit - WD21 1801
ac power cord
  50/60 Hz 3-wire 3674
  50 Hz 4-wire 3674, 3677
  continuity check, U.S. 3677
  continuity check, World Trade 3677
ac power cord *(continued)*
  danger 3674, 3677
  install 3674
  warning 3674
ac power cord, install 3674
AC power supply, printer - WD16 1792
AC power supply, printer - WD17 1793
AC power supply, printer - WD17.1 1794
AC power supply, printer - WD18 1795
AC power supply, printer - WD19 1796
AC power supply, printer - WD19.1 1797
ac power supply, removal 2635
ac power supply access 2633
AC power supply card, location 2089, 2093
AC power supply cooling fan, location 2088, 2092
action code (sense byte 2) 1761
activation test, printer 1582
Actuator (88F3161) (-33) 3446
Adapter, Scavenger Roll Asm (88F2542) (-5) 3244
adapter card, display/touch screen (slot 1), location 2170
adapter card, display/touch screen (slot 3), location 2166
adapter card, host attachment (slot 2), location 2170
adapter card, host attachment (slot 4), location 2170
adapter card, host attachment (slot 6), location 2166
adapter card, host attachment (slot 7), location 2166
adapter card, SCSI (IR1/IR2) (slot 1), location 2166
adapter card, SCSI (IR1/IR2) (slot 9), location 2166
adapter card, SCSI (IR3/IR4) (slot 1), location 2166
adapter card, SCSI (IR3/IR4) (slot 4), location 2166
adapter card, SCSI (IR3/IR4) (slot 9), location 2166
adapter card, SCSI (Slot 3), location 2170
adapter card (slot 2), location 2166
adapter card (slot 5), location 2166, 2168, 2170
adapter card (slot 8), location 2166
adapter card slots, location 2159
adapting voltages 3662
address/data bus networks - WD55 1849
address values, memory 1615
address values 1402833, memory 1617
Adjuster, Beam (57G6765) (-5) 3264
adjustment routines 1695
adjustment stud, developer height front , location 2072
adjustment stud, developer height frontd, location 2072
adjustment stud, developer height rear, location 2072
adjustments
  AOM skew (two beam 240) 2834
  AOM skew (two beam 240/300) 2945
  backup roll discharge brush 2506
  bridge height 2200
  bridge lift motor and gearbox 2208

adjustments *(continued)*
bridge parallelism 2201
bridge up switch 2211
charge corona to PC drum gap 2318
cleaner brush drive belt 2223
cleaner brush drive cone 2224
cleaner brush motor 2228
cleaner housing motor 2235
cleaner housing switch 2235
cleaner skirt 2236
conveyor roll angle 2440
conveyor roll lift plate 2441
corona cleaning brushes 2325
cyclone blower drive belt 2176
cyclone blower rotation sensor 2179
D603 2607
developer housing vacuum seal gap 2444
developer to PC drum gap 2446
drum motor 2484
drum motor drive belt 2484
horizontal registration (single beam) 2730
horizontal registration (two beam 240) 2830
horizontal registration (two beam 240/300) 2941
hot roll drive motor 2545
hot roll over-temperature sensor 2561
hot roll temperature sensor 2559
initialize mag brush rolls position 2451
M101 2390
M102 2420
M103 2408
M106 2235
adjustments *(continued)*
M107 2484
M108 2228
M112 2437
M606 2208
M607 2545
M706 2565
mag brush A to scraper gap 2462
mag brush angle, adjust 2464
mag brush belt 2373
mag brush C to scraper gap 2459
mag brush motor 2390
mag brush rolls 2394
mag rolls to doctor blade gap 2453
MD192 2638
mirror motor driver board 2638
oiler belt motor 2565
oiler gate interlock switch 2567
PC drum cover interlock switch 2477
PC drum surface voltage 2331
PQE stroke width (single beam) 2734
PQE stroke width (two beam 240) 2840
PQE stroke width (two beam 240/300) 2949
precharge corona voltage 2342
preclean corona to PC drum gap 2323
preclean corona voltage 2341
preheat platen frame 2518
preheat platen vacuum 2189
S103 2235
S116 2179
S118 2187
S122 2477
S604 2602
adjustments *(continued)*
S605 2567
S608 2211
S613 2561
scavenger roll 2398
scuff pressure rollers 2589
scuff roll drive belt 2593
skew sensor 2607
toner collector bottle switch 2187
toner control belt 2375
toner control motor 2408
toner feed belt 2377
toner feed motor 2420
toner hopper paddle 2430
toner supply belt 2379
toner supply motor 2437
transfer corona cleaning brush 2327
transfer corona voltage 2340
transfer station 3160
vacuum shutter home sensor 2602
vertical registration (single beam) 2725
vertical registration (two beam 240) 2825
vertical registration (two beam 240/300) 2936
AFCCU interface extension cable, desc 3808
Air Deflector (8184623) (-44) 3556
air system
B602) - CD128 2033
B703 - CD30 1935
cyclone blower, check 2174
cyclone blower, removal 2173
cyclone blower drive belt, adjust 2176
cyclone blower drive belt, check 2176

air system *(continued)*
cyclone blower drive belt, removal 2175
cyclone blower motor - CD71 1976
cyclone blower motor, check 2177
cyclone blower motor, removal 2177
cyclone blower rotation sensor - CD72 1977
cyclone blower rotation sensor, adjust 2179
cyclone blower rotation sensor, check 2179
cyclone blower rotation sensor, removal 2178
cyclone pressure check 2180
filter pressure - CD116 2021
filter pressure switch, check 2182
filter pressure switch, removal 2182
fine filter case, removal 2183
fine filter switch, check 2184
fine filter switch, removal 2184
hot roll motor blower - CD128 2033
location 2063
M104 - CD71 1976
M105, check 2191
M105, removal 2191
manifold distribution filter, removal 2185
ozone filter, removal 2188
preheat platen vacuum, adjust 2189
S102 - CD116 2021
S102, check 2182
S102, removal 2182
S108, check 2184
S108, removal 2184
S116 - CD72 1977
air system *(continued)*
S118, adjust 2187
S118, check 2187
S118, removal 2187
stacker cooling - CD30 1935
toner collector bottle assembly, removal 2186
toner collector bottle switch, adjust 2187
toner collector bottle switch, check 2187
toner collector bottle switch, removal 2187
vacuum blower, check 2191
vacuum blower, removal 2191
alarm test 1582
ALCD1 - WD79/1A/1B 1887
alert assembly, attach 3740
ALJ2 - WD79/1A 1887
ALJ2, location 2148
ALP2 - WD79/1A 1887
ALP2, location 2148
alternate print sample 1604
AM201 (single beam,) location 2102
AM201 (single beam), parts 3264
AM201 (single beam), removal 2660
AM201 (two beam 240), location 2106
AM201 (two beam 240), parts 3288
AM201 (two beam 240), removal 2753
AM201 (two beam 240/300), location 2110
AM201 (two-beam 240/300), parts 3302
AM201 (two beam 240/300), removal 2861
am201 and am202 routine 1702
am201 and am203 routine 1702
am201 and am204 routine 1703
am201 and am205 routine 1703
am201 and am206 routine 1704
AM202 (single beam,) location 2102
AM202 (single beam), parts 3272
AM202 (single beam), removal 2661
AM202 (two beam 240), location 2106
AM202 (two beam 240), parts 3284
AM202 (two beam 240), removal 2755
AM202 (two beam 240/300), location 2110
AM202 (two beam 240/300), parts 3298
AM202 (two beam 240/300), removal 2863
AM203 (two beam 240), location 2106
AM203 (two beam 240), parts 3284
AM203 (two beam 240), removal 2755
AM203 (two beam 240/300), location 2110
AM203 (two beam 240/300), parts 3298
AM203 (two beam 240/300), removal 2863
ao modulaor and aom driver (AM201–AM206) adjustment routine 1697
AO Modulator (AM201) (Two Beam 240) (24H8041) (-176T) 3288
ao modulator (AM201) and aom dirver (AM202) adjustment routine 1702
ao modulator (AM201) and aom dirver (AM203) adjustment routine 1702
ao modulator (AM201) and aom dirver (AM204) adjustment routine 1703
ao modulator (AM201) and aom dirver (AM205) adjustment routine 1703

ao modulator (AM201) and aom dirver (AM206) adjustment routine 1704
AO Modulator (Single Beam) (AM201) (53F1858) (-14) 3264
AO modulator (single beam), location 2102
AO modulator (single beam), removal 2660
AO modulator (two beam 240), location 2106
AO modulator (two beam 240), removal 2753
AO Modulator (Two-beam 240/300) (AM201) (24H8041) (-176S) 3302
AO modulator (two beam 240/300), location 2110
AO modulator (two beam 240/300), removal 2861
AO modulator adjustment (single beam) 2709
AO modulator adjustment (two beam 240) 2809
AO modulator adjustment (two beam 240/300) 2920
AO modulator driver (single beam), removal 2661
AO modulator driver (two beam 240), removal 2755
AO modulator driver (two beam 240/300), removal 2863
AOM driver (single beam), location 2102
AOM drivers (two beam 240), location 2106
AOM drivers (two beam 240/300), location 2110
AOM skew (two beam 240), adjust 2834
AOM skew (two beam 240/300), adjust 2945
Aperture (08H7673) (-32T) 3276
aperture, location 2102
aperture (single beam), adjust 2699
aperture (two beam 240), adjust 2799
aperture (two beam 240), location 2106
aperture (two beam 240), parts 3276
aperture (two beam 240/300), adjust 2911
aperture (two beam 240/300), location 2110
Arm, Cleaner Housing (88F2473) (-37) 3220
Arm, Front (24H8171) (-4A) 3450
Arm, Link (57G5991) (-84) 3232
Arm, Link (57G5993) (-82) 3232
Arm, Steering Front (-5) 3428
Arm, Steering Front (88F3104) (-5) 3428
Arm, Steering Rear (-9) 3428
Arm, Steering Rear (88F3105) (-9) 3428
Arm, Tension Buffer Asm (88F2788) (-45) 3318
Arm, Tension Buffer Asm (88F2789) (-56) 3320
Arm Asm (24H8167) (-14A) 3450
ARTIC Coprocessor Card (F50) (39H8084) (-16) 3562
Assembly, Cage (42F6510) (-11) 3552
attachment data trace 1597
attachment diagnostics 1572
attachment link trace 1597
attention light test 1582
Auger, Toner (88F2574) (-146) 3250
Auger, Toner End (88F2573) (-145) 3250
auto load bridge
  assembly, check 2194
  assembly, removal 2193
  bridge down switch, check 2195
  bridge down switch, removal 2195
  bridge feed belts, check 2196
  bridge feed belts, removal 2196
  bridge feed gears, check 2197
  bridge feed gears, removal 2197
  bridge feed motor and gearbox ,check 2198
  bridge feed motor and gearbox, removal 2198
  bridge height, adjust 2200
  bridge height, check 2199
  bridge lift motor, removal 2202
  bridge lift motor and gearbox, adjust 2208
  bridge lift motor and gearbox, check 2202, 2208
  bridge lift motor and gearbox, removal 2203
  bridge parallelism, adjust 2201
  bridge up switch, adjust 2211
  bridge up switch, check 2210
  bridge up switch, removal 2209
  location 2064
  M605, check 2198
  M605, removal 2198
  M606, adjust 2208
  M606, check 2202, 2208
  M606, removal 2202

auto load bridge *(continued)*
S608, adjust 2211
S608, check 2210
S608, removal 2209
S609, check 2195
S609, removal 2195
auto load bridge assembly, check 2194
auto load bridge assembly, location 2064
auto load bridge assembly, removal 2193
auto load linkage 2122
autoload bridge, location 2059
autoload drive adjustment routine 1700

B

B1 board, location 2057
B1 board fan, location 2057
B1 lamp, location 2073
B1 logic gate thermal - CD104 2009
B101 - WD26.1/2A 1811
B101 - WD26/2B 1810
B101, location 2053
B104 - WD26.1/2A 1811
B104 - WD26/2A 1810
B104, location 2072
B104, parts 3214
B108 - WD26.1/2A 1811
B108 - WD26/2A 1810
B108, location 2072
B108, parts 3210
B108, removal 2380
B109 - WD26.1/2A 1811
B109 - WD26/2A 1810
B109, location 2072
B109, parts 3210
B109, removal 2380
B110 - WD26.1/1B 1811
B110 - WD26/1B 1810
B110, location 2070
B110, removal 2382
B111 - WD26.1/1B 1811
B111 - WD26/1B 1810
B111, location 2070
B111, removal 2382
B112 - WD26.1/1B 1811
B112 - WD26/1B 1810
B112, location 2070
B112, removal 2382
B114 - WD26.1/1A 1811
B114 - WD26/1A 1810
B114, location 2070
B115 - WD26/1A 1810
B115, location 2070
B115 -WD26.1/1A 1811
B1J10, removal 2213
B1J10–SW1, location 2129
B1J10–SW2, location 2129
B1J11 - battery, location 2130
B1J11 - J1, location 2130
B1J11 - MASW, location 2130
B1J11 - S1, location 2130
B1J11 - S2, diagnostic function switch, location 2130
B1J11 - S8, location 2130
B1J11- EPROM, location 2130
B1J11 -J440, location 2130
B1J11, removal 2215
B1J11 battery enable, location 2130
B1J11 EPROM, removal 2218
B1J11-HSW1, location 2130
B1J11–HSW0, location 2130
B1J11–VSW0, location 2130
B1J11–VSW1, location 2130
B1J11 reset switch, location 2130
B2 lamp, location 2073
B201 - WD26.1/2B 1811
B201 - WD26/2B 1810
B201 (single beam), location 2102
B201 (single beam), parts 3272
B201 (single beam), removal 2668
B201 (two beam 240), location 2106
B201 (two beam 240), parts 3282
B201 (two beam 240), removal 2765
B201 (two beam 240/300), location 2110
B201 (two beam 240/300), parts 3296
B201 (two beam 240/300), removal 2873
B202, (two beam 240/300), location 2110
B202 - WD26.1/2B 1811
B202 - WD26/2B 1810
B202 (single beam), location 2102
B202 (single beam), parts 3268
B202 (single beam), removal 2687
B202 (two beam 240), location 2106
B202 (two beam 240), parts 3280
B202 (two beam 240), removal 2784
B202 (two beam 240/300), parts 3294
B202 (two beam 240/300), removal 2892
B3 lamp, location 2073
B39 - WD25.1/1A 1809
B39 - WD25/1A 1808
B4 lamp, location 2073
B403 - WD26.1/1B 1811

B403 - WD26/1B 1810
B403, location 2057
B41 - WD25.1/1A 1809
B41 - WD25/1A 1808
B501 - WD17.1/2A 1794
B501 - WD17/2A 1793
B501 - WD19.1/2A 1797
B501 - WD19/2A 1796
B501, location 2088, 2092
B502 - WD24/2A 1807
B502, location 2088, 2092
B503 - WD24/2A 1807
B503, location 2088, 2092
B504 - WD24/1A 1807
B504, location 2088, 2092
B505 - WD24/1A 1807
B505, location 2088, 2092
B602 - CD128 2033
B602 - WD27/1A 1812
B602, location 2076
B602, removal 2546
B602 motor - WD27 1812
B603 - WD28/2B 1813
B603, location 2057
B603, removal 3010
B604 - WD27/2B 1812
B604, location 2059
B604, removal 2329
B605, location 2076
B605, removal 2529
B605 WD27/2B 1812
B623 - WD28/1B 1813
B623, location 2073
B623, removal 2574
B624 - WD28/1B 1813
B624, location 2073
B624, removal 2574
B625 - WD28/2B 1813
B625, location 2073
B625, removal 2574
B626 - WD28/2B 1813
B626, location 2073
B626, removal 2575
B703 - CD30 1935
B703 - WD27/1A 1812
B703, location 2057
B703, parts 3456
B703, removal 2959
B703 motor - WD27 1812
B704 - WD52/1A 1845
B704, location 2120
B705 - WD52/1A 1845
B705, location 2120
B706 - WD52/1A 1845
backing up disk 1594
Backplane, SCSI (F50) (93H2166) (-20) 3562
Backplane, SSA (F50) (93H6321) (-20) 3562
backup idler roll 3638
backup idler roll (BIR), location 2073
backup idler roll, removal 2522
backup idler roll encoder - WD60 1858
backup idler roll motor - CD22 1927
backup idler roll motor (M609) driver routine 1651
backup idler roll motor, removal 2524
backup idler roll motor, thermal sense - CD23 1928
backup idler roll position encoder board, removal 2526
backup roll 3638
backup roll (BUR), location 2073
backup roll, removal 2503
backup roll and backup idler roll encoders (HR091 & FSxxx cards) - WD60 1858
backup roll discharge brush, adjust 2506
backup roll discharge brush, removal 2505
backup roll encoder - WD60 1858
backup roll encoder, removal 2507
backup roll idler motor, location 2076
backup roll lift motor - CD24 1929
backup roll lift motor, location 2064
backup roll lift motor (M610) (bloom motor) driver routine 1661
backup roll lift motor, removal 2509
backup roll lift motor drive belt, removal 2512
backup roll lift motor encoder - CD24 1929
backup roll lift motor sensor (S624), routine 1693
backup roll lift motor timing adjustment 1724
backup roll lift position sensor, location 2065
backup roll lift position sensor, removal 2520
backup roll load motor, removal 2521
backup roll motor - CD18 1923
backup roll motor, location 2076
backup-roll motor (M603) driver routine 1651
backup roll timing values 1722

Balancer, Upper Cover Asm (88F1658) (-26) 3180
Ball Bearing Housing Asm (24H8163) (-22A) 3450
Ball Bearing Housing Asm (24H8168) (-10A) 3450
Band, Wire (06F0463) (-103) 3314
Band, Wire (06F0463) (-109) 3204
Band, Wire (06F0463) (-64) 3312
Band, Wire (06F0734) (-131) 3364
Bar (05L5441) (-209) 3370
bar code print sample 1603
Base, Blower (88F2966) (-126) 3394
Base, Capstan Roll (88F2777) (-87) 3322
Base, Cleaner Brush Motor Asm (88F2490) (-106) 3226
Base, Fan (88F2648) (-73) 3268
Base, Fan (88F2648) (-73S) 3294
Base, Fan (88F2648) (-73T) 3280
Base, Fan Asm (88F3045) (-141) 3396
Base, Fastener (88F2925) (-164) 3398
Base, Hot Roll Motor (88F2946) (-117) 3326
Base, Hot Roll Motor (88F2946) (-123) 3392
Base, Link Guide Asm (88F3409) (-96) 3184
Base, MD141 (88F2418) (-123) 3204
Base, MD141 and RB241(04H0894) (-123A) 3204
Base, MD192 and RB241(24H8026) (-123) 3204
Base, Pendulum Motor Asm (57G6515) (-3) 3462
Base, Scuff Roll Motor (88F2979) (-245) 3404
Base, Sensor (88F3080) (-74) 3422
Base, Slide (06F1120) (-127) 3364
Base, Tension Pulley (88F2738) (-135) 3328
Base, Toner Inlet (88F2562) (-130) 3250
basic test, ESCON channel 1574
basic test, parallel channel 1573
Battery, (B1J11) (All except 324 PPM) (89H9676) 3498
Battery (23F0168) (-16) 3552
Battery (33F8354) (-8) 3560
battery, location 2161
BD1 Connector (two beam), location 2157
BD121 - CD123 2028
BD121, location 2102
BD121, parts 3270
BD121 (single beam), removal 2663
BD131 - CD124 2029
BD131, parts 3294
BD131 (two beam 240/300), location 2110
BD131 (two beam 240/300), removal 2867
BD132 - CD124 2029
BD132, parts 3280, 3294
BD132 (two beam 240), location 2106
BD132 (two beam 240), removal 2759
BD141 - CD124 2029
beam alignment (single beam), check 2690
beam alignment (two beam 240), check 2789
beam alignment (two beam 240/300), check 2901
beam detect - CD54 1959
beam detect card - CD124 2029
beam detect card, parts 3294
beam detect card (single beam) - CD123 2028
beam detect card (single beam), location 2102
beam detect card (single beam), parts 3270
beam detect card (single beam), removal 2663
beam detect card (two beam 240), location 2106
beam detect card (two beam 240), removal 2759
beam detect card (two beam 240/300), location 2110
beam detect card (two beam 240/300), removal 2867
beam detect mirror (single beam), adjust 2714
beam detect mirror (single beam), location 2102
beam detect mirror (single beam), parts 3266
beam detect mirror (two beam 240), adjust 2813, 2924
beam detect mirror (two beam 240), check 2812
beam detect mirror (two beam 240), location 2106
beam detect mirror (two beam 240), parts 3276

beam detect mirror (two beam 240/300), check 2923
beam detect mirror (two beam 240/300), location 2110
beam detect mirror (two beam 240/300), parts 3292
beam pattern adjustment (single beam) 2697
beam pattern adjustment (two beam 240) 2797
beam pattern adjustment (two beam 240/300) 2909
beam pattern check (single beam) 2696
beam pattern check (two beam 240) 2796
beam pattern check (two beam 240/300) 2908
beam power check (single beam) 2703
beam power check (two beam 240) 2803
beam power check (two beam 240/300) 2914
Bearing (06F0848) (-17) 3380
Bearing (06F0848) (-67D) 3382
Bearing (53F1816) (-144) 3328
Bearing (53F1816) (-314) 3344
Bearing (53F1978) (-101) 3436
Bearing (53F1991) (-27) 3350
Bearing, Asm (06F1069) (-298) 3418
Bearing, Ball (06F0038) (-8) 3260
Bearing, Ball (06F0054) (-108) 3226
Bearing, Ball (06F0054) (-114) 3326
Bearing, Ball (06F0054) (-305) 3342
Bearing, Ball (06F0054) (-308) 3342
Bearing, Ball (06F0054) (-42) 3318
Bearing, Ball (06F0054) (-72) 3224
Bearing, Ball (06F0110) (-5) 3482
Bearing, Ball (06F0110) (-6) 3476
Bearing, Ball (06F0134) (-2) 3428
Bearing, Ball (06F0144) (-224) 3402
Bearing, Ball (06F0144) (-231) 3402
Bearing, Ball (06F0144) (-237D) 3408
Bearing, Ball (06F0158) (-163) 3440
Bearing, Ball (06F0158) (-267) 3406
Bearing, Ball (06F0789) (-126) 3250
Bearing, Ball (13J3742) (-214) 3370
Bearing, Ball (45F3904) (-207) 3370
Bearing, Ball (45G1902) (-244) 3402
Bearing, Ball (45G1904) (-71) 3246
Bearing, Ball (45G1904) (-86) 3248
Bearing, Ball (45G1905) (-251D) 3410
Bearing, Ball (53F1814) (-70) 3322
Bearing, Ball (53F1882) (-54) 3422
Bearing, Ball (53F1883) (-55) 3422
Bearing, Ball (53F1976) (-98) 3492
Bearing, Ball (57G6833) (-255) 3404
Bearing, Ball (65F6158) (-17) 3466
Bearing, Ball (65F6158) (-22) 3486
Bearing, Ball (88F2450) (-136) 3216
Bearing, Ball (88F2567) (-136 3250
Bearing, Ball (88F3299) (-91) 3492
Bearing, Ball (90H2406) (-132) 3438
Bearing, Ball (90H2406) (-185) 3442
Bearing, Nylon (06F1130) (-102) 3360
Bearing, Plain (06F0848) (-29) 3420
Bearing, Plain (06F0848) (-61) 3422
Bearing, Plain (06F0848) (-9) 3420
Bearing, Plastic (06F0213) (-171) 3398
Bearing, Plastic (06F0213) (-331) 3346
Bearing, Plastic (06F0214) (-31) 3482
Bearing, Plastic (06F0214) (-59) 3470
Bearing, Plastic (06F0214) (-72) 3470
Bearing, Plastic (06F0214) (-83) 3490
Bearing, Plastic (06F0214) (-86) 3470
Bearing, Plastic (06F0214) (-95) 3314
Bearing, Plastic (53F1884) (-34) 3380
Bearing, Plastic (53F1884) (-53D) 3382
Bearing, Pulley (53F1817) (-100) 3324
Bearing, Pulley (53F1817) (-156) 3330
Bearing, Toner Control Asm (45G1895) (-2) 3254
Bearing, Toner Control Asm (53F1843) (-11) 3254
Bearing, Toner Inlet (53F1845) (-127) 3250
Belt, Backup Roll Lift (Printers with Backup Roll Lift hardware) (90H2421) (-200) 3442
Belt, Bridge Feed, (Vacuum) (57G6509) (-47) 3420
Belt, Bridge Feed (53F1885) (-48) 3420
Belt, Capstan Roll Drive (53F1819) (-213) 3334
Belt, Cyclone Blower (53F1988) (-41) 3310
Belt, Drum Drive (06F0072) (-58) 3262
Belt, Mag Brush (45G1903) (-30) 3238
Belt, Oiler (04H0288) (-66) 3448
Belt, Toner Auger Drive (04H0898) (-166) 3252
Belt, Toner Control (53F1849) (-32) 3254
Belt, Toner Feed (53F1848) (-73) 3258
Belt, Tractor (88F3373) (-2) 3316
Belt, Tractor Drive (53F1818) (-119) 3326
Belt, Urge Unit (30F9882) (-203) 3370
Belt, V (65F6165) (-29) 3482

Belt, V (65F6165) (-30) 3476
Belt, V, Scuff Roll Drive (310 PPM and 324 PPM only) (04H0777) (-269) 3406
Belt, V, Scuff Roll Drive (All except 310 PPM and 324 PPM) (53F1974) (-269) 3406
belts
backup roll lift motor drive, removal 2512
bridge feed, check 2196
bridge feed, removal 2196
cleaner brush drive, adjust 2223
cleaner brush drive, check 2223
cleaner brush drive, removal 2222
cleaner brush motor, parts 3222
cyclone blower drive, adjust 2176
cyclone blower drive, check 2176
cyclone blower drive, removal 2175
drum motor drive, adjust 2484
drum motor drive, check 2485
drum motor drive, removal 2479
finger, left, location 2118
finger right, location 2118
forms length drive, adjust 2961
forms length drive, parts 3466
forms lengtht, parts 3466
left finger, adjust 2989
left finger, removal 2986
mag brush, adjust 2373
mag brush, removal 2372
oiler, location 2074
pendulum timing, parts 3462
right finger, adjust 2994
right finger, removal 2992
scuff roll drive, removal 2592
stacker finger (left), parts 3476
belts *(continued)*
stacker finger (right), parts 3482
stacker length, adjust 2996
stacker length, removal 2995
stacker table drive, adjust 3012
stacker table drive, parts 3486
stacker table drive, removal 3011
toner auger drive, location 2068
toner control, adjust 2375
toner control, removal 2374
toner feed, adjust 2377
toner feed, removal 2376
toner supply, adjust 2379
toner supply, removal 2378
tractor motor drive, adjust 3112
tractor pin feed, adjust 3129
tractor pin feed, removal 3127
Bezel (00G3283) (-21) 3552
Bezel (45G1751) (-28) 3538
Bezel, Blank (41F0636) (-8) 3552
Bezel, Op Panel (73H0870) (-31) 3564
bias brushes, location 2067
bias contact brushes, removal 2361
bias contact plate assembly, removal 2362
BIR position encoder board, location 2073
BIR position encoder boare (EN131) routine 1684, 1685
BIR Shaft Front (04H1105) (-242D) 3410
BIR Shaft Rear (90H2707) (-265D) 3412
Block, Support (06F0695) (-169) 3332
Block, Support (06F0695) (-93) 3248
Block, Support (06F0695) (-95) 3248
Block, Terminal (88F3313) (-32) 3500
bloom improvement adjustments 1724
Blower, Cyclone Asm (M104) (53F1987) (-40) 3310
Blower, Hot Roll Motor (B602) and Capacitor (C608) Asm (53F1965) (-127) 3394
Blower, Hot Roll Motor Asm (B602) (88F2965) (-125) 3394
blower, stacker cooling (B703) - CD30 1935
Blower, Stacker Cooling Asm (B703) (24H7995) (-51A) 3456
Blower, stacker front cooling (With enhanced front stacker cooling) (11L5197) (-84) 3460
blower, vacuum - CD68 1973
Blower, Vacuum Asm (M105) (06F0041) (-51) 3310
blowers
B101 - WD26.1/2A 1811
B101 - WD26/2B 1810
B104 - WD26.1/2A 1811
B104 - WD26/2A 1810
B108 - WD26.1/2A 1811
B108 - WD26/2A 1810
B109 - WD26.1/2A 1811
B109 - WD26/2A 1810
B110 - WD26.1/1B 1811
B110 - WD26/1B 1810
B111 - WD26.1/1B 1811
B111 - WD26/1B 1810
B112 - WD26.1/1B 1811
B112 - WD26/1B 1810
B114 - WD26.1/1A 1811
B114 - WD26/1A 1810

blowers *(continued)*
B115 - WD26.1/1A 1811
B115 - WD26/1A 1810
B201 - WD26.1/2B 1811
B201 - WD26/2B 1810
B202 - WD26.1/2B 1811
B202 - WD26/2B 1810
B403 - WD26.1/1B 1811
B403 - WD26/1B 1810
B501 - WD17.1/2A 1794
B501 - WD17/2A 1793
B501 - WD19.1/2A 1797
B501 - WD19/2A 1796
B502 - WD24/2A 1807
B503 - WD24/2A 1807
B504 - WD24/1A 1807
B505 - WD24/1A 1807
B602, location 2076
B602, removal 2546
B603 - WD28/2B 1813
B604 - WD27/2B 1812
B605 - WD27/2B 1812
B623 - WD27/1A 1812
B623 - WD28/1B 1813
B624 - WD28/1B 1813
B625 - WD28/2B 1813
B626 - WD28/2B 1813
B703 - W27/1A 1812
B703, location 2057
B703, parts 3456
B703, removal 2959
B704 - WD52/1A 1845
B705 - WD52/1A 1845
B706 - WD52/1A 1845
cyclone, location 2063
hot roll drive motor, removal 2546
blowers *(continued)*
hot roll motor, location 2076
M105, check 2191
M105, removal 2191
power supply fan, location 2160
stacker cooling, location 2057
stacker cooling, parts 3456
stacker cooling, removal 2959
vacuum, check 2191
vacuum, removal 2191
blowers, 200 VAC - WD26 1810
blowers, 200 VAC - WD28 1813
Board, BUR Position Encoder Asm (EN131) (53F1887) (-230D) 3408
Board, BUR Position Encoder Asm (EN131) (53F1887) (-241) 3402
Board, Forms Width Sensor (PW091) (53F1791) (-206) 3334
Board, FS051 (All except 480/600 DPI, IS1, 324 PPM, and ID1/ID2) (57G6526) (-39) 3500
Board, FS053 (IS1, ID1/ID2) (90H1044) (-39) 3500
Board, FS071 (324 PPM and IR1/IR2) (24H8012) (-39) 3500
Board, FS083 (IR1/IR2 with bloom improvement hardware) (24L4358) (-39) 3500
Board, FS083 (IR3/IR4) (11L6132) (-39) 3500
Board, Hot Roll Control (HR091) (57G6528) (-183) 3398
Board, Relay (RB091) (Printers without Backup Idler Roll) (53F1773) (-56) 3502
Board, Relay (RB092) (Printers with Backup Idler Roll)) (45G1862) (-56) 3502
Board, Spacer (88F1631) (-48) 3200
Board, Tension Arm Encoder (EN122) (53F1790) (-82) 3322
Board, Tension Arm Encoder (EN123) (53F1792) (-81) 3322
Board, YS011 (57G6525) (-141) 3364
boards
adapter card, display/touch screen, location 2166
adapter card, host attachment (slot 6), location 2166
adapter card, host attachment (slot 7), location 2166
adapter card, location 2166, 2168, 2170
adapter card, SCSI (IR1/IR2) (slot 1), location 2166
adapter card, SCSI (IR1/IR2) (slot 9), location 2166
adapter card, SCSI (IR3/IR4) (slot 1), location 2166
adapter card, SCSI (IR3/IR4) (slot 4), location 2166
adapter card, SCSI (IR3/IR4) (slot 9), location 2166
B1 board, location 2057
EN122, location 2125
EN123, location 2125
FL041, location 2120
FL041, parts 3474
FL061, location 2120
FL061, parts 3466

boards *(continued)*
forms length rotary sensor, parts 3474
forms length sensor, location 2120
forms length sensor, parts 3466
forms width display, parts 3456
forms width sensor, location 2123
FS051, location 2131
FS053, location 2131
FS071, location 2131
FS082, location 2131
FS083, location 2131
FS551, location 2131
LD091, parts 3456
MD141, mirror motor driver, location 2134
MD141, parts 3204
MD192, parts 3204
memory, location 2161
memory card, (field converted IR3/IR4 only), location 2166
memory card, location 2166
mirror motor driver, MD141, location 2134
mirror motor driver, parts 3204
processor card, location 2166
RB091, location 2135
RB091 relay, location 2135
RB092 , location 2136
RB101, relay, location 2085
RB241, parts 3206
RB241 relay, location 2062
relay, RB101, location 2085
relay RB241, location 2062
SQ081/SQ082 card, location 2142
stacker length rotary, location 2120
boards *(continued)*
tension arm encoder, location 2125
Bolt, Clamper Asm (06F1015) (-82) 3224
Bolt, Hexagon (06F0415) (-154) 3206
Bolt, Hexagon Socket Hd M3 X 6 (stainless) (57G4439) (-77) 3246
Bolt, Hexagon Socket Hd M3 X 6 (stainless) (57G4439) (-82) 3258
Bolt, Hexagon Socket Hd M5 X 14 (49G9613) (-4) 3238
Bolt, M5 X 30 Hexagon Socket Hd (06F0403) (-28A) 3450
bookmark in service logs 1565, 1566
Box, Tape (88F2898) (-108) 3360
BR 2 Arm Front (30H2799) (-249D) 3410
BR 2 Arm Rear (30H2800) (-264D) 3412
BR Arm Asm (04H0503) (-256D) 3410
BR Collar (24L4435) (-268D) 3412
Bracket (30H6837) (-26A) 3526
Bracket (30H6837) (-26B) 3530
Bracket (88F2921) (-282) 3416
Bracket (88F3106) (-13) 3428
Bracket (88F3107) (-14) 3428
Bracket (88F3112) (-26) 3428
Bracket (88F3132) (-82) 3434
Bracket (88F3133) (-83) 3434
Bracket, Bearing (06F0991) (-82) 3490
Bracket, Bearing (06F0992) (-81) 3490
Bracket, Cable (30H6798) (-33A) 3526
Bracket, Cable (30H6798) (-33B) 3530
Bracket, Cable (30H6799) (-34A) 3526
Bracket, Cable (30H6799) (-34B) 3530
Bracket, DC-DC Converter (39H9272) (-54) 3556
Bracket, Display Panel (40H3126) (-33) 3564
Bracket, Door Stop (30H3075) (-20C) 3532
Bracket, Fuser Oil Filter (88F3046) (-283) 3416
Bracket, Hot Roll Cover (Except 480/600 DPI) (88F2917) (-271) 3406
Bracket, I/O Slots (6279235) (-27) 3554
Bracket, Idler (88F3289) (-46) 3488
Bracket, Idler (88F3290) (-47) 3488
Bracket, LED (90H2681) (-95) 3472
Bracket, Mount (88F2755) (-251) 3338
Bracket, Paper Guide (88F2911) (-184) 3398
Bracket, Right End Cover (30H6667) 3186
Bracket, Sensor (88F3026) (-290) 3416
Bracket, Sensor (88F3028) (-276) 3416
Bracket, sensor (90H2681) (-44) 3484
Bracket, sensor (90H2681) (-50) 3484
Bracket, sensor (90H2681) (-96) 3472
Bracket, Switch (88F3235) (-53) 3468
Bracket, Vacuum Switch (88F3025) (-186) 3398
Bracket, Wrap Sensor (All Simplex, and All Duplex Printer 1, and 480/600 DPI Printer 2 Only) (88F2998) (-74) 3390
Brake, Tractor Shift (88F2756) (-252) 3338
branch circuit CB check 3664
branch circuit CB, turn off 3664
phase-to-ground voltage, measure 3664

branch circuit CB check 3664
(continued)
phase-to-neutral voltage, check 3664
phase-to-phase voltage, measure 3664
voltage, receptacle to building ground 3664
voltage, receptacle to ground pin 3665
branch circuit CB turned on check 3665
branch office tools 3800
Breaker, Circuit (1) 200V (324 PPM and IR3/IR4) (11L5197) (-7) 3508
Breaker, Circuit (1) 200V (All except 324 PPM and IR3/IR4) (45G1871) (-7) 3508
Breaker, Circuit (2) 200V (45G1872) (-9) 3508
Breaker, Circuit (3) 200V (45G1873) (-10) 3508
Breaker, Circuit (CB501) 400V (45G1874) (-9) 3510
Breaker, Circuit (CB503) 400V (53F1761) (-8) 3510
Breaker, Circuit (CB504) 400V (45G1873) (-7) 3510
bridge down switch - CD44 1949
bridge down switch, check 2195
bridge down switch, location 2061
bridge down switch, removal 2195
bridge down switch (S609) routine 1677
bridge feed belts, check 2196
bridge feed belts, removal 2196
bridge feed gears, check 2197
bridge feed gears, removal 2197
bridge feed motor - CD42 1947
bridge feed motor, location 2060
bridge feed motor (M605) driver routine 1649
bridge feed motor and gearbox, check 2198
bridge feed motor and gearbox, removal 2198
bridge height, adjust 2200
bridge height, check 2199
bridge lift motor - CD40 1945
bridge lift motor, location 2060
bridge lift motor (M606) driver routine 1649
bridge lift motor, removal 2202
bridge lift motor and gearbox, adjust 2208
bridge lift motor and gearbox, check 2202, 2208
bridge lift motor and gearbox, removal 2203
bridge parallelism adjustment 2201
bridge up switch - CD39 1944
bridge up switch, adjust 2211
bridge up switch, check 2210
bridge up switch, location 2061
bridge up switch, removal 2209
bridge up switch (S608) routine 1677
brush
bias, location 2067
chad, location 2116
cleaner, location 2082
cleaner, parts 3226
cleaner, removal 2220
corona cleaning, adjust 2325
corona cleaning, removal 2324
input guide chad, location 2081
brush *(continued)*
mag A, location 2066, 2067, 2068, 2082
mag B, location 2066, 2067, 2068, 2082
mag C, location 2066, 2067, 2068, 2082
pendulum discharge, parts 3462
pendulum static discharge, removal 3009
tractor belt grounding, adjust 3131
tractor belt grounding, removal 3131
transfer corona cleaning, adjust 2327
transfer corona cleaning, removal 2326
transfer station discharge, removal 3156
Brush (06F1056) (-101) 3202
Brush, Carbon (06F0081) (-109) 3248
Brush, Carbon (06F0081) (-52) 3262
Brush, Hot Roll Motor (88F3365) (-124) 3392
Brush, Servo Motor (88F3365) (-168) 3330
Brush, Splicing Table Discharge (57G6498) (-145) 3364
Brush, Splicing Table Upper Chad (57G6719) (-13) 3356
Brush, Static Discharge (57G6513) (-106) 3436
Brush, Transfer Corona (06F1054) (-269) 3340
Brush, Transfer Station Discharge (06F0106) (-228) 3336
brush motor, cleaner - CD65 1970

brush motor thermal, cleaner - CD66 1971
Brushing, Pivot, Preheat Platen (88F3142) (-113) 3436
buffer card, location 2081
Buffer Flipper (324 PPM) (90H1562) 3596
Buffer Flipper (Except 324 PPM) (45G2026) 3594
buffer/flipper, install 3754
building ground 3664
Bulb, Attention Asm (2129665) (-202) 3540
Bulkhead (51G9869) (-48) 3556
Bumper (45G2063) (-4C) 3532
Bumper (Not Shown) (71F0902) (-35) 3554
BUR position encoder board (EN131) routine 1680, 1681
BUR position encoder board, location 2073
BUS IN connector, location 2152
BUS OUT connector, location 2152
Bushing, Insulator (88F2709) (-56) 3310
bytes (sense), interpretation of 1751

C

C102 - WD30/2B 1815
C102 capacitor, location 2070
C103 - WD30/2B 1815
C103 capacitor, location 2068
C104 - WD32/2B 1817
C104 capacitor, location 2068
C112 - WD32/1B 1817
C201 - WD42/1A 1828
C201 - WD42.5/1A 1832
C201 capacitor, location 2106, 2110
C201 capacitor (single beam), location 2102
C202 - WD42.4/1B 1831
C202 - WD42.5/1B 1832
C202 capacitor, location 2106, 2110
C203 - WD42.4/1A 1831
C203 - WD42.5/1A 1832
C204 - WD42.4/2B 1831
C204 - WD42.5/2B 1832
C210 - WD42.4/1A 1831
C301 - WD30/1B 1815
C301 capacitor, location 2125
C302 - WD30/1B 1815
C302 capacitor, location 2059
C603 - WD31/1B 1816
C603 capacitor, location 2076
C604 - WD33/1B 1818
C604 capacitor, location 2073
C605 - WD31/1B 1816
C605 capacitor, location 2059
C606 - WD31/1B 1816
C606 capacitor, location 2059
C608 - WD27/1A 1812
C608 capacitor, location 2076
C613 - WD31/2B 1816
C613 capacitor, location 2076
C702 - WD33/1B 1818
C702, parts 3476
C702 capacitor, location 2118
C703 - WD33/2B 1818
C703, parts 3482
C703 capacitor, location 2118
C704 - WD27/1A 1812
C704, parts 3456
C704 capacitor, location 2057
C803 - WD33/2B 1818
C803, parts 3492
C803 capacitor, location 2120
C901 - WD69/1B 1870
C902 - WD69/2B 1870
Cable (45G1722) (-120) 3188
Cable (45G1728) (-19) 3568
Cable (45G1729) (-18) 3568
Cable (45G1736) (-119) 3188
Cable, AO Driver (30H6737) (-30S) 3290
Cable, AO Driver (30H6737) (-30T) 3276
Cable, AO Driver (57G6769) (-30) 3264
Cable, AO Modulator (30H3157) (-29S) 3290
Cable, AO Modulator (30H3157) (-29T) 3276
Cable, AO Modulator (57G6768) (-29) 3264
cable, beam detect coax (89H9938) (43) 3584
Cable, Bias Asm (57G5978) (-63) 3232
Cable, Bridge (88F2834) (-84) 3322
Cable, DEV AC Asm (57G5980) (-60) 3232
Cable, DEV DC Asm (57G5979) (-61) 3232
Cable, Developer Fan Asm (57G6587) (-45) 3200
Cable, display (93H1816) (-4) 3560
Cable, EPO (93H6280) (-11) 3560
Cable, Fan Speed Control (39H8835) (-34) 3554

Cable, Ground (45G2091) (-13A) 3520
Cable, Ground (81X0295) (-4A) 3520
Cable, Ground (88F1629) (-160) 3330
Cable, Ground (88F2799) (-8) 3316
Cable, Ground Asm (88F1629) (-30) 3180
Cable, Ground Asm (88F3109) (-20) 3428
Cable, Ground Wire (88F3295) (-64) 3490
Cable, High Voltage Asm (53F1794) (-182) 3332
Cable, J322S2 to P324S2 3592
Cable, J322S2 to P324S2 (04H0574) (-15S) 3348
cable, operator alert (30H6943) (38) 3580
Cable, Operator Panel P6004 to J232 (45G2035) (-126) 3188
Cable, P233S2 to P322S2 3592
Cable, P2S2 to P233S2 3590
cable, pre/postprocessor to MIC (30H6943) (39) 3580
Cable, Preheat (57G6633) (-1) 3514
Cable, Remote Power 3570
Cable, Retractor Ground (06F0690) (-58) 3352
Cable, SCSI (For single-beam printheads only) (30H2756) (-20) 3568
Cable, Scuff Roll Release (88F3022) (-192) 3400
Cable, Secondary Erase Asm (57G6713) (-159) 3218
Cable, Shutter (For printers with 8-inch minimum paper width) (04H1058) (-100) 3436
Cable, Shutter (For printers with 9-inch minimum paper width) (88F3138) (-100) 3436
Cable, Steering (57G6843) (-57) 3432
Cable, Steering (88F3108) (-19) 3428
Cable, Steering (90H1117) (-19) 3428
Cable, Switch Asm (88F3167) (-72) 3448
Cable, Tension SP (88F2761) (-62) 3320
Cable, token ring adapter (RJ to D-shell) (60G1066) 3564
Cable, Tractor Positioning (57G6799) (-66) 3320
Cable, Tractor Positioning (57G6800) (-68) 3320
cable, VD1 Coax (89H9933) (44) 3584
cable, VD2 Coax (89H9934) (45) 3584
cable, VD3 Coax (89H9935) (46) 3584
cable, VD4 Coax (89H9936) (47) 3584
cable, VD5 coax (89H9937) (48) 3584
Cable Adapter, 90° (89H9762) (-35A) 3526
Cable Adapter, 90° (89H9762) (-38B) 3530
Cable Asm, SCSI (39H9274) (-23) 3554
Cable Asm, Second SCSI, 6-drop, (16 bit) (52G4430) (-26) 3554
Cable Support (59F2977) (-49) 3556
cables
  charge corona high voltage, parts 3218
  precharge corona high voltage, parts 3214
  preclean corona high voltage, parts 3208
cables *(continued)*
  transfer corona, location 2125
Cache, L2, .5MB (88G3894) (-52) 3556
Cam, Actuator (06F0348) (-77) 3448
Cam, Lift (04H1106) (-232D) 3408
Cam, Lift (04H1106) (-235D) 3408
Cam, Lift (324 PPM) (11L5161) (-221) 3402
Cam, Lift (90H2415) (-187) 3442
Cam, Lift (All except 324 PPM) (88F2955) (-221) 3402
Cam, Pre-measure (88F2857) (-17) 3350
Cam, Tension Arm (88F2795) (-336) 3346
Cam, Toner Collector (88F2668) (-26) 3308
Cam, Toner Inlet (04H0887) (-125) 3250
Cap (88F2579) (-158) 3252
Cap, Air Duct (06F0291) (-100) 3226
Cap, Developer Mix Inlet (88F2522) (-100) 3236
Cap, End, Hot Roll Lamp (88F2951) (-306) 3418
Cap, End, Hot Roll Lamp Asm (88F2963) (-305) 3418
Cap, End, Mag Roll (57G4406) (-25) 3238
Cap, Front (88F2481) (-70) 3224
Cap, Lamp Receptacle (88F1646) (-56) 3386
Cap, Oil Reservoir (88F3043) (-151) 3396
Cap, Plug (06F0492) (-86) 3434
Cap, Roller (06F0809) (-3) 3444

Cap, Rubber (06F1132) (-182) 3366
Cap, Sleeve (06F0492) (-67) 3312
Cap, Toner Inlet (88F2565) (-133) 3250
Capacitor, 2.5 mfd (45F5166) (-201) 3370
Capacitor, Asm (88F3316) (-50) 3502
Capacitor, Asm (88F3317) (-51) 3502
Capacitor, Asm (88F3318) (-52) 3502
capacitors
C102 - WD30/2B 1815
C102, location 2070
C103 - WD30/2B 1815
C103 location 2068
C104 - WD32/2B 1817
C104, location 2068
C112 - WD32/1B 1817
C201 - WD42/1A 1828
C201 - WD42.5/1A 1832
C201, location 2106, 2110
C201 (single beam), location 2102
C202 - WD42.4/1B 1831
C202 - WD42.5/1B 1832
C202, location 2106, 2110
C203 - WD42.4/1A 1831
C203 - WD42.5/1A 1832
C204 - WD42.4/2B 1831
C204 - WD42.5/2B 1832
C210 - WD42.4/1A 1831
C301 - WD30/1B 1815
C302 - WD30/1B 1815
C302, location 2059
C603 - WD31/1B 1816
C603, location 2076
C604 - WD33/1B 1818
C604, location 2073
C605 - WD31/1B 1816
capacitors *(continued)*
C605, location 2059
C606 - WD31/1B 1816
C606, location 2059
C608 - WD27/1A 1812
C608, location 2076
C613 - WD31/2B 1816
C613, location 2076
C702 - WD33/1B 1818
C702, location 2118
C702, parts 3476
C703 - WD33/2B 1818
C703, location 2118
C703, parts 3482
C704 - WD27/1A 1812
C704, location 2057
C704, parts 3456
C803 - WD33/2B 1818
C803, location 2120
C803, parts 3492
C901 - WD69/1B 1870
C902 - WD69/2B 1870
capstan pinch roll 3025
capstan pinch roll, location 2123
capstan pinch roll, removal 3024
capstan pinch roll cover, location 2123
capstan pinch roll motor - CD38 1943
capstan pinch roll motor, location 2060, 2125
capstan pinch roll motor (M301) driver routine 1646
capstan pinch roll motor, removal 3028
capstan pinch roll open switch 3032
capstan pinch roll open switch - CD43 1948
capstan pinch roll open switch, location 2122, 2123
capstan pinch roll open switch, removal 3031
capstan pinch roll open switch (S301) routine 1674
capstan roll, adjust 3035
capstan roll, removal 3033
capstan roll motor - CD41 1946
capstan roll motor, adjust 3039
capstan roll motor, location 2060, 2125
capstan roll motor (M302) driver routine 1645
capstan roll motor, removal 3038
Card, (SR081) (AC Supply) (45G1868) (-12) 3508
Card, Beam Detect (BD121) (Single beam) (45G1863) (-103) 3270
Card, Beam Detect (BD131) (04H0833) (-103S) 3294
Card, Beam Detect (BD132) (30H6867) (-103S) 3294
Card, Beam Detect (BD132) (30H6867) (-103T) 3280
Card, Block Multiplexer Channel, (in adapter slot 0/2 or 0/4) (31G9211) (-51) 3556
Card, Buffer (45G1999) (-118) 3188
Card, Common Ground Isolation (49G6111) (-22B) 3568
Card, Coupled Interface (45G2098) (-22A) 3568
Card, CP161 (B1J11) (All except 324 PPM and IR3/IR4) (57G6523) (-43) 3498

Card, CP172 (B1J11) (IR3/IR4) (90H1364) (-43) 3498
Card, CP173 (B1J11) (324 PPM) (90H1302) (-43) 3498
Card, CP175 (B1J11) (Earlier versions of IR1/IR2 only) (11L6280) (-43) 3498
Card, Display, (in adapter slot 0/3) (90H2444) (-51) 3556
card, display/touch screen (slot 0/3), location 2161
Card, DV021 (B1J1) (57G6516) (-28) 3494
Card, DV022 (B1J3) (57G6517) (-30) 3494
Card, DV023 (B1J3) (11L5160) (-30) 3494
Card, DV041 (B1J5) (All except 324 PPM, IR3/IR4, and later versions of IR1/IR2) (57G6518) (-32) 3494
Card, DV091 (B1J5) (324 PPM, IR3/IR4, and later versions of IR1/IR2) (90H1281) (-32) 3494
Card, ESCON Channel, (in adapter slot 0/2 or 0/4) (57G6657) (-51) 3556
Card, Ethernet TCP/IP, (in adapter slot 0/2 or 0/4) (00G3368) (-51) 3556
Card, FU031 (B1J8) (310 PPM Only) (30H2788) (-36) 3494
Card, FU051 (B1J8) (Early versions of IR1/IR2 Only) (24H8014) (-36) 3494
Card, FU061 (B1J8) (IS1, ID1/ID2 Only) (24H8327) (-36) 3494
Card, FU091 (B1J8) (324 PPM Only) (90H1280) (-36) 3494
Card, FU092 (B1J8) (IR3/IR4) (90H1371) (-36) 3494
Card, FU094 (B1J8) (Later versions of IR1/IR2 Only) (11L6278) (-36) 3494
card, host attachment (slot 0/2), location 2161
card, host attachment (slot 0/4), location 2161
Card, MC121 (B1J9) (310 PPM Simplex only) (04H0784) (-38) 3496
Card, MC141 (B1J9) (IR1/IR2) (24H8028) (-38) 3496
Card, MC151 (B1J9) (IS1, ID1/ID2 only) (24H8323) (-38) 3496
Card, MC182 (B1J9) (IR3/IR4) (90G1362) (-38) 3496
Card, MC184 (B1J9) (324 PPM only) (90G1274) (-38) 3496
Card, MC186 (B1J9) (IR1/IR2) (11L6279) (-38) 3496
Card, PF041 (B1J10) (All except 310 PPM and 324 PPM) (57G6522) (-41) 3496
Card, PF061 (B1J10) (310 PPM only) (04H0877) (-41) 3496
Card, PF081 (B1J10) (324 PPM only) (90H1301) (-41) 3496
Card, Printhead Interface (VI111) (Single beam) (57G4358) (-96) 3270
Card, Printhead Interface (VI141) (04H0769) (-96S) 3294
Card, Printhead Interface (VI141) (04H0769) (-96T) 3280
card, processor, location 2170
Card, RH011 (B1J7) (57G6519) (-34) 3494
Card, RH041 (B1J7) (11L5159) (-34) 3494
card, SCSI I/O to printer 1 MIC (Slot 0/1), location 2161
card, SCSI to printer 2 (slot 1/4), location 2161
Card, Side 1/Side 2 Verification Sensor (04H0396) (-16S) 3348
Card, SR081 (AC Power Supply) (45G1868) (-11) 3510
Card, Token-Ring, (in adapter slot 0/2 or 0/4) (86H2123) (-51) 3556
Card Asm, SQ081 (310 PPM) (45G1859) (-10) 3510
Card Asm, SQ081 (310 PPM) (45G1859) (-11) 3508
Card Asm, SQ082 (480/600 DPI, IS1, ID1/ID2, and 324 PPM only) (89H9661) (-10) 3510
Card Asm, SQ082 (480/600 DPI, IS1, ID1/ID2, and 324 PPM only) (89H9661) (-11) 3508
card guide frame, location 2161
Card Latch (59F4089) (-45) 3556
Card Support (43G0538) (-42) 3556
cards
  7043 ESCON, removal 2302
  AC power supply, location 2089, 2093
  adapter, display/touch screen, location 2166
  adapter, host attachment (slot 6), location 2166
  adapter, host attachment (slot 7), location 2166
  adapter, location 2166, 2168, 2170
  adapter, SCSI (IR1/IR2) (slot 1), location 2166

cards *(continued)*
adapter, SCSI (IR1/IR2) (slot 9), location 2166
adapter, SCSI (IR3/IR4) (slot 1), location 2166
adapter, SCSI (IR3/IR4) (slot 4), location 2166
adapter, SCSI (IR3/IR4) (slot 9), location 2166
B1J1, location 2128
B1J10, location 2128
B1J10, removal 2213
B1J11, location 2128, 2130
B1J11, removal 2215
B1J3, location 2128
B1J5, location 2128
B1J7, location 2128
B1J8, location 2128
B1J9, location 2128
BD121 - CD123 2028
BD121, location 2102
BD121, parts 3270
BD121 (single beam), removal 2663
BD131 - CD124 2029
BD131, parts 3294
BD131 (two beam 240/300), location 2110
BD131 (two beam 240/300), removal 2867
BD132 - CD124 2029
BD132, parts 3280, 3294
BD132 (two beam 240), location 2106
BD132 (two beam 240), removal 2759
BD141 - CD124 2029
cards *(continued)*
beam detect - CD123 2028
beam detect - CD124 2029
beam detect, parts 3294
beam detect (single beam), location 2102
beam detect (single beam), parts 3270
beam detect (single beam), removal 2663
beam detect (two beam 240), location 2106
beam detect (two beam 240), removal 2759
beam detect (two beam 240/300), location 2110
beam detect (two beam 240/300), removal 2867
buffer, location 2081
capstan pinch roll (S301) routine 1674
CGUC, location 2150
common ground isolation, location 2150
coupled interface (YUCC), location 2150
CPU planar, location 2161
display/touch screen (slot 0/3), location 2161
display/touch screen (slot 1), location 2170
ESCON 7025, removal 2285
ESCON 7043, removal 2302
FL041 - CD35 1940
FL041, adjust 2963, 3003
FL041, parts 3474
cards *(continued)*
FL041, removal 3001
FL041, routine 1681
FL061 - CD35 1940
FL061, parts 3466
FL061, removal 2960
FL061, routine 1681
FL061,adjust 2962
form width sensor, routine 1674
forms length rotary sensor, parts 3474
forms length sensor - CD35 1940
forms length sensor, parts 3466
forms length sensor, routine 1681
forms width display, parts 3456
forms width display, removal 2957
forms width sensor , removal 3046
FS051, location 2131
FS051, removal 2528
FS053, location 2131
FS053, removal 2528
FS071, location 2131
FS071, removal 2528
FS082, location 2131
FS083, location 2131
FS551, location 2131
FS551, removal 2528
host attachment (slot 0/2), location 2161
host attachment (slot 0/4), location 2161
host attachment (slot 2), location 2170
host attachment (slot 4), location 2170
hot roll control, location 2064

cards *(continued)*
HR091, location 2064, 2133
HR091, removal 2534
IF041, location 2113
IF041, parts 3202
IF411, location 2114
IF411, parts 3202
IF421, location 2115
IF421, parts 3202
IF461, parts 3202
LD091, parts 3456
LD091, removal 2957
MD141, mirror motor driver board, location 2134
MD141, parts 3204
MD141 (single beam), removal 2685
MD141 (two beam 240), removal 2782
MD192, parts 3204
MD192 (two beam 240/300), removal 2890
mechanism interface (single beam), removal 2245
mechanism interface (two beam), removal 2248
mechnaism interface (single beam), location 2154
mechnaism interface (two beam), location 2156
memory, (field converted IR3/IR4 only), location 2166
memory, location 2161, 2166
MIC (IRx), parts 3524
MIC (ISx & IDx), parts 3528
MIC (single beam), removal 2245
MIC (two beam), removal 2248
cards *(continued)*
MIC memory, parts 3524
mirror motor driver, location 2055
mirror motor driver, parts 3204
mirror motor driver (single beam), removal 2685
mirror motor driver (two beam 240), removal 2782
mirror motor driver (two beam 240/300), removal 2890
mirror motor driver board, MD141, location 2134
parallel channel 7025, removal 2290
parallel channle 7043, removal 2307
PC211, location 2053, 2137
PC211, parts 3200
PC531, location 2053, 2137
PC531, parts 3200
PC551, location 2053, 2138
PC551, parts 3200
power control, parts 3538
power control panel, location 2146
PQE (IRx), parts 3524
PQE (ISx & IDx), parts 3528
PQE (single beam), location 2154
PQE (single beam), removal 2258
PQE (two beam), location 2156
PQE (two beam), removal 2260
pre/postprocessing (IRx), parts 3526
pre/postprocessing (ISx &IDx), parts 3530
pre/postprocessing interface, removal 2262
printer control panel - CD115 2020
printer control panel, removal 2622
cards *(continued)*
printer control panel (SW721) routine 1675
printer interface, location 2113, 2115
printer interface, parts 3202
printer interface (two-beam 240), location 2114
printhead interface (single beam), location 2103
printhead interface (single beam), removal 2686
printhead interface (two beam 240), location 2107
printhead interface (two beam 240), removal 2783
printhead interface (two beam 240/300), location 2111
printhead interface (two beam 240/300), removal 2891
processor, location 2166, 2170
PW091, location 2139
PW091, removal 3046
PW091, routine 1674
RB091, location 2135
RB091 relay board, location 2135
RB092, location 2136
retractor acceleration time setting 2214
SC061, removal 3019
SC061 location 2140
SC091, location 2140
SC091, removal 3019
SC101, location 2141
SC101, removal 3019
SC103, location 2141
SC103, removal 3019

cards *(continued)*
SC106, location 2141
SC108, location 2141
SCSI (Slot 3), location 2170
SCSI I/O to printer 1 MIC (Slot 0/1), location 2161
SCSI to printer 2 (slot 1/4), location 2161
SCxxx, parts 3458
side 1/2 verification sensor, removal 3077
side 1/side 2 verification control, location 2153
side 1/side 2 verification sensor, location 2122
SQ081, removal 2642
SQ081/SQ082, location 2142
SQ082, removal 2642
SR081,, location 2093
SR081, location 2089
SR081, removal 2643
stacker control, parts 3458
stacker control panel, parts 3456
stacker control panel, removal 2957
stacker control panel, routine 1686
stacker forms length sensor, removal 2960
stacker length rotary - CD35 1940
stacker length rotary, adjust 3003
stacker length rotary, removal 3001
stacker rotary board, routine 1681
SW511, parts 3456
SW511, removal 2957
SW511, routine 1686
SW721 - CD115 2020
SW721, removal 2622
cards *(continued)*
temperature control, removal 2534
toner control, parts 3200
tractor motor gain setting 2214
VI111, location 2103
VI111, parts 3270
VI111 (single beam), removal 2686
VI141, parts 3280, 3294
VI141 (two beam 240), location 2107
VI141 (two beam 240), removal 2783
VI141 (two beam 240/300), location 2111
VI141 (two beam 240/300), removal 2891
YS011, location 2116, 2144
YS011, removal 2627
Caster (81X0280) (-17C) 3532
Casting, Rear (88F3237) (-71) 3470
Catch, Latch Asm (06F0905) (-57) 3468
CB1 - WD57.1/2A 1852
CB1 - WD57/2A 1851
CB1 - WD58/1A 1853
CB1 - WD61.1/1A 1860
CB1 - WD61/1A 1859
CB2 - WD59.1/1A 1855
CB2 - WD59/2A 1854
CB2 circuit breaker, location 2120
CB501 - WD16/1A 1792
CB501 - WD18/1A 1795
CB501 circuit breaker, location 2088, 2092
CB503 - WD16/1A 1792
CB503 - WD18/1A 1795
CB503 circuit breaker, location 2088, 2092
CB504 - WD16/2A 1792
CB504 - WD18/2A 1795
CB504 circuit breaker, location 2088, 2092
CD ROM (F50) (93H8055) (-25) 3562
CD ROM, Quad Speed (73H1513) (-58) 3558
CD1 (CGIC), location 2150
CD1 connector, location 2150
CD2 connector, location 2150
CD3 - WD22.1/2A 1804
CD3 - WD22/2A 1803
CE mode 3622
CE password 1558
CGUC Card (57G6762) (-31B) 3530
CGUC card, location 2150
CH1, location 2059
CH2, location 2059
CH3, location 2059
CH4, location 2059
CH5, location 2059
chad brush, location 2116
chad brushes, adjust 2618
chad brushes, removal 2616
Chain, Oiler Belt Drive (06F0357) (-22) 3444
changing a PM counter 1567, 3623
channel tailgate, location 2152
channel tailgate cover, , location 2152
charge corona - CD45 1950
charge corona, cleaning 2314
charge corona, location 2082
charge corona, removal 2313
Charge Corona Asm (57G6504) (-82) 3212
Charge Corona Asm (90H1155) (-82) 3212

charge corona driver routine 1643
charge corona to PC drum gap, adjust 2318
charge corona to PC drum gap, check 2316
check, nvs 3735
check, toner control 3735
checklist, PM 3620
checks
auto load bridge assembly 2194
bias contact brushes 2361
bridge down switch 2195
bridge feed belts 2196
bridge feed gears 2197
bridge feed motor and gearbox 2198
bridge height 2199
bridge lift motor and gearbox 2202, 2208
bridge up switch 2210
charge corona to PC drum gap 2316
cleaner brush drive belt 2223
cleaner brush drive cone 2224
cleaner brush driven cone 2226
cleaner brush motor 2229
cleaner brush rotation sensor 2231
cleaner housing motor 2235
cleaner housing switch 2235
cleaner skirt 2237
cyclone blower 2174
cyclone blower drive belt 2176
cyclone blower motor 2177
cyclone blower rotation sensor 2179
cyclone pressure 2180
developer 2360
developer drain lever sensor 2384
drum motor drive belt 2485
checks *(continued)*
filter pressure switch 2182
fine filter switch 2184
laser safety filter (single beam) 2650
laser safety filter (two beam 240) 2743
laser safety filter (two beam 240/300) 2850
M104 2177
M105 2191
M106 2235
M108 2229
M605 2198
M606 2202, 2208
pre/postprocessing interface signals 1589
pre/postprocessing interface voltages 1592
preclean corona voltage 2341
S102 2182
S103 2235
S108 2184
S112 2384
S114 2231
S116 2179
S118 2187
S608 2210
S609 2195
scuff roller pressure 2588
toner collector bottle switch 2187
transfer corona voltage 2339
vacuum blower 2191
Chip (04H0790) (-165S) 3300
Chip (04H0790) (-165T) 3286
circuit breaker 3662
circuit breakers
CB1 - WD57.1/2A 1852
CB1 - WD57/2A 1851
CB1 - WD58/1A 1853
CB1 - WD61.1/1A 1860
CB1 - WD61/1A 1859
CB2 - WD59.1/1A 1855
CB2 - WD59/2A 1854
CB2, location 2120
CB501 - WD16/1A 1792
CB501 - WD18/1A 1795
CB501, location 2088, 2092
CB503 - WD16/1A 1792
CB503 - WD18/1A 1795
CB503, location 2088, 2092
CB504 - WD16/2A 1792
CB504 - WD18/2A 1795
CB504, location 2088, 2092
CP1 - WD22.1/1A 1804
CP1 - WD22/1A 1803
forms width sensor - CD05 1910
circuit diagrams
CD01 - retractor motor 1906
CD03 - retractor motor overcurrent 1908
CD03 - tractor motor and encoder 1907
CD04 - forms width hall sensor 1909
CD05 - forms width sensor circuit breaker 1910
CD06 - upper tractor jam sensor (Q301) 1911
CD07 - drum drive motor overcurrent detection 1912
CD08 - drum drive, servo control time out 1913

circuit diagrams *(continued)*
CD09 - drum drive, servo control overspeed 1914
CD10 - drum drive, servo control position 1915
CD100 - (+42 V) voltage distribution 2005
CD101 - (+5 VM/+12 VM and +120/+140/+260 V) voltage distribution 2006
CD102 - transformer and soft start resistor thermal 2007
CD103 - speed select alarm 2008
CD104 - B1 logic gate thermal 2009
CD105 - (24 VD) power supply 2010
CD106 - PJ136 jumper 2011
CD107 - splice lever switch 2012
CD108 - transfer station open sensor 2013
CD109 - vacuum switch 2014
CD11 - tension arm encoder 1916
CD110 - toner collector bottle switch 2015
CD111 - tomer empty sensor 2016
CD112 - developer drain lever switch 2017
CD113 - end of forms sensor 2018
CD114 - developer run switch 2019
CD115 - printer control panel 2020
CD116 - filter pressure switch 2021
CD117 - fuser oil empty sensor 2022
CD118 - oiler belt end switch 2023
CD119 - oiler gate open switch 2024
CD12 - skew sensor 1917
CD120 - stacker gate open switch 2025
circuit diagrams *(continued)*
CD121 - fine filter switch 2026
CD122 - toner supply switch 2027
CD123 - beam detect card (single beam) 2028
CD124 - beam detect card (two, four, or five beam) 2029
CD126 - two-beam printhead 2031
CD127 - (+24 VD) voltage distribution 2032
CD128 - hot roll motor blower 2033
CD129 - upper tractor jam sensor 2034
CD13 - steering motor 1918
CD130 - hot roll lamp 4 relay 2035
CD14 - front wrap sensors 1919
CD15 - scuff roll motor 1920
CD16 - three-pump oiling system 1921
CD17 - six-pump oiling system 1922
CD18 - backup roll motor (M603), thermal sense 1923
CD19 - backup roll motor and encoder (M603) 1924
CD20 - hot roll motor servo control (M607) 1925
CD21 - oiler belt motor and driver 1926
CD22 - backup idler roll motor (M609) 1927
CD23 - backup idler roll motor (M609), thermal sense 1928
CD24 - backup roll lift motor (M610), position sensor 1929
CD25 - finger belt motors (M701, M702) 1930
circuit diagrams *(continued)*
CD27 - pendululm motor (M704) 1932
CD28 - pendululm motor overcurrent (M704) 1933
CD29 - Pendululm Position Sensor (S619) 1934
CD30 - stacker cooling blower (B703) 1935
CD31 - stacker table motor, thermal sense (M803) 1936
CD32 - stacker height sensor 1937
CD33 - stacker gate safety switches 1938
CD34 - stacker table height switches 1939
CD35 - stacker forms length hall sensor 1940
CD36 - stacker length motor 1941
CD37 - stacker forms length control 1942
CD38 - capstan pinch roll motor 1943
CD39 - bridge up switch 1944
CD40 - bridge lift motor 1945
CD41 - capstan roll motor 1946
CD42 - bridge feed motor 1947
CD43 - capstan pich roll open switch 1948
CD44 - bridge down switch 1949
CD45 - charge corona 1950
CD46 - transfer corona 1951
CD47 - preclean corona 1952
CD48 - precharge corona 1953
CD49 - mirror motor 1954
CD50 - mirror motor 1955
CD51 - video data 1956

circuit diagrams *(continued)*
CD52 – four-beam printhead 1957
CD53 - five-beam printhead 1958
CD54 - beam detect 1959
CD55 - video data 1960
CD56 - resolution switching lens motor position sensor 1961
CD57 -pc drum cover interlock switch 1962
CD58 -pc drum cover interlock switch 1963
CD59 - mag brush bias 1964
CD60 - mag brush motor and conveyor roll rotation sensor 1965
CD61 - mag brush motor, thermal sense 1966
CD63 - primary erase lamp, starter, and sensor 1968
CD64 - secondary erase lamp, starter, and sensor 1969
CD65 - cleaner brush motor and rotation sensor 1970
CD66 - cleaner brush motor thermal 1971
CD67 - cleaner housing motor and position switch 1972
CD68 - vacuum blower 1973
CD69 - shutter control motor 1974
CD70 - shutter control motor and vacuum shutter home sensor 1975
CD71 - cyclone blower motor 1976
CD72 - cyclone blower motor and rotation sensor 1977
CD73 - preheat platen 1978
CD74 - preheat control 1979
CD75 - preheat platen thermal 1980
circuit diagrams *(continued)*
CD76 - hot roll temperature control 1981
CD77 - hot roll over-temperature sensor 1982
CD78 - hot roll temperature control sensor 1983
CD79 - hot roll lamp control 1984
CD80 - hot roll soft start sensors 1985
CD81 - hot roll motor over-current detection 1986
CD82 - hot roll lamp 1 relay 1987
CD83 - hot roll lamp 1 1988
CD84 - hot roll lamp 2 relay 1989
CD85 - hot roll lamp 2 1990
CD86 - hot roll lamp 3 relay 1991
CD87 - hot roll lamp 3 1992
CD88 - hot roll lamp 4 relay 1993
CD89 - hot roll lamp 4 1994
CD90 - oerator alert 1995
CD91 - printer remote power 1996
CD92 - printer 1 remote power 1997
CD93 - (+5 V) voltage distribution 1998
CD94 - (+12 V) voltage distribution 1999
CD95 - (−12 V) voltage distribution 2000
CD96 - (+24 VD) voltage distribution 2001
CD97 - (+24 VB) voltage distribution 2002
CD98 - (+24 VE) voltage distribution 2003
circuit diagrams *(continued)*
CD99 - (+24 VH) voltage distribution 2004
Clamp, Asm (06F0518) (-4) 3260
Clamp, Belt (88F3219) (-9) 3466
Clamp, Belt (88F3288) (-41) 3488
Clamp, Cable (1622401) (-14S) 3348
Clamp, Cable (88F2806) (-186) 3332
Clamp, Drive Coupler (88F3370) (-24) 3350
Clamp, Front (45G2031) (-88) 3184
Clamp, Lens (88F1654) (-10) 3264
Clamp, Lens (88F1654) (-56) 3268
Clamp, Return Mirror (88F2647) (-69) 3268
Clamp, Return Mirror (88F2647) (-69S) 3292
Clamp, Return Mirror (88F2647) (-69T) 3278
Clamp, Valve (06F1128) (-100) 3360
Clamp, Wire (06F0870) (-207) 3400
Clamper, Bearing (04H1104) (-244D) 3410
Clamper, Bearing (04H1104) (-258D) 3410
Clamper, Belt (88F3233) (-49) 3468
Cleaner Brush (57G6462) (-104) 3226
cleaner brush, location 2082
cleaner brush, removal 2220
cleaner brush drive belt, adjust 2223
cleaner brush drive belt, check 2223
cleaner brush drive belt, removal 2222
cleaner brush drive cone, adjust 2224
cleaner brush drive cone, check 2224
cleaner brush drive cone, removal 2224

Cleaner Brush Driven Cone (88F2484) (-76) 3224
cleaner brush driven cone, check 2226
cleaner brush driven cone, removal 2225
cleaner brush motor, adjust 2228
cleaner brush motor, check 2229
cleaner brush motor, location 2053
Cleaner Brush Motor (M108) 50 Hz (06F0051) (-57) 3222
Cleaner Brush Motor (M108) 50 Hz (30H6915) (-57) 3222
Cleaner Brush Motor (M108) 60 Hz (06F0052) (-58) 3222
Cleaner Brush Motor (M108) 60 Hz (30H6916) (-58) 3222
cleaner brush motor (M108) driver routine 1639, 1640
cleaner brush motor, removal 2228
Cleaner Brush Motor Asm 50 Hz (M108) (57G4380) (-51) 3222
Cleaner Brush Motor Asm 50 Hz (M108) (63H7537) (-51) 3222
Cleaner Brush Motor Asm 60 Hz (M108) (57G4381) (-52) 3222
Cleaner Brush Motor Asm 60 Hz (M108) (63H7538) (-52) 3222
cleaner brush motor assembly, removal 2227
Cleaner Brush Motor Belt (57G4382) (-65) 3222
cleaner brush rotation sensor, check 2231
cleaner brush rotation sensor, location 2056
cleaner brush rotation sensor, removal 2230
cleaner brush rotation sensor (S114) Encoder routine 1709
cleaner brush rotation sensor (S114) routine 1666
Cleaner Brush Rotation Sensor Asm (S114) (53F1829) (-88) 3224
cleaner housing, cleaning 2232
cleaner housing, location 2082
cleaner housing motor, adjust 2235
cleaner housing motor, check 2235
cleaner housing motor, location 2053
Cleaner Housing Motor (M106) (53F1872) (-24) 3220
cleaner housing motor (M106) driver routine 1639
cleaner housing motor, removal 2233
Cleaner Housing Motor Asm (M106) (88F2470) (-23) 3220
cleaner housing position switch, location 2054
cleaner housing position switch (S103) routine 1667
Cleaner Housing Position Switch Asm (S103) (53F1793) (-28) 3220
cleaner housing switch, adjust 2235
cleaner housing switch, check 2235
cleaner housing switch, removal 2233
cleaner mechanism
- brush, removal 2220
- brush drive belt, adjust 2223
- brush drive belt, check 2223
- brush drive belt, removal 2222
- brush drive cone, adjust 2224
- brush drive cone, check 2224

cleaner mechanism *(continued)*
- brush drive cone, removal 2224
- brush driven cone, check 2226
- brush driven cone, removal 2225
- brush motor - CD65 1970
- brush rotation sensor - CD65 1970
- cleaner brush motor, adjust 2228
- cleaner brush motor, check 2229
- cleaner brush motor, removal 2228
- cleaner brush motor assembly, removal 2227
- cleaner brush rotation sensor, check 2231
- cleaner brush rotation sensor, removal 2230
- cleaner skirt, adjust 2236
- cleaner skirt, check 2237
- cleaner skirt, removal 2236
- housing, cleaning 2232
- housing motor, adjust 2235
- housing motor, check 2235
- housing motor, removal 2233
- housing switch, adjust 2235
- housing switch, check 2235
- housing switch, removal 2233
- M106, adjust 2235
- M106, check 2235
- M106, removal 2233
- M108 - CD65 1970
- M108, adjust 2228
- M108, check 2229
- M108, removal 2227, 2228
- M108, thermal - CD66 1971
- motor thermal - CD66 1971
- S103, adjust 2235
- S103, check 2235

cleaner mechanism *(continued)*
S103, removal 2233
S114 - CD65 1970
S114, check 2231
S114, removal 2230
cleaner skirt, adjust 2236
cleaner skirt, check 2237
cleaner skirt, removal 2236
cleaning
charge corona 2314
cleaner housing 2232
cleaning 2474
precharge corona 2321
preclean corona 2321
printhead (single beam) 2658
printhead (two beam 240) 2751
printhead (two beam 240/300) 2859
transfer corona 2321
cleaning task 3619
clear memory (position 8) 1725
Clip, C (45F4590) (-206) 3370
Clip, VI141 Card Mounting (30H6696) (-94S) 3294
Clip, VI141 Card Mounting (30H6696) (-94T) 3280
Collar (06F0957) (-104) 3270
Collar (06F0957) (-104S) 3294
Collar (06F0957) (-104T) 3280
Collar (24L4434) (-243) 3402
Collar (57G6749) (-147) 3250
Collar (88F2781) (-285) 3342
Collar (88F2974) (-253) 3404
Collar (88F3129) (-72) 3432
Collar (88F3286) (-37) 3486
Collar (88F3287) (-38) 3486
Collar, Ball Bearing (88F2743) (-115) 3326
Collar, Clamp (06F0760) (-29) 3466
Collar, Hot Roll Drive (06F0149) (-67) 3388
Collar, Hot Roll Plastic (88F2947) (-69) 3388
Collar, Link (88F1637) (-322) 3346
Collar, Link (88F1637) (-325) 3346
Collar, Link (88F1637) (-62) 3354
Collar, Motor (88F2742) (-113) 3326
Collar, Pivot Shaft (88F3075) (-60) 3422
Collar, Release Lever Support (88F3020) (-189) 3400
color print sample 1605
Common Ground Isolation Card, (49G6111) (-31B) 3530
Common Ground Isolation Card (49G6111) (-31A) 3526
common ground isolation card, location 2150
completing PM 1567
concurrent mode 1743
Cone, Drive Asm (57G6726) (-116) 3226
configuration distance 3770
configuration values, setting 3769
configure attachments 3774
configure pre/postprocessors 3774
configure printer, duplex 3770
configuring internal control unit trace 1598
configuring the system 3769
connector, 3-button mouse, location 2160
Connector (57G6493) (-204) 3368
Connector, Cable (88F2762) (-63) 3320
connector, display/touch screen (slot 1), location 2168
connector, display/touch screen card, location 2159
connector, display/touch screen serial port (S2), location 2168
connector, ethernet twin coax, location 2169
connector, ethernet twisted pair, location 2169
connector, external SCSI interface terminator, location 2159, 2168
connector, host attachment card (slot 0/2), location 2159
connector, host attachment card (slot 0/4), location 2159
connector, host attachment card (slot 2), location 2168
connector, host attachment card (slot 4), location 2168
connector, keyboard, location 2159, 2168
connector, mouse, location 2168
connector, parallel port, location 2159, 2168
connector, power, location 2159, 2168
connector, SCSI I/O card to MIC, (slot 3), location 2168
connector, SCSI to printer 1 MIC (slot 0/1), location 2159
connector, SCSI to printer 2 MIC (slot 1/4), location 2159
connector, serial port (S1), location 2159, 2168

connector, serial port (S2), location 2159
connector, tablet, location 2160, 2169
connectors
16 Bit SCSI to DASD, J3, location 2163
3-button mouse, location 2160
8 Bit SCSI to media, J38, location 2163
ALCD1 - WD79/1A/1B 1887
ALJ2 - WD79/1A 1887
ALJ2, location 2148
ALP2 - WD79/1A 1887
ALP2, location 2148
B1 board, location 2127
B39 - WD25.1/1A 1809
B39 - WD25/1A 1808
B41 - WD25.1/1A 1809
B41 - WD25/1A 1808
BD1 (two beam), location 2157
BUS IN, location 2152
BUS OUT, location 2152
C301, location 2125
CD1 (CGIC), location 2150
CD1, location 2150
CD2, location 2150
CD3 - WD22.1/2A 1804
CD3 - WD22/2A 1803
CPU to I/O planar interface, J36, location 2162, 2163
DC-DC converter, location 2162
diskette drive, J59, location 2163
display/touch screen (slot 1), location 2168
display/touch screen card, location 2159
connectors *(continued)*
display/touch screen serial port (S2), location 2168
ethernet twin coax, location 2169
ethernet twisted pair, location 2169
external, J37, location 2163
external SCSI interface terminator, location 2159, 2168
host attachment card (slot 0/2), location 2159
host attachment card (slot 0/4), location 2159
host attachment card (slot 2), location 2168
host attachment card (slot 4), location 2168
J01 (single beam), location 2154
J01 (two beam), location 2156
J13, power supply, location 2162
J14, power supply, location 2162
J16, power supply, location 2162
J165 - WD32/2B 1817
J165A - WD32/2B 1817
J166 - WD32/1B 1817
J166A - WD32/1B 1817
J205 - WD25.1/2A 1809
J205 - WD67.1/2A 1867
J205A - WD25.1/2A 1809
J205A - WD67.1/2A 1867
J208, location 2108
J216 - WD42.2/1A 1829
J216 - WD42.4/1A 1831
J216, location 2104, 2108
J216A - WD42.2/1B 1829
J216A - WD42.4/1A 1831
J216A, location 2104, 2109
connectors *(continued)*
J217 - WD26.1/2B 1811
J217A - WD26.1/2B 1811
J223 - WD26.1/2B 1811
J223A - WD26.1/2B 1811
J3, 16 Bit SCSI to DASD, location 2163
J36, CPU to I/O planar interface, location 2162, 2163
J37, external interface, location 2163
J38, 8 Bit SCSI to media, location 2163
J39, operator panel, location 2163
J40, power supply, location 2163
J401, location 2127
J402, location 2127
J41, power supply, location 2163
J464, location 2127
J465, location 2127
J466, location 2127
J467, location 2127
J468, location 2127
J469, location 2127
J470, location 2127
J471, location 2127
J472 - WD67.2/1B 1868
J472, location 2127
J473, location 2127
J474, location 2127
J475, location 2127
J476, location 2127
J477, location 2127
J478, location 2127
J479, location 2127
J480, location 2127
J481, location 2127

connectors *(continued)*
J483, location 2127
J59, diskette drive, location 2163
J650 - WD28/1B 1813
J650A - WD28/1B 1813
JA02 - WD22.1/2A 1804
JA02 - WD22/2A 1803
JA03 - WD22.1/2A 1804
JA03 - WD22/2A 1803
JA04 - WD22.1/2A 1804
JA04 - WD22/2A 1803
JC2 - WD22.1/2A 1804
JC2 - WD22/2A 1803
JH01 - WD20.1/2A 1799
JH01 - WD20.2/2A 1800
JH01A - WD20.1/2A 1799
JH01A - WD20.2/2A 1800
JJ1 - WD87/1B 1899
JJ12 - WD86/1B 1898
JJ2 - WD86/1A 1898
JJ3 - WD86/2A 1898
keyboard, location 2159, 2168
L2 cache, location 2162
micro channel adapter slots, location 2163
MJ04 - WD81.3/1B 1891
MJ04 - WD81.4/1B 1892
MJ13 - WD73.3/1B 1877
MJ13 - WD73.4/1B 1878
MJ21 - WD73.5/1A/2A 1879
MJ22 - WD73.5/1A/2A 1879
mouse, location 2168
operator panel, J39, location 2163
P1015, location 2068
P1016 , location 2069
P13, planar, location 2164

connectors *(continued)*
P14, planar, location 2164
P16, planar, location 2164
P165 - WD32/2B 1817
P165A - WD32/2B 1817
P166 - WD32/1B 1817
P166A - WD32/1B 1817
P205 - WD67.1/2A 1867
P205A - WD25.1/2A 1809
P205A - WD67.1/2A 1867
P208, location 2108
P216 - WD42.2/1B 1829
P216, location 2104, 2108
P216A - WD42.2/1A 1829
P216A, location 2105, 2109
P217 - WD26.1/2B 1811
P217A - WD26.1/2B 1811
P223 - WD26.1/2B 1811
P223A - WD26.1/2B 1811
P2S2 - WD83.2/1B 1895
P2S2, location 2153
P3S2 - WD83.2/1B 1895
P3S2, location 2153
P40, I/O planar, location 2164
P41, I/O planar, location 2164
P45A, location 2164
P45B, location 2164
P45C, CDROM power, location 2164
P45D, diskette power, location 2164
P46A, logic fan, location 2164
P46B, tape drive fan, location 2164
P47, power supply fan, location 2164
P472 - WD67.2/1A 1868
P472A - WD67.2/1A/1B 1868
P49A, disk drive fan E, location 2164
P49B, disk drive fan F, location 2164

connectors *(continued)*
P49C, disk drive fan G, location 2164
P612 - WD66/1B/2B 1865
P612TC - WD66/1A 1865
P650 - WD28/1B 1813
P650A - WD28/1B 1813
P65A, disk drive E, location 2165
P65B, disk drive, location 2165
P65C, disk drive F, location 2165
P65D, disk drive, location 2165
P66A, disk drive G, location 2165
P66B, disk drive, location 2165
parallel port, location 2159, 2168
PH01 - WD20.1/2A 1799
PH01 - WD20.2/2A 1800
PH01A - WD20.1/2A 1799
PH01A - WD20.2/2A 1800
PJ012TC, location 2131
PJ1 - WD87/1B 1899
PJ1000 - WD55/1B 1849
PJ1000 - WD61.1/2A 1860
PJ1000 - WD62/1A 1861
PJ1000 - WD63/1B 1862
PJ1000, location 2116
PJ1001 - WD61.1/1A/2A 1860
PJ1001 - WD61/1A/2A 1859
PJ1001, location 2116
PJ1002 - WD61.1/1A 1860
PJ1002 - WD61/1A 1859
PJ1002, location 2116
PJ1003 - WD25.1/2A 1809
PJ1003 - WD25/2A 1808
PJ1003 - WD29/1B 1814
PJ1003 - WD33/1B 1818
PJ1003 - WD38.1/2B 1822
PJ1003 - WD38/2B 1821

connectors *(continued)*
PJ1003 - WD40/1A 1825
PJ1003 - WD41.1/2A 1827
PJ1003 - WD41/2A 1826
PJ1003 - WD42/1A/2A 1828
PJ1003 - WD42.2/1A 1829
PJ1003 - WD42.3/2A 1830
PJ1003 - WD42.4/1A 1831
PJ1003 - WD42.5/1A 1832
PJ1003 - WD46.1/2B 1837
PJ1003 - WD46/2B 1836
PJ1003 - WD55/1B 1849
PJ1003 - WD56/2A 1850
PJ1003 - WD57.1/2A 1852
PJ1003 - WD57/2A 1851
PJ1003 - WD67.1/2B 1867
PJ1003 - WD67.2/2B 1868
PJ1003 - WD67/2B 1866
PJ1003, location 2054
PJ1006 - WD40/1A/2B 1825
PJ1006, location 2054
PJ1007 - WD32/1B 1817
PJ1007 - WD46/1A 1836
PJ1007 - WD67.1/2B 1867
PJ1007 - WD67/2B 1866
PJ1007 - WD88/1A 1900
PJ1007, location 2054
PJ1008 - WD57.1/2A 1852
PJ1008 - WD57/2A 1851
PJ1008, location 2054
PJ1010 - WD62/1B 1861
PJ1010, location 2116
PJ1011 - WD26.1/1A 1811
PJ1011 - WD26/1A 1810
PJ1011, location 2071
PJ1012 - WD32/1A 1817
connectors *(continued)*
PJ1012, location 2062
PJ1013 - WD32/1A 1817
PJ1013, location 2062
PJ1014 - WD32/2A 1817
PJ1014, location 2062
PJ1015 - WD32/2A 1817
PJ1015, location 2062
PJ1016 - WD32/1B 1817
PJ1016, location 2062
PJ1017 - WD32/2B 1817
PJ1017, location 2069
PJ1018 - WD32/1A 1817
PJ1018, location 2113, 2114
PJ1020 - WD46.1/1A 1837
PJ1020 - WD46/1A 1836
PJ1020 - WD46.2/1A/2A 1838
PJ1020 - WD67.2/2B 1868
PJ1020, location 2054
PJ105 - WD30/2B 1815
PJ105, location 2068
PJ106 - WD29/1B 1814
PJ106, location 2070
PJ107 - WD57.1/1B 1852
PJ107 - WD57/1B 1851
PJ107, location 2068
PJ108 - WD57.1/1B 1852
PJ108 - WD57/1B 1851
PJ108, location 2070
PJ110 - WD56/2B 1850
PJ110, location 2067
PJ111 - WD56/2B 1850
PJ111, location 2067
PJ112 - WD56/1B 1850
PJ112, location 2070
PJ113 - WD29/1B 1814
connectors *(continued)*
PJ113 - WD56/2A 1850
PJ113 - WD57.1/1A/1B 1852
PJ113 - WD57/1A/1B 1851
PJ113, location 2070
PJ114 - WD56/2A 1850
PJ114 - WD57.1/1A/1B 1852
PJ114 - WD57/1A/1B 1851
PJ114, location 2070
PJ115 - WD40/1B/2B 1825
PJ115, location 2060
PJ116 - WD40/2A 1825
PJ116, location 2060
PJ118 - WD29/1B 1814
PJ118, location 2070
PJ119 - WD61.1/2B 1860
PJ119 - WD61/2B 1859
PJ119, location 2084
PJ12 - WD86/1B 1898
PJ120 - WD29/2B 1814
PJ120, location 2053
PJ122 - WD44/1B 1834
PJ122, location 2053
PJ123 - WD29/1A 1814
PJ123, location 2063
PJ124 - WD29/1B 1814
PJ124, location 2063
PJ125 - WD61.1/1B 1860
PJ125 - WD61/1B 1859
PJ125, location 2116
PJ127 - WD57.1/1A/1B 1852
PJ127 - WD57/1A/1B 1851
PJ127, location 2053
PJ128 - WD56/1A 1850
PJ128, location 2053
PJ131, location 2053

connectors *(continued)*
PJ132 - WD45/1A 1835
PJ132, location 2053
PJ134 - WD29/2B 1814
PJ134, location 2053
PJ135 - WD29/1B/2B 1814
PJ135 - WD32/2B 1817
PJ135 - WD56/1A 1850
PJ135 - WD57.1/1A/1B 1852
PJ135 - WD57/1A/2A 1851
PJ135, location 2054
PJ136 - WD41.1/1A/2A 1827
PJ136 - WD41/1A/2A 1826
PJ136 - WD42/1A/2A 1828
PJ136 - WD42.2/1A 1829
PJ136 - WD42.3/1A 1830
PJ136 - WD42.4/1A 1831
PJ136 - WD42.5/1A 1832
PJ136 - WD46.1/2B 1837
PJ136 - WD46/2B 1836
PJ136, location 2054
PJ138 - WD62/1A 1861
PJ138, location 2116
PJ141 - WD56/1A 1850
PJ141 - WD63/1A 1862
PJ141, location 2116
PJ146 - WD30/1B 1815
PJ146, location 2057
PJ147 - WD61.1/1B 1860
PJ147 - WD61/1B 1859
PJ147, location 2055, 2082
PJ148 - WD61.1/1B 1860
PJ148 - WD61/1B 1859
PJ148, location 2055
PJ149 - WD61.1/2B 1860
PJ149 - WD61/1B 1859
connectors *(continued)*
PJ149, location 2072
PJ150 - WD57.1/2B 1852
PJ150 - WD57/2B 1851
PJ150, location 2063
PJ154 - WD59.3/2A 1857
PJ154, location 2120
PJ157 - WD52/2B 1845
PJ157 - WD59.1/1A 1855
PJ157 - WD59/1A/2A 1854
PJ157, location 2120
PJ159 - WD39.1/1A/1B 1824
PJ159 - WD39/1A/1B 1823
PJ159, location 2054
PJ16 - WD20/2A 1798
PJ160 - WD39.1/1A/1B 1824
PJ160 - WD39/1A/1B 1823
PJ160, location 2054
PJ161 - WD39.1/1B 1824
PJ161 - WD39/1B 1823
PJ161, location 2055
PJ162 - WD39.1/1B 1824
PJ162 - WD39/1B 1823
PJ162, location 2054
PJ165 - WD26.1/2A 1811
PJ165 - WD26/2A 1810
PJ165, location 2072
PJ166 - WD42/1A 1828
PJ166 - WD42.2/1A 1829
PJ166 - WD42.4/1A 1831
PJ166 - WD42.5/1A 1832
PJ166, location 2054
PJ170 - WD58/2B 1853
PJ170, location 2081
PJ172 - WD26.1/1A 1811
PJ172 - WD26/1A 1810
connectors *(continued)*
PJ172, location 2055, 2084
PJ173 - WD45/1A 1835
PJ173, location 2054
PJ174 - WD39.1/1B 1824
PJ174 - WD39/1B 1823
PJ174, location 2054
PJ175 - WD57.1/1B 1852
PJ175 - WD57/1B 1851
PJ175, location 2055
PJ183 - WD59.3/1A 1857
PJ183, location 2120
PJ185 - WD40/1B 1825
PJ185, location 2070
PJ190 - WD56/1B 1850
PJ190, location 2070
PJ191 - WD56/1A 1850
PJ191, location 2063
PJ192 - WD26.1/2A 1811
PJ192 - WD26/2A 1810
PJ192, location 2072
PJ193 - WD26.1/1A 1811
PJ193 - WD26/1A 1810
PJ193 - WD29/1B 1814
PJ193, location 2070
PJ194 - WD30/2B 1815
PJ194, location 2071
PJ196 - WD30/2B 1815
PJ196, location 2071
PJ198 - WD41.1/2B 1827
PJ198 - WD41/2A 1826
PJ198, location 2055
PJ199 - WD26.1/1B 1811
PJ199 - WD26/1B 1810
PJ199, location 2071
PJ2 - WD86/1A 1898

connectors *(continued)*
PJ201 - WD76/1A 1884
PJ201 - WD77/1A 1885
PJ201, location 2113, 2114, 2115
PJ202 - WD76/1B 1884
PJ202 - WD77/1B 1885
PJ202, location 2113, 2114, 2115
PJ203 - WD42/2B 1828
PJ203 - WD42.3/2A 1830
PJ203, location 2113, 2114, 2115
PJ204 - WD42/1A 1828
PJ204 - WD42.2/1A 1829
PJ204 - WD42.4/2B 1831
PJ204 - WD42.5/2A 1832
PJ204, location 2113, 2114, 2115
PJ205 - WD25.1/2B 1809
PJ205 - WD25/2A/2B 1808
PJ205 - WD67.2/2A 1868
PJ205 - WD67/2A 1866
PJ205, location 2113, 2114, 2115
PJ205A, location 2114, 2115
PJ206 - WD42/1A 1828
PJ206 - WD42.4/2A 1831
PJ206 - WD42.5/2A 1832
PJ206, location 2100, 2104, 2108
PJ207 - WD42/1A 1828
PJ207 - WD42.2/1A 1829
PJ207 - WD42.4/1A 1831
PJ207 - WD42.5/1A 1832
PJ207, location 2100, 2104, 2108
PJ208 - WD46.1/2B 1837
PJ208 - WD46/2B 1836
PJ208, location 2100, 2104
PJ209, location 2100
PJ210 - WD42/1A 1828
PJ210 - WD42.2/1A 1829
connectors *(continued)*
PJ210 - WD42.4/1A 1831
PJ210 - WD42.5/1A 1832
PJ210 - WD46.1/2B 1837
PJ210 - WD46/2B 1836
PJ210, location 2100, 2104, 2108
PJ211 - WD42/2B 1828
PJ211 - WD42.3/2A 1830
PJ211, location 2100, 2104, 2108
PJ212 - WD42/2A 1828
PJ212 - WD42.3/1A 1830
PJ212, location 2100, 2104, 2108
PJ213 - WD42/1B 1828
PJ213 - WD42.2/1B 1829
PJ213 - WD42.5/1B 1832
PJ213, location 2101, 2104, 2108
PJ214 - WD42/1B 1828
PJ214 - WD42.2/1B 1829
PJ214 - WD42.4/1B 1831
PJ214 - WD42.5/1B 1832
PJ214, location 2101, 2104, 2108
PJ215 - WD42/1B 1828
PJ215 - WD42.2/1B 1829
PJ215 - WD42.4/1B 1831
PJ215 - WD42.5/1B 1832
PJ215, location 2101, 2104, 2108
PJ216 - WD42/1A 1828
PJ216 - WD42.4/1A 1831
PJ216, location 2101
PJ216A - WD42.4/1A 1831
PJ217 - WD26/2B 1810
PJ217, location 2101, 2105, 2109
PJ217A, location 2105, 2109
PJ219 - WD46.1/2B 1837
PJ219 - WD46/2B 1836
PJ219 - WD67.1/1B 1867
connectors *(continued)*
PJ219 - WD67/1B 1866
PJ219 - WD67.2/1B 1868
PJ219, location 2101, 2105, 2109
PJ220 - WD42/1A 1828
PJ220 - WD42.2/1B 1829
PJ220 - WD42.4/1B 1831
PJ220 - WD42.5/1A 1832
PJ220, location 2101, 2105, 2109
PJ222 - WD26.1/2B 1811
PJ222 - WD26/2B 1810
PJ222, location 2101
PJ223 - WD26/2B 1810
PJ223, location 2101, 2105, 2109
PJ223A, location 2105, 2109
PJ224 - WD46.1/2A 1837
PJ224 - WD46/2A 1836
PJ224 - WD67.1/1B 1867
PJ224 - WD67/1B 1866
PJ224 - WD67.2/1B 1868
PJ224, location 2134
PJ225 - WD46.1/1A 1837
PJ225 - WD46/1A 1836
PJ225 - WD67.11BA 1867
PJ225 - WD67.2/1B 1868
PJ225, location 2134
PJ226 - WD46.1/1A 1837
PJ226 - WD46/1A 1836
PJ226 - WD67.1/1B 1867
PJ226 - WD67/1B 1866
PJ226, location 2134
PJ227 - WD20.1/1A/2A 1799
PJ227 - WD20/1A 1798
PJ227 - WD20.2/1A/2A 1800
PJ227 - WD22.1/1A 1804
PJ227 - WD22/1A 1803

connectors *(continued)*
PJ227, location 2113, 2114, 2115
PJ229 - WD82/1A 1893
PJ229 - WD83/1A 1894
PJ229 - WD88/1B 1900
PJ229, location 2113, 2114, 2115
PJ231 - WD67.1/1B 1867
PJ231 - WD67/1B 1866
PJ231, location 2134
PJ232 - WD78/1A 1886
PJ232, location 2113, 2114, 2115
PJ233 - WD42.2/2B 1829
PJ233 - WD42.4/2B 1831
PJ233 - WD42.5/2A 1832
PJ233, location 2114, 2115
PJ233S2 - WD83.2/1B 1895
PJ233S2, location 2113, 2115
PJ234 - WD42.4/2B 1831
PJ234 - WD42.5/2A 1832
PJ234, location 2115
PJ235 - WD42.4/2B 1831
PJ235 - WD42.5/2A 1832
PJ235, location 2115
PJ236 - WD42.2/2A 1829
PJ236 - WD42.4/2A 1831
PJ236 - WD42.5/2A 1832
PJ236, location 2105, 2109
PJ237 - WD42.2/2A 1829
PJ237 - WD42.4/1A 1831
PJ237 - WD42.5/1A 1832
PJ237, location 2105, 2109
PJ238 - WD42.2/2B 1829
PJ238 - WD42.4/1B 1831
PJ238 - WD42.5/1B 1832
PJ238, location 2105, 2109
PJ239 - WD42.2/2B 1829
connectors *(continued)*
PJ239 - WD42.4/1B 1831
PJ239 - WD42.5/1B 1832
PJ239, location 2105, 2109
PJ240 - WD42.2/2B 1829
PJ240 - WD42.4/1B 1831
PJ240 - WD42.5/1B 1832
PJ240, location 2105, 2109
PJ241 - WD42.2/2B 1829
PJ241 - WD42.4/1B 1831
PJ241 - WD42.5/1B 1832
PJ241, location 2105, 2109
PJ242 - WD42.2/2B 1829
PJ242 - WD42.4/1B 1831
PJ242 - WD42.5/1B 1832
PJ242, location 2109
PJ243 - WD42.4/2B 1831
PJ243 - WD42.5/1B 1832
PJ244 - WD42.4/2B 1831
PJ244 - WD42.5/2B 1832
PJ245 - WD42.4/1A 1831
PJ245 - WD42.5/1A 1832
PJ246 - WD42.4/1B 1831
PJ246 - WD42.5/1A 1832
PJ247 - WD42.4/2B 1831
PJ247 - WD42.5/2B 1832
PJ248 - WD42.4/2B 1831
PJ248 - WD42.5/2B 1832
PJ249 - WD42.4/2B 1831
PJ249 - WD42.5/2B 1832
PJ25 - WD20/2A 1798
PJ250 - WD42.4/2B 1831
PJ250 - WD42.5/2B 1832
PJ251 - WD32/1A 1817
PJ251, location 2115
PJ252 - WD42.4/2A 1831
connectors *(continued)*
PJ252 - WD42.5/2A 1832
PJ253 - WD42.4/2A 1831
PJ254 - WD42.4/2A 1831
PJ254 - WD42.5/2A 1832
PJ255 - WD42.4/2A 1831
PJ255 - WD42.5/2A 1832
PJ256 - WD42.4/2B 1831
PJ256 - WD42.5/1B 1832
PJ257 - WD42.4/2B 1831
PJ257 -WD42.5/2B 1832
PJ258 - WD46.2/2A 1838
PJ258, location 2109
PJ259 - WD46.2/1B 1838
PJ259, location 2109
PJ260 - WD46.2/2A 1838
PJ260, location 2109
PJ261 - WD46.2/1B 1838
PJ261, location 2134
PJ262 - WD46.2/1A 1838
PJ262 - WD67.2/2B 1868
PJ262, location 2134
PJ263 - WD67.2/1B 1868
PJ263, location 2134
PJ264 - WD67.2/1B 1868
PJ264, location 2134
PJ265 - WD42.5/2A 1832
PJ266 - WD42.5/2A 1832
PJ267 - WD42.5/2A 1832
PJ268 - WD42.5/2B 1832
PJ269 - WD42.5/2B 1832
PJ270 - WD42.5/2B 1832
PJ271 - WD42.5/2B 1832
PJ272 - WD42.5/2B 1832
PJ3 - WD86/2A 1898
PJ301 - WD63/1A 1862

connectors *(continued)*
PJ301, location 2123
PJ302, location 2123
PJ303 - WD63/1A 1862
PJ303, location 2123
PJ304 - WD63/2A 1862
PJ304, location 2123
PJ305 - WD63/2A 1862
PJ305, location 2123
PJ306 - WD63/1A 1862
PJ306, location 2123
PJ307 - WD63/1A 1862
PJ307, location 2123
PJ308 - WD47/1A 1839
PJ308, location 2060
PJ309 - WD48/2A 1840
PJ309, location 2123
PJ310 - WD30/1B 1815
PJ310, location 2060, 2125
PJ311 - WD30/1B 1815
PJ311, location 2060, 2125
PJ312 - WD42.4/1B 1831
PJ312 - WD47/1A 1839
PJ312, location 2057, 2060, 2125
PJ313 - WD48/1A 1840
PJ313, location 2123
PJ318 - WD39.1/2A 1824
PJ318 - WD39/2A 1823
PJ318, location 2057
PJ322S2 - WD83.2/1B 1895
PJ322S2, location 2122
PJ324S2 - WD83.2/1B 1895
PJ33 - WD29/1A 1814
PJ3S2 - WD20.1/2B 1799
PJ3S2 - WD20.2/2B 1800
PJ401 - WD76/1A 1884
connectors *(continued)*
PJ401 - WD77/1A 1885
PJ401, location 2057
PJ402 - WD43/1A/1B 1833
PJ402, location 2057
PJ439 - WD26.1/1B 1811
PJ439 - WD26/1B 1810
PJ439, location 2057
PJ448 - WD43/1A 1833
PJ448, location 2081
PJ463 - WD64/2A 1863
PJ464 - WD25.1/2A 1809
PJ464 - WD25/2A 1808
PJ464 - WD33/1B 1818
PJ464 - WD38.1/2B 1822
PJ464 - WD38/2B 1821
PJ464 - WD42/2A 1828
PJ464 - WD42.3/2A 1830
PJ464 - WD46.1/2B 1837
PJ464 - WD46/2B 1836
PJ464 - WD55/1A 1849
PJ464 - WD57.1/2B 1852
PJ464 - WD57/2B 1851
PJ464 - WD67.1/2A 1867
PJ464 - WD67/2A 1866
PJ464, location 2057
PJ465 - WD55/1A 1849
PJ465 - WD63/1B 1862
PJ465, location 2057
PJ466 - WD27/1B 1812
PJ466 - WD49/1B 1841
PJ466 - WD55/1B 1849
PJ466 - WD60/1B 1858
PJ466 - WD64/1B/2B 1863
PJ467 - WD52/2A 1845
PJ467 - WD55/2B 1849
connectors *(continued)*
PJ468 - WD45/2B 1835
PJ468 - WD47/1B 1839
PJ468 - WD48/1B 1840
PJ468 - WD51/1B 1843
PJ468, location 2057
PJ469 - WD38.1/2A 1822
PJ469 - WD38/2A 1821
PJ469, location 2058
PJ470 - WD38.1/1A/2A 1822
PJ470 - WD38/1A/2A 1821
PJ470, location 2058
PJ471 - WD38.1/1A/2A 1822
PJ471 - WD38/1A/2A 1821
PJ472 - WD39.1/1A 1824
PJ472 - WD39/1A 1823
PJ472 - WD42/1A 1828
PJ472 - WD42.2/1A 1829
PJ472 - WD57/2A 1851
PJ472 - WD61/1A 1859
PJ472, location 2058
PJ473 - WD52/1A 1845
PJ473 - WD58/1A 1853
PJ473 - WD59.1/1A 1855
PJ473 - WD59/2A 1854
PJ474 - WD65/1B 1864
PJ475 - WD45/1A 1835
PJ475 - WD47/1A 1839
PJ475 - WD48/2A 1840
PJ476 - WD51/1A 1843
PJ477 - WD39.1/1A/2A 1824
PJ477 - WD39/1A/2A 1823
PJ477 - WD44/1B 1834
PJ479 - WD53/2B 1846
PJ480 - WD28/2A 1813
PJ480 - WD31/1A 1816

connectors *(continued)*
PJ480 - WD33/2A 1818
PJ480 - WD35/1A 1820
PJ480 - WD50/1B 1842
PJ480 - WD53/1B 1846
PJ480 - WD54.1/1B/2B 1848
PJ480 - WD54/1B 1847
PJ481 - WD25.1/1A/2A 1809
PJ481 - WD25/2A 1808
PJ481 - WD29/2A 1814
PJ481 - WD30/2A 1815
PJ481 - WD67.1/1A 1867
PJ481 - WD67/1A 1866
PJ481 - WD67.2/1A 1868
PJ481, location 2058
PJ483 - WD33/1B 1818
PJ483 - WD65/2A 1864
PJ501 - WD29/2A 1814
PJ501 - WD30/2A 1815
PJ501, location 2084
PJ502 - WD29/1A 1814
PJ502 - WD30/1A 1815
PJ502, location 2084
PJ503 - WD29/1A/2A 1814
PJ503 - WD30/1B/2B 1815
PJ503, location 2084
PJ504 - WD46.1/2A 1837
PJ504 - WD46/2A 1836
PJ504 - WD67.1/1B 1867
PJ504 - WD67/1B 1866
PJ504, location 2086, 2090
PJ505 - WD24/1B 1807
PJ505, location 2084
PJ506 - WD24/1B 1807
PJ507 - WD24/2B 1807
PJ507, location 2084
connectors *(continued)*
PJ508, location 2084
PJ509 - WD25.1/1A 1809
PJ509 - WD25/1A 1808
PJ509, location 2142
PJ510 - WD25.1/1A 1809
PJ510 - WD25.1/2A 1809
PJ510 - WD25/1A 1808
PJ510 - WD25/2A 1808
PJ510 - WD67.1/2A 1867
PJ510 - WD67.2/2A 1868
PJ510 - WD67/2A 1866
PJ510, location 2142
PJ511 - WD24/1A 1807
PJ511 - WD25/1B 1808
PJ511, location 2142
PJ512 - WD25.1/1B 1809
PJ512 - WD25/1B 1808
PJ512, location 2142
PJ513 - WD24/1A 1807
PJ513 - WD67.1/1A 1867
PJ513 - WD67/1A 1866
PJ513 - WD67.2/1A 1868
PJ513, location 2142
PJ514 - WD24/2A 1807
PJ514, location 2142
PJ515 - WD67.1/1A 1867
PJ515 - WD67/1A 1866
PJ515 - WD67.2/1A 1868
PJ515, location 2142
PJ516 - WD67.1/2A 1867
PJ516 - WD67.2/2A 1868
PJ516 - WD67/2A 1866
PJ516, location 2142
PJ517 - WD67.1/1A 1867
PJ517 - WD67/1A 1866
connectors *(continued)*
PJ517 - WD67.2/1A 1868
PJ517, location 2142
PJ520 - WD16/2B 1792
PJ520 - WD18/1B 1795
PJ520, location 2084
PJ521 - WD16/2B 1792
PJ521 - WD18/2B 1795
PJ521, location 2084
PJ522 - WD16/2B 1792
PJ522 - WD18/2B 1795
PJ522, location 2084
PJ523 - WD17.1/1B 1794
PJ523 - WD17/1B 1793
PJ523 - WD19.1/1B 1797
PJ523 - WD19/1A 1796
PJ523, location 2084
PJ524 - WD17.1/1A 1794
PJ524 - WD17/1A 1793
PJ524 - WD19.1/1A 1797
PJ524 - WD19/1A 1796
PJ524, location 2084
PJ525 - WD17.1/1A 1794
PJ525 - WD17/1A 1793
PJ525 - WD19.1/1A 1797
PJ525 - WD19/1A 1796
PJ525, location 2086, 2090
PJ526 - WD17.1/1A 1794
PJ526 - WD17/1A 1793
PJ526 - WD19.1/1A 1797
PJ526 - WD19/1A 1796
PJ526, location 2086, 2090
PJ527 - WD17.1/1A 1794
PJ527 - WD17/1A 1793
PJ527 - WD19.1/1A 1797
PJ527 - WD19/1A 1796

connectors *(continued)*
PJ527, location 2086, 2090
PJ528 - WD17.1/1A 1794
PJ528 - WD17/1A 1793
PJ528 - WD19.1/2A 1797
PJ528 - WD19/2A 1796
PJ528, location 2086, 2090
PJ529 - WD17.1/2A 1794
PJ529 - WD17/2A 1793
PJ529 - WD19.1/2A 1797
PJ529 - WD19/2A 1796
PJ529, location 2086, 2090
PJ530 - WD17.1/2A 1794
PJ530 - WD17/2A 1793
PJ530 - WD19.1/2A 1797
PJ530 - WD19/2A 1796
PJ530, location 2086, 2090
PJ531 - WD16/1B 1792
PJ531 - WD18/1B 1795
PJ531, location 2086, 2090
PJ532 - WD16/2B 1792
PJ532 - WD18/2B 1795
PJ532 - WD26.1/1A 1811
PJ532 - WD26/1A 1810
PJ532 - WD27/1A 1812
PJ532 - WD28/1A 1813
PJ532 - WD29/1A 1814
PJ532 - WD31/2A 1816
PJ532 - WD33/1A 1818
PJ532, location 2084
PJ533 - WD30/1A 1815
PJ533, location 2084
PJ534 - WD41.1/1A 1827
PJ534 - WD41/1A 1826
PJ534, location 2084
PJ548 - WD25/1A 1808
connectors *(continued)*
PJ551 - WD24/2A 1807
PJ551, location 2086, 2090
PJ552 - WD24/1A 1807
PJ552, location 2086, 2090
PJ553 - WD24/1A 1807
PJ553, location 2086, 2090
PJ554 - WD24/1A 1807
PJ554, location 2086, 2090
PJ555 - WD24/1A 1807
PJ555, location 2086, 2090
PJ559 - WD19.1/2A 1797
PJ559 - WD19/2A 1796
PJ559, location 2086, 2090
PJ559 -WD17.1/2A 1794
PJ559 -WD17/2A 1793
PJ561 - WD24/1B 1807
PJ561, location 2086, 2090
PJ562 - WD24/1B 1807
PJ562, location 2086, 2090
PJ563, location 2087, 2091
PJ564, location 2087, 2091
PJ571 - WD24/1B 1807
PJ571 - WD25.1/1B 1809
PJ571, location 2087, 2091
PJ572 - WD24/2A 1807
PJ572, location 2087, 2091
PJ573 - WD24/2A 1807
PJ573, location 2087, 2091
PJ574 - WD24/1A 1807
PJ574, location 2087, 2091
PJ575 - WD24/1A 1807
PJ575, location 2087, 2091
PJ584 - WD24/1B 1807
PJ584 - WD67.1/1A 1867
PJ584 - WD67/1B 1866
connectors *(continued)*
PJ584 - WD67.2/1A 1868
PJ584, location 2087, 2091
PJ585 - WD24/1B 1807
PJ585, location 2087, 2091
PJ591 - WD24/1A 1807
PJ591 - WD67.1/1A 1867
PJ591 - WD67/1A 1866
PJ591 - WD67.2/1A 1868
PJ591, location 2087, 2091
PJ593 - WD24/1A 1807
PJ593, location 2087, 2091
PJ594 - WD24/2A 1807
PJ594, location 2087, 2091
PJ595 - WD41.1/1B 1827
PJ595 - WD41/1A 1826
PJ595, location 2058
PJ596 - WD41.1/1B 1827
PJ596 - WD41/1B 1826
PJ596, location 2058
PJ597 - WD41.1/1B 1827
PJ597 - WD41/1A 1826
PJ597, location 2058
PJ598 - WD41.1/1B 1827
PJ598 - WD41/2B 1826
PJ598, location 2058
PJ599 - WD41.1/1B 1827
PJ599 - WD41/1B 1826
PJ599, location 2058
PJ6 - WD87/1A 1899
PJ6000, location 2136
PJ6000 -WD31/2A 1816
PJ6001 - WD31/2B 1816
PJ6001, location 2078
PJ6002 - WD31/2B 1816
PJ6002, location 2078

connectors *(continued)*
PJ6003 - WD60/2A 1858
PJ6003, location 2074
PJ6004 - WD78/1A 1886
PJ6004, location 2081
PJ6005 - WD27/1B 1812
PJ6005 - WD31/2B 1816
PJ6005 - WD33/2B 1818
PJ6005 - WD34/2A 1819
PJ6005 - WD49/1B 1841
PJ6005 - WD55/1B 1849
PJ6005 - WD58/1A 1853
PJ6005 - WD59.1/1A 1856
PJ6005 - WD60/1B 1858
PJ6005 - WD64/2A 1863
PJ6005 - WD65/1A/2A 1864
PJ6005 - WD66/1A 1865
PJ6005, location 2131
PJ6006 - WD58/1A 1853
PJ6006 - WD59.3/2B 1857
PJ6006, location 2131
PJ6007 - WD33/1B 1818
PJ6007 - WD49/1A 1841
PJ6007 - WD58/1A 1853
PJ6007 - WD60/1B 1858
PJ6007 - WD65/1A 1864
PJ6007 - WD65/2A 1864
PJ6007, location 2131
PJ6008 - WD33/1B 1818
PJ6008 - WD65/2A 1864
PJ6008, location 2131
PJ6009 - WD33/1B 1818
PJ6009 - WD49/1A 1841
PJ6009 - WD58/1B 1853
PJ6009 - WD60/1A/2A 1858
PJ6009 - WD65/1B/2B 1864
connectors *(continued)*
PJ6009, location 2064
PJ601 - WD28/1A 1813
PJ601 - WD31/2A 1816
PJ601 - WD33/1A 1818
PJ601 - WD34/1B 1819
PJ601, location 2135, 2136
PJ6010 - WD33/1B 1818
PJ6010 - WD49/1A 1841
PJ6010 - WD58/1A 1853
PJ6010 - WD60/1B 1858
PJ6010 - WD65/1B/2A 1864
PJ6010, location 2065
PJ6011 - WD65/1B 1864
PJ6011, location 2065
PJ6012 - WD59.2/1A 1856
PJ6012, location 2131
PJ6013 - WD59.3/1B 1857
PJ6013, location 2131
PJ6014 - WD59.1/2B 1855
PJ6014, location 2074
PJ6015 - WD59.1/2B 1855
PJ6015, location 2075
PJ6016 - WD59.1/2B 1855
PJ6016, location 2075
PJ6017 - WD59.1/2B 1855
PJ6018 - WD51.1/1B 1844
PJ6018, location 2065
PJ6019 - WD51.1/1B 1844
PJ6019, location 2065
PJ602 - WD28/1A 1813
PJ602 - WD31/1A/2A 1816
PJ602 - WD33/1A/2A 1818
PJ602, location 2135, 2136
PJ603 - WD34/1B 1819
PJ603, location 2135, 2136
connectors *(continued)*
PJ604 - WD33/2A 1818
PJ604, location 2135, 2136
PJ604 -WD31/1A 1816
PJ605 - WD59.3/1B 1857
PJ605, location 2118
PJ606 - WD60/1A 1858
PJ606, location 2074
PJ609 - WD34/1A/2A 1819
PJ609, location 2131
PJ612 - WD27/1B 1812
PJ612 - WD31/1B/2B 1816
PJ612 - WD33/2B 1818
PJ612 - WD64/2A 1863
PJ612 - WD65/1A/2A 1864
PJ612 - WD66/1A 1865
PJ612, location 2131
PJ615, location 2064
PJ616 - WD50/1B 1842
PJ616, location 2064
PJ617 - WD64/2A 1863
PJ617, location 2060, 2076
PJ618 - WD64/2A 1863
PJ618, location 2060, 2076
PJ619 - WD35/1B/2B 1820
PJ619, location 2080
PJ620 - WD27/1A 1812
PJ620 - WD28/1A 1813
PJ620 - WD31/1B 1816
PJ620 - WD33/1A 1818
PJ620, location 2076
PJ621 - WD34/2B 1819
PJ621, location 2080
PJ622 - WD27/1A 1812
PJ622 - WD28/1A 1813
PJ622 - WD31/1A 1816

connectors *(continued)*
PJ622 - WD33/1A 1818
PJ622, location 2080
PJ623 - WD27/2A 1812
PJ623 - WD33/1A/2A 1818
PJ623, location 2080
PJ626 - WD27/1A 1812
PJ626 - WD28/1A 1813
PJ626 - WD31/2A 1816
PJ626 - WD33/1A 1818
PJ626, location 2079
PJ627 - WD65/1A 1864
PJ627, location 2079
PJ628 - WD65/1A 1864
PJ628, location 2079
PJ629 - WD31/1B 1816
PJ629 - WD33/2B 1818
PJ629, location 2079
PJ630 - WD35/1A 1820
PJ630, location 2079
PJ632 - WD51/1A 1843
PJ632, location 2076
PJ633 - WD29/2B 1814
PJ633, location 2063
PJ636 - WD58/1B 1853
PJ636, location 2064
PJ637 - WD58/2B 1853
PJ637, location 2064, 2074
PJ638 - WD49/1A 1841
PJ638, location 2064
PJ640 - WD58/1B/2B 1853
PJ640, location 2074
PJ643, location 2077
PJ645 - WD65/2B 1864
PJ645, location 2074
PJ646 - WD31/1B 1816
connectors *(continued)*
PJ646, location 2077
PJ647 - WD33/1B 1818
PJ647, location 2064
PJ649 - WD27/1B 1812
PJ649, location 2077
PJ650, location 2077
PJ650A, location 2077
PJ652 - WD31/1B 1816
PJ652, location 2077
PJ653 - WD33/1A 1818
PJ653, location 2074
PJ654 - WD31/1B 1816
PJ654, location 2061, 2077
PJ655, location 2061, 2077
PJ657 - WD27/1A 1812
PJ657, location 2077
PJ661 - WD35/1B 1820
PJ661, location 2077
PJ662 - WD35/2B 1820
PJ662, location 2077
PJ664 - WD34/2B 1819
PJ664, location 2077
PJ665 - WD34/2B 1819
PJ665, location 2078
PJ666 - WD34/2B 1819
PJ666, location 2074
PJ667 - WD65/1A 1864
PJ667 - WD66/1B 1865
PJ667, location 2078
PJ668 - WD65/2A 1864
PJ668 - WD66/2B 1865
PJ668, location 2078
PJ672 - WD29/2B 1814
PJ672, location 2063
PJ674 - WD50/1B 1842
connectors *(continued)*
PJ674, location 2078
PJ676 - WD27/2B 1812
PJ676, location 2078
PJ677 - WD51/1A 1843
PJ677, location 2078
PJ682 - WD65/1B 1864
PJ682, location 2074
PJ684 - WD27/1B 1812
PJ684 - WD31/1B 1816
PJ684, location 2078
PJ685 - WD664/2A 1863
PJ685, location 2078
PJ686 - WD64/2A 1863
PJ686, location 2061, 2078
PJ687 - WD28/1B 1813
PJ687, location 2055
PJ688 - WD28/1B 1813
PJ688, location 2055
PJ689 - WD28/1B 1813
PJ689, location 2055
PJ690 - WD28/2B 1813
PJ690, location 2074
PJ699 - WD31/2A 1816
PJ699, location 2136
PJ702 - WD59.1/1B 1855
PJ702 - WD59/2B 1854
PJ702, location 2117, 2120
PJ703 - WD59.1/1B 1855
PJ703 - WD59/1B 1854
PJ703, location 2120
PJ705 - WD59.1/1B 1855
PJ705 - WD59/1B 1854
PJ705, location 2120
PJ711 - WD59.1/1B 1855
PJ711 - WD59/1B 1854

connectors *(continued)*
PJ711, location 2117, 2120
PJ715 - WD33/1A 1818
PJ715, location 2118
PJ717 - WD33/2A 1818
PJ717, location 2118
PJ718 - WD33/1A/2A 1818
PJ718, location 2058
PJ723 - WD53/1B 1846
PJ723, location 2074
PJ725 - WD64/2A 1863
PJ725, location 2061
PJ727 - WD59.3/1A 1857
PJ727, location 2121
PJ728 - WD59.1/1B 1856
PJ728, location 2118
PJ730 - WD59.1/2B 1855
PJ730 - WD59/2B 1854
PJ730, location 2117, 2121
PJ731 - WD59.1/2B 1855
PJ731 - WD59/2B 1854
PJ731, location 2117, 2121
PJ732 - WD59.1/2B 1855
PJ732 - WD59/2B 1854
PJ732, location 2118
PJ733 - WD59.1/2B 1855
PJ733 - WD59/2B 1854
PJ733, location 2118
PJ734 - WD59.1/1B 1855
PJ734, location 2121
PJ737 - WD59.1/1B 1855
PJ737 - WD59/1B 1854
PJ737, location 2118
PJ742 - WD53/2B 1846
PJ742, location 2121
PJ745 - WD54/1B 1847
connectors *(continued)*
PJ745, location 2061, 2078
PJ746 - WD27/1A 1812
PJ746, location 2058
PJ747 - WD27/1B 1812
PJ747, location 2058
PJ749 - WD52/2A 1845
PJ749 - WD55/2B 1849
PJ749 - WD59.1/1A 1855
PJ749 - WD59/1A 1854
PJ749 - WD59.3/2A 1857
PJ749, location 2121
PJ750 - WD52/1A 1845
PJ750 - WD59.1/1A 1855
PJ750 - WD59/2A 1854
PJ750, location 2121
PJ750A, location 2121
PJ751 - WD52/1B 1845
PJ751, location 2121
PJ752 - WD52/1B 1845
PJ752, location 2117
PJ754 - WD33/2B 1818
PJ754, location 2058
PJ755 - WD52/1A 1845
PJ755, location 2121
PJ756 - WD52/1A 1845
PJ756, location 2121
PJ760 - WD51.1/1A 1844
PJ776 - WD54.1/1B/2B 1848
PJ776, location 2061
PJ777 - WD51.1/1A 1844
PJ778 - WD51.1/2A 1844
PJ803 - 33/2A 1818
PJ803, location 2121
PJ804, location 2121
PJ804 -WD33/ 2B 1818
connectors *(continued)*
PJ823 - WD52/2B 1845
PJ823, location 2074
PJ830 - WD59.3/2A 1857
PJ830, location 2121
PJ878, location 2152
PJ879, location 2152
PJA01 - WD22.1/1A 1804
PJA01 - WD22/1A 1803
PJA01, location 2148
PJA02, location 2148
PJA03, location 2148
PJA04, location 2148
PJA05 - WD22.1/1B 1804
PJA05 - WD22/1B 1803
PJA05, location 2148
PJA06 - WD22.1/1B 1804
PJA06 - WD22/1B 1803
PJA06, location 2148
PJA07 - WD22.1/2B 1804
PJA07 - WD22/2B 1803
PJA07, location 2148
PJA08 - WD22.1/1B 1804
PJA08 - WD22/1B 1803
PJA08, location 2148
PJA09 - WD22.1/2B 1804
PJA09 - WD22/2B 1803
PJA09, location 2148
PJA10 - WD22.1/1A 1804
PJA10 - WD22/1A 1803
PJA10, location 2149
PJA11 - WD22.1/1A 1804
PJA11 - WD22/1A 1803
PJA11, location 2149
PJB01 - WD21.1/1B 1802
PJB01 - WD21/1B 1801

connectors *(continued)*
PJB01, location 2146
PJB02 - WD21.1/1A 1802
PJB02 - WD21/1A 1801
PJB02, location 2146
PJC01 - WD23.1/1A/1B 1806
PJC01 - WD23/1B 1805
PJC01, location 2152
PJC02 - WD23.1/1A/1B 1806
PJC02 - WD23/1B 1805
PJC02, location 2152
PJC03 - WD23.1/2A/2B 1806
PJC03 - WD23/2B 1805
PJC03, location 2152
PJC3 - WD22.1/2A 1804
PJC3 - WD22/2A 1803
PJE01 - WD78/1B 1886
PJE01, location 2081
PJE02 - WD78/1B 1886
PJE02, location 2081
PJE03 - WD78/1B 1886
PJE03, location 2081
PJF01 - WD82/1B 1893
PJF01 - WD83/1B 1894
PJF01, location 2150
PJF02 - WD82/1B 1893
PJF02 - WD83/1B 1894
PJF02, location 2150
PJF03 - WD82/1B 1893
PJF03 - WD83/1B 1894
PJF03, location 2150
PJF04 - WD82/1B 1893
PJF04 - WD83/1B 1894
PJF04 - WD84/1A 1896
PJF04 - WD85/1A 1897
PJF04, location 2150, 2151
connectors *(continued)*
PJF05 - WD82/1B 1893
PJF05 - WD83/1B 1894
PJF05 - WD84/1A 1896
PJF05 - WD85/1A 1897
PJF05, location 2150, 2151
PJF06 - WD82/1B 1893
PJF06 - WD83/1B 1894
PJF06 - WD84/1A 1896
PJF06 - WD85/1A 1897
PJF06, location 2151
PJG02 - WD20/2B 1798
PJH01 - WD20.1/1A 1799
PJH01 - WD20/1A 1798
PJH01 - WD20.2/1A 1800
PJH01, location 2149
PJH02 - WD20.1/1A/2A 1799
PJH02 - WD20/1A/2A 1798
PJH02 - WD20.2/1A/2A 1800
PJH02, location 2149
PJH03 - WD20.1/1A/2A 1799
PJH03 - WD20/1A/2A 1798
PJH03 - WD20.2/1A/2A 1800
PJH03, location 2149
PJJ05 - WD20.1/2B 1799
PJJ05 - WD20.2/1B 1800
PJJ1 - WD79/1A 1887
PJJ1 - WD82/1A 1893
PJJ1 - WD83/1A 1894
PJJ1 - WD83.2/1A 1895
PJJ1, location 2153
PJJ1 (single beam), location 2154
PJJ1 (two beam), location 2156
PJJ10 - WD20.1/2B 1799
PJJ10 - WD20/1A 1798
PJJ10 - WD20.2/1B 1800
connectors *(continued)*
PJJ10 (single beam), location 2154
PJJ10 (two beam), location 2156
PJJ11 - WD82/1A 1893
PJJ11 - WD83/1A 1894
PJJ11 (single beam), location 2154
PJJ11 (two beam), location 2156
PJJ12 - WD32/1A 1817
PJJ12 (single beam), location 2154
PJJ12 (two beam), location 2156
PJJ13 - WD72/1B 1873
PJJ13 - WD73.1/1B 1875
PJJ13 - WD73/1B 1874
PJJ13 - WD73.2/1B 1876
PJJ13 (single beam), location 2154
PJJ13 (two beam), location 2156
PJJ2, location 2154
PJJ2 (two beam), location 2156
PJJ3 - WD78/1A 1886
PJJ3 (single beam), location 2154
PJJ3 (two beam), location 2156
PJJ4 - WD81.1/1B 1889
PJJ4 - WD81/1B 1888
PJJ4 - WD81.2/1B 1890
PJJ4 (single beam), location 2154
PJJ4 (two beam), location 2156
PJJ5 - WD20/1A 1798
PJJ5 (single beam), location 2154
PJJ5 (two beam), location 2156
PJJ6 - WD76/1B 1884
PJJ6 - WD77/1B 1885
PJJ6 (single beam), location 2154
PJJ6 (two beam), location 2156
PJJ7 - WD82/1A 1893
PJJ7 - WD83/1A 1894
PJJ7 - WD83.2/1A 1895

connectors *(continued)*
PJJ7 (single beam), location 2154
PJJ7 (two beam), location 2156
PJJ8 - WD72/1B 1873
PJJ8 - WD73.1/1B 1875
PJJ8 - WD73/1B 1874
PJJ8 - WD73.2/1B 1876
PJJ8 - WD74/1A/1B 1880
PJJ8 - WD75.1/1A/1B 1882
PJJ8 - WD75/1A/1B 1881
PJJ8 - WD75.2/1A/1B 1883
PJJ8 (single beam), location 2154
PJJ8 (two beam), location 2156
PJJ878 - WD20.1/1A 1799
PJJ878 - WD20.2/1A 1800
PJJ879 - WD20.1/1A 1799
PJJ879 - WD20.2/1A 1800
PJJ9 - WD82/1A 1893
PJJ9 - WD83/1A 1894
PJJ9 (single beam), location 2154
PJJ9 (two beam), location 2156
PJMJ07 - WD83.2/1A 1895
PJMJ10 - WD20.1/1B 1799
PJMJ10 - WD20.2/1B 1800
PJMJ12 - WD32/1A 1817
PJT01 - WD20.1/1B 1799
PJT01 - WD20.2/2B 1800
PJT01 - WD20/2B 1798
PJT01 - WD84/1B 1896
PJT01 - WD85/1B 1897
PJT01, location 2152
PJU7 (single beam), location 2155
PN01 - WD20.1/2A 1799
PN01 - WD20.2/2A 1800
power, location 2159, 2168
power supply, J13, location 2162
connectors *(continued)*
power supply, J14, location 2162
power supply, J16, location 2162
power supply, J40, location 2163
power supply, J41, location 2163
power switch (On/Off pushbutton), location 2169
PP1 - WD82/1B 1893
PP1 - WD83/1B 1894
PP2 - WD82/1B 1893
PP2 - WD83/1B 1894
PP3 - WD82/1B 1893
PP3 - WD83/1B 1894
pre/postprocessing tailgate, location 2149
SCSI I/O card to MIC (slot 3), location 2168
SCSI to printer 1 MIC (slot 0/1), location 2159
SCSI to printer 2 MIC (slot 1/4), location 2159
serial port (S1), location 2159, 2168
serial port (S2), location 2159
tablet, location 2160, 2169
TAG IN, location 2152
TAG OUT, location 2152
temperature control (TC) in, location 2081
temperature control (TC) out, location 2081
VD1, location 2157
VD1 (single beam), location 2155
VD1 (two beam), location 2157
VD2 (two beam), location 2157
VD2 (video data) MIC, location 2157
voltage error indicators, location 2142
connectors *(continued)*
Y cable, location 2152
continue installation procedures 3735
contrast control, location 2116
control (simplex), AC power - WD23 1805
Control, Toner Asm (57G4423) (-16) 3254
control unit, attach 3743
control unit AC control box (duplex) - WD22.1 1804
control unit AC control box (simplex) - WD22 1803
control unit AC power control (duplex) - WD21.1 1802
control unit AC power control (simplex) - WD21 1801
control unit display/touch screen - WD68 1869
control unit trace, configure 1598
control unit trace, internal 1597
controller, 7025 F50
ARTIC coprocessor, parts 3562
backplane, parts 3562
CD ROM, parts 3562
CPU card, parts 3562
disk drive, parts 3564
diskette drive, parts 3564
DRAM, parts 3562
ESCON adapter, parts 3562
Ethernet adapter, parts 3562
parallel channel adapter, parts 3562
power supply, parts 3562
SIMM, parts 3562
system card, parts 3564
tape drive, parts 3564

controller, 7025 F50 *(continued)*
token ring cable, parts 3564
controller, install 3699
controller, location 2146
controller 7013-595 , removal 2269
controller 7025, removal 2279
controller 7043 , removal 2296
conversion, hex-to-decimal 1777
conveyor roll, location 2066
conveyor roll angle, adjust 2440
conveyor roll lift plate, adjust 2441
conveyor roll rotation sensor - S113 1965
conveyor roll rotation sensor, location 2067
conveyor roll rotation sensor, removal 2368
conveyor roll rotation sensor (S113) Encoder routine 1710
conveyor roll rotation sensor (S113) routine 1668
conveyor roll seal, location 2066
cooling blower, stacker (B703) - CD30 1935
Cord, Line (57G6494) (-208) 3368
corona, transfer, shield 3155
Corona, Transfer Asm (57G6505) (-260) 3338
corona cleaning brushes, adjust 2325
corona cleaning brushes, removal 2324
coronas
charge - CD45 1950
charge, cleaning 2314
charge, driver routine 1643
charge, location 2082
charge, parts 3212
coronas *(continued)*
charge, removal 2313
charge corona to PC drum gap, adjsut 2318
charge corona to PC drum gap, check 2316
charge high voltage, parts 3218
cleaning brushes, adjust 2325
cleaning brushes, removal 2324
high voltage cable preclean, parts 3208
precharge - CD48 1953
precharge, cleaning 2321
precharge, location 2083
precharge, parts 3210
precharge, removal 2320
precharge corona, adjust 2342
precharge high voltage cable, parts 3214
preclean - CD47 1952
preclean, cleaning 2321
preclean, driver routine 1643
preclean, location 2083
preclean, parts 3210
preclean, removal 2320
preclean corona, adjust 2341
preclean corona to PC drum gap, adjsut 2323
preclean corona voltage, check 2341
transfer - CD46 1951
transfer, cleaning 2321
transfer, driver routine 1644
transfer, location 2083, 2124
transfer, removal 2320
transfer cleaning brush, adjust 2327
coronas *(continued)*
transfer cleaning brush, removal 2326
transfer corona voltage, adjust 2340
transfer corona voltage, check 2339
coronas, high voltage - WD40 1825
Counter, Asm (06F0028) (-16) 3494
counters
changing 3623
PM log 3623, 3624
recording completed PM 3624
Coupled Interface Card (YUCC) (45G2098) (-30A) 3526
Coupled Interface Card (YUCC) (45G2098) (-30B) 3530
coupled interface card (YUCC), location 2150
coupled interface wrap plug, desc 3802
coupled interface wrap test 1585
coupled pre/postprocessor interface to MIC - WD82 1893
coupled pre-postprocessor interface wrap plug 'A' - WD84 1896
Coupling (06F0964) (-101) 3492
Cover, (PW091) (8-inch forms width only) (04H1056) (-207) 3334
Cover, (PW091) (Except 8-inch forms width) (88F2730) (-207) 3334
Cover (57G6489) (-199) 3368
Cover, AC Power Supply (88F1675) (-1) 3190
Cover, Arm (Europe 50 Hz) (88F3099) (-127) 3426
Cover, Arm Seal (Europe 50 Hz) (88F3098) (-126) 3426

Cover, B1 Board Asm (88F1681) (-44) 3190
Cover, Belt (88F3267) (-56) 3480
Cover, Belt Asm (57G5984) (-46) 3230
Cover, Blower (88F1686) (-59) 3190
Cover, Blower Belt Asm (88F2717) (-59) 3310
Cover, Bridge (88F3054) (-11) 3420
Cover, Cable (30H2962) (-19A) 3520
Cover, Cable (88F2838) (-198) 3332
Cover, Cable Asm (88F2832) (-83) 3322
Cover, Capacitor (88F3274) (-38) 3484
Cover, Capstan Roll Belt (88F2839) (-197) 3332
Cover, Cleaner Brush (88F2479) (-66) 3224
Cover, Developer Front Asm (57G5990) (-95) 3234
Cover, Drum Asm (45G1893) (-10) 3198
Cover, Drum Asm (57G6687) (-81) 3202
Cover, Drum Belt Asm (88F2612) (-59) 3262
Cover, Drum Gear Asm (88F2609) (-36) 3260
Cover, End (30H6876) (-7C) 3518
Cover, End Asm (30H6877) 3518
Cover, Fan (04H0372) (-36) 3380
Cover, Fan (04H0372) (-73D) 3382
Cover, Fan (88F2378) (-79) 3190
Cover, Flicker (88F2489) (-97) 3224
Cover, Front (30H6872) (-1C) 3518
Cover, Front (51G9700) (-7) 3550
Cover, Front (63H6575) (-1C) 3518
Cover, Front (73H8156) (-27) 3564
Cover, Front Cap (88F2488) (-92) 3224
Cover, Fuser Front (88F1687) (-66) 3190
Cover, Fuser Oil Filter (88F2380) (-90) 3192
Cover, Fuser Right Side (57G6634) (-105) 3194
Cover, Gear (88F3302) (-119) 3492
Cover, Gear Side (88F2936) (-90) 3390
Cover, Hopper (88F1683) (-50) 3190
Cover, Inner Asm (57G6586) (-41) 3200
Cover, Inner Window (Tractor Gauge) (88F3336) (-42) 3190
Cover, Input Bin Left Side (88F2379) (-81) 3192
Cover, Lamp Contact (88F1646) (-310) 3418
Cover, Latch Spring (88F2504) (-54) 3232
Cover, Left side (51G9702) (-1) 3550
Cover, Maintenance Panel (88F2887) (-64) 3358
Cover, Manifold Distribution (88F2983) (-204) 3400
Cover, Motor (88F3166) (-68) 3448
Cover, OP Side (30H2804) (-56) 3190
Cover, Optic (Not Shown) (59F4088) (-35) 3554
Cover, Photoconductor (PC) Drum (88F2393) (-11) 3198
Cover, plug (57G6489) (-199) 3370
Cover, Power Cord Access Hole (88F2395) (-21) 3198
Cover, Pre-heater, Front (88F3149) (-143) 3440
Cover, Pre-heater, Rear (88F3151) (-147) 3440
Cover, Printer Center Front Asm (90H2348) (-36) 3180
Cover, Printer Center Rear Asm (90H2353) (-51) 3180
Cover, Printer Center Top (90H2346) (-23) 3180
Cover, Printer Control Panel (88F2906) (-176) 3364
Cover, Printer Left Front Asm (90H2349) (-38) 3180
Cover, Printer Left Rear Asm (90H2352) (-49) 3180
Cover, Printer Left Top Asm (90H2351) (-46) 3180
Cover, Printer Right Front Asm (90H2347) (-34) 3180
Cover, Printer Right Rear Asm (90H2354) (-53) 3180
Cover, Printer Right Top Asm (90H2350) (-40) 3180
Cover, Pulley (88F2833) (-291) 3342
Cover, Rear (00G3524) (-3) 3550
Cover, Rear (30H6874) (-9C) 3518
Cover, Rear Asm (30H6875) 3518
Cover, Retractor Motor (30H2805) (-18) 3316
Cover, Right End (30H6662) (-110A) 3186
Cover, Right End Front (30H6878) (-8A) 3520
Cover, Right Side (51G9703) (-6) 3550
Cover, Shield (57G4417) (-92) 3242
Cover, Stacker End Asm (90h2355) (-55) 3182

Cover, Stacker Gate (90H2358) (-61) 3182
Cover, Stacker Gate Side Asm (90H2359) (-62) 3182
Cover, Stacker Left Side Lock Asm (90h2356) (-57) 3182
Cover, Stacker Right Side Lock Asm (90h2357) (-58) 3182
Cover, Stacker Switch (08H7722) (-75) 3182
Cover, Standoff (88F2924) (-103) 3392
Cover, Standoff (88F2924) (-174) 3398
Cover, SW Drum Asm (88F3335) (-30) 3208
Cover, Switch (88F3249) (-104) 3472
Cover, Switch Mounting (88F2926) (-165) 3398
Cover, Terminal (88F1632) (-261) 3338
Cover, Terminal (88F1632) (-48) 3210
Cover, Terminal (88F1632) (-64) 3210
Cover, Terminal Wire (88F1633) (-49) 3210
Cover, Terminal Wire (88F1633) (-65) 3210
Cover, Toner Auger Drive Motor (04H0891) (-167) 3252
Cover, Toner Collector Lever (88F2684) (-28) 3308
Cover, Toner Hopper (04H0889) (-122) 3250
Cover, Toner Inlet (88F2566) (-134) 3250
Cover, Toner Inlet (88F2862) (-91) 3202
Cover, Top (51G9701) (-2) 3550
Cover, Top Middle (30H6880) (-15A) 3520
Cover, Top Rear (30H6879) (-25A) 3522
Cover, Tractor Motor Drive Belt (88F2836) (-173) 3332
Cover, Transfer Corona Wire Holder (88F1633) (-262) 3338
Cover, Transfer Station Front (88F2841) (-279) 3340
Cover, Transfer Station Sensor (88F2453) (-145) 3216
Cover, Verification Sensor Card (06F0402)) (-1S) 3348
Cover, Wire Holder (88F2434) (-89) 3212
Cover, Wire Holder (88F2435) (-90) 3214
Cover Asm, Front (30H6873) (-11A) 3520
Cover Asm, Rear (30H6875) (-1A) 3520
Cover Asm, Right End Rear (30H6877) (-7A) 3520
Cover Front Asm (30H6873) 3518
Cover Front Asm (63H6574) 3518
cover interlock, drum - WD41 1826
covers
AC power supply, location 2347
auto load bridge front, location 2347
B1 board, location 2349
blower, location 2349
buffer card 2352
capstan pinch roll, location 2123
channel tailgate, location 2152
control right unit side,ocation 2346
control unit left side, location 2346
control unit rear, location 2346
control unit rear inner, location 2349
covers *(continued)*
control unit shelf, location 2345
control unit top, location 2346
developer, location 2347
developer belt, location 2350
drum, location 2347
erase lamp, location 2082
erase lamp shield, location 2348
fan, location 2349
fuser, location 2348
fuser heat shield, location 2348
fuser logic, location 2349
fuser oil filter, location 2349
fuser right side, location 2347
hot roll shield, location 2348
input bin center, location 2350
input bin left side, location 2081, 2347
input bin right side, location 2347
maintenance panel, location 2348
mirror motor amplifier, location 2347
oil pump assembly, location 2350
power supply, Type 7013 Model 591, location 2164
preheat platen front end, location 2348
preheat platen rear end, location 2348
printer center front, location 2345
printer center rear, , location 2346
printer center top, location 2345
printer left front, location 2345
printer left rear, location 2346
printer left top, location 2345
printer operator panel 2351
printer right end, location 2348

covers *(continued)*
printer right front, location 2345
printer right rear, , location 2346
printer right top, location 2345
printer upper right end, , location 2346
printhead, location 2348
rear process, location 2349
stacker end, location 2345
stacker gate, location 2345
stacker inner, removal 2976
stacker lower left end, location 2345
stacker lower right end, location 2345
toner inlet, location 2347
toner supply motor, location 2068
transfer station, location 2348
transfer station center rear, location 2349
transfer station front, removal 3050
covers, check for shipping damage 3667
CP1 - WD22.1/1A 1804
CP1 - WD22/1A 1803
CPI circuit protector, location 2148
CPU Card (F50) (73H4768) (-17) 3562
CPU Card 332 MHZ (F50) (93H6321) (-17) 3562
CPU PLanar (39h9164) (-36) 3556
CPU planar, location 2161
CPU speed/type, location 2169
CR1/CR2 LED, location 2110
CR1 LED, location 2100, 2104
CR2 LED, location 2100
Cushion, Rubber (88F1656) (-15) 3180
Cutter, Tape (06F1121) (-128) 3364
cyclone, location 2053
Cyclone Asm (88F2664) (-68) 3312
cyclone blower, check 2174
cyclone blower, location 2063
cyclone blower, removal 2173
cyclone blower drive belt, adjust 2176
cyclone blower drive belt, check 2176
cyclone blower drive belt, removal 2175
cyclone blower motor - CD71 1976
cyclone blower motor, check 2177
cyclone blower motor, location 2063
cyclone blower motor (M104) driver routine 1638
cyclone blower motor, removal 2177
cyclone blower rotation (S116) 1666
cyclone blower rotation sensor - CD72 1977
cyclone blower rotation sensor, adjust 2179
cyclone blower rotation sensor, check 2179
cyclone blower rotation sensor, location 2063
cyclone blower rotation sensor, removal 2178
cyclone blower rotation sensor (S116) Encoder routine 1709
cyclone precipitator, location 2063
cyclone pressure check 2180
CYL 1 (single beam), location 2102
CYL 1 (two beam 240), location 2106
CYL 1 (two beam 240/300), location 2110
CYL1 (single beam), removal 2665
CYL1 (two beam 240), parts 3278
CYL1 (two beam 240), removal 2761
CYL1 (two beam 240/300), parts 3292
CYL1 (two beam 240/300), removal 2869
CYL1 lens (single beam), parts 3266
cylinder lens (single beam), location 2102
cylinder lens (single beam), removal 2665
cylinder lens (two beam 240), location 2106
cylinder lens (two beam 240), removal 2761
cylinder lens (two beam 240/300), location 2110
cylinder lens (two beam 240/300), parts 3292
cylinder lens (two beam 240/300), removal 2869

D

D1–D7 LEDs, location 2131
D201 - WD46.1/1B 1837
D201 - WD46/2B 1836
D601 - WD35/1A 1820
D601, location 2080
D602 - WD58/2B 1853
D602, location 2064
D603 - WD49/1A 1841
D603, adjust 2607
D603, location 2064, 2073
D603, removal 2604
D604 - CD12 1917
damage checks, control unit 3667
damage checks, printer 3667
DC 1 power supply, location 2088, 2092

DC 1 power supply cooling fan, location 2088, 2092
DC 2 power supply, location 2088, 2092
DC 2 power supply cooling fan, location 2088, 2092
DC circuits 1821
address/data bus networks - WD55 1849
backup roll and backup idler roll encoders (HR091 & FSxxx cards) - WD60 1858
coupled pre-postprocessor interface wrap plug 'A' - WD84 1896
display/touch screen, control unit - WD68 1869
drum cover interlock - WD41 1826
erase lamp and usage meter - WD39 1823
forms path sensors (YS011 card) - WD63 1862
fuser and stacker sensors (FSxxx & HR091) - WD58 1853
fuser sensors (FSxxx and FUxxx cards) - WD64 1863
fuser sensors (FSxxx card) - WD65 1864
high voltage to coronas - WD40 1825
laser modulator and beam detect - WD42 1828
laser power and drum cover interlock - WD41 1826
maintenance panel - WD43 1833
MIC to coupled pre/postprocessor interface - WD82 1893
MIC to intelligent postprocessor - WD83 1894
DC circuits 1821 *(continued)*
MIC to operator alert assembly - WD79 1887
MIC to operator's panel - WD78 1886
MIC to printer control cable (1 of 2) - WD76 1884
MIC to printer control cable (2 of 2) - WD77 1885
MIC wrap plugs (PJJ1 and PJJ6) - WD87 1899
motor M106 - WD44 1834
motor M107 - WD45 1835
motor M201 - WD46 1836
motor M202 - WD46.2 1838
motor M303 - WD47 1839
motor M304 - WD48 1840
motor M601 and skew sensor - WD49 1841
motor M602 - WD50 1842
motor M607 - WD51 1843
motor M610 - WD51.1 1844
motor M704 - WD52 1845
motors M706 and M707 - WD53 1846
oil pumps L701, L702 & L703 - WD54 1847
parallel channel signal (tailgate to controller, 1 of 2) - WD70 1871
parallel channel signal (tailgate to controller, 2 of 2) - WD71 1872
postprocessor interface wrap plug 'B' - WD85 1897
PQE (single beam printhead) - WD81 1888
pre and postprocessing printer circuitry - WD88 1900
DC circuits 1821 *(continued)*
printer DC power distribution - WD38 1821
printer speed control - WD67 1866
sensor S202 - WD46.2 1838
sensors (S112, S113, S114, & S116) - WD57 1851
sensors and switches (PC211, PC531, & PC551 cards) - WD56 1850
side 1/side 2 verify to MIC - WD83.2 1895
stacker sensors and EOF lamps (SC061 & SC101) - WD59 1854
stacker sensors and EOF lamps (SC091 & SC103) - WD59.1 1855
stacker switch panel (forms length & width cards) - WD59.3 1857
stacker switch panel (SW511 & FSxxx card) - WD59.2 1856
switches and sensors (YS011 card) - WD61 1859
switches and sensors (YS011 card) - WD62 1861
wrap cable (PJJ2, PJJ3 and PJJ12), MIC - WD86 1898
DC-DC converter, location 2162
DC—DC Converter (40H7442) (-55) 3556
dc 1 power supply, removal 2637
dc 2 power supply, removal 2641
DC output table 1790
DC power distribution, printer - WD38 1821
dc power supply (contorl unit), removal 2241
DC power supply, location 2146, 2148

DC power units and sequence card, printer - WD24 1807
dc voltages 2644
define forms 3775
definitions
service tasks 3620
deflector plate, location 2072, 2082
deflector plate to PC drum gap 3040
detail report, EREP 1749
details in service logs 1565
developer
B108, removal 2380
B109, removal 2380
B110, removal 2382
B111, removal 2382
B112, removal 2382
bias contact brushes, check 2361
bias contact brushes, removal 2361
bias contact plate assembly, removal 2362
checks 2360
clearances 2486
conveyor roll, removal 2363
conveyor roll angle, adjust 2440
conveyor roll lift plate, adjust 2441
cooling fans, removal 2380, 2382
drain hose, location 2055
drain lever sensor, check 2384
drain lever sensor, removal 2383
drain lever switch - CD112 2017
front seal, removal 2385
housing vacuum seal gap, adjust 2444
initialize mag brush rolls position, adjust 2451
L101 - CD62 1967
developer *(continued)*
L101, removal 2412
locations, carriage 2072
locations, components (front) 2066
locations, components (rear) 2067
locations, front 2068
locations, rear 2070
M101, adjust 2390
M101, removal 2389
M102, adjust 2420
M102, removal 2419
M103 - CD62 1967
M103, adjust 2408
M103, removal 2407
M112, adjust 2437
M112, removal 2431
mag brush A to scraper gap, adjust 2462
mag brush angle, adjust 2464
mag brush belt, adjust 2373
mag brush belt, removal 2372
mag brush bias - CD59 1964
mag brush C to scraper gap, adjust 2459
mag brush motor, adjust 2390
mag brush motor, removal 2389
mag brush rolls, adjust 2394
mag brush rolls, removal 2392
mag rolls to doctor blade gap, adjust 2453
PC drum gap, adjust 2446
rear seal, removal 2386
run switch - CD114 2019
run switch, removal 2387
S106, removal 2414
S107 - CD114 2019
developer *(continued)*
S107, removal 2387
S112 - CD112 2017
S112, check 2384
S112, removal 2383
S121 - CD122 2027
S121, removal 2438
scavenger roll, adjust 2398
scavenger roll, removal 2396
toner control belt, adjsut 2375
toner control belt, removal 2374
toner control motor - CD62 1967
toner control motor, adjust 2408
toner control motor, removal 2407
toner control sensor - CD62 1967
toner control sensor, removal 2412
toner control shaft, removal 2410
toner empty sensor, removal 2414
toner feed belt, adjust 2377
toner feed belt, removal 2376
toner feed gate, removal 2417
toner feed motor, adjust 2420
toner feed motor, removal 2419
toner feed scraper blade, removal 2421
toner feed shaft, removal 2425
toner hopper paddle, adjust 2430
toner hopper paddle, removal 2428
toner inlet, removal 2431
toner supply belt, adjust 2379
toner supply belt, removal 2378
toner supply motor , adjust 2437
toner supply motor, removal 2431
toner supply switch - CD122 2027
toner supply switch, removal 2438
developer, checks 2360

developer, removal 2355
developer bias driver routine 1644
developer clearances 2486
developer cooling fans, removal 2380, 2382
developer drain hose, location 2055
developer drain lever sensor, check 2384
developer drain lever sensor, removal 2383
developer drain lever switch, location 2069
developer drain lever switch (S112) routine 1670
developer fan left front, location 2072
developer fan lower front, location 2072
developer fan lower rear , location 2072
developer front seal, removal 2385
developer height front adjustment stud, location 2072
developer height rear adjustment stud, location 2072
developer housing vacuum seal gap, adjust 2444
Developer Left Front Fan, (B104) (06F0194) (-115) 3214
developer lower seal, location 2082
developer mix drain, location 2072
developer mix inlet, location 2066
developer mix setting 1615, 1616, 1617, 1618
developer motor cooling fan, location 2070
developer profile gauge, desc 3802
developer rail, location 2072
developer rear seal, removal 2386
developer right rear fan, location 2070
developer run switch, location 2069
developer run switch, removal 2387
developer run switch (S107) routine 1670
developer to PC drum gap 2446
Developer Unit, 50 Hz (150 PPM, 480/600 DPI with ETL) (24H8184) (-1) 3228
Developer Unit, 50 Hz (229 PPM, 240 DPI with Enhanced Toner Loading (ETL)) (30H6777) (-1) 3228
Developer Unit, 50 Hz (310 PPM, 240 DPI with ETL) (30H6779) (-1) 3228
Developer Unit, 50 Hz (324 PPM, 240 DPI with ETL) (90H1766) (-1) 3228
Developer Unit, 50 Hz (IS1, ID1/ID2 printers only) (90H1764) (-1) 3228
Developer Unit, 60 Hz (150 PPM, 480/600 DPI with ETL) (24H8185) (-2) 3228
Developer Unit, 60 Hz (229 PPM, 240 DPI with Enhanced Toner Loading (ETL) (30H6778) (-2) 3228
Developer Unit, 60 Hz (310 PPM, 240 DPI with ETL) (30H6780) (-2) 3228
Developer Unit, 60 Hz (324 PPM, 240 DPI with ETL) (90H1765) (-2) 3228
Developer Unit, 60 Hz (IS1, ID1/ID2 printers only) (90H1763) (-1) 3228
developer vacuum seal, location 2082
diagnostic function switch 1608
  functions 1609
  position descriptions 1609
  settings 1609
diagnostic function switch, location 2130
diagnostics
  attachment 1572
  concurrent mode 1743
  Display/Touch Screen 1554
  EREP program 1747
  general info 1571
  host-supported 1747
  how to run 1571
  mechanism 1580
  online 1743
  pre/postprocessor 1583
  printer 1606
  service 1571
  standalone 1744
DIMM, 64 MB, location 2170
Diode, Flyback Asm (88F3312) (-11) 3500
diodes
  D201 - WD46.1/1B 1837
  D201 - WD46/2B 1836
  D601 - WD35/1A 1820
DIP switch settings, (B1J11) 3686
disconnecting power 3662
discontinuance 3789
disk, backing up 1594
disk, restoring 1594
Disk Drive (F50) (59H6259) (-34) 3564
Disk Drive (F50) (76H2697) (-34) 3564
disk drive 7013-595, removal 2273
disk drive 7025 hard , removal 2282
disk drive 7043 hard , removal 2299
Disk Drive Carrier (06H8631) (-35) 3564

Disk Drive with microcode (F50) (-34) 3564
disk operations 1594
Diskette Drive, 1.44 MB 3.5 inch (88G4768) (-59) 3558
Diskette Drive (F50) (93F2361) (-29) 3564
display, location 2169
display control panel, location 2146
Display panel (06H7082) (-3) 3560
display power On/Off pushbutton, location 2146
display/touch screen, control unit - WD68 1869
Display/Touch Screen, diagnostics 1554
display touch screen, install 3736
display/touch screen, location 2146
display/touch screen, parts 3520
display/touch screen, removal 2243
Display/Touch Screen, using 1554
Display/Touch Screen 6542–G41T, (90H1744) (-18A) 3520
Display/Touch Screen G52, (90H1744) (-18A) 3520
Display/Touch Screen G52 (90H2678) (-18AA) 3520
Display/Touch Screen main window 1555
distance, configuration 3770
distribution to hot roll lamps, AC - WD34 1819
doctor blade, location 2082
doctor/scraper gauge, desc 3803
dove prism (two beam 240), location 2106
dove prism (two beam 240), parts 3276
dove prism (two beam 240/300), location 2110
dove prism (two beam 240/300), parts 3290
drain developer mix, location 2072
drain lever switch, developer - CD112 2017
DRAM, 16MB (F50) (89H5651) 3562
drive, 3.5-inch diskette, location 2158, 2161, 2169
drive, CDROM, location 2158, 2161, 2169
drive, disk, location 2161
Drive, Drum Housing (88F2604) (-17) 3260
Driver, AO (AM202) (53F1859) (-133) 3272
Driver, AO (AM202 and AM203) (24H7996) (-133S) 3298
Driver, AO (AM202 and AM203) (24H7996) (-133T) 3284
driver routines 1633
backup idler roll motor (M609) 1651
backup roll lift motor 1661
backup-roll motor (M603) 1651
bloom motor 1661
bridge feed motor (M605) 1649
bridge lift motor (M606) 1649
capstan pinch roll motor (M301) 1646
capstan roll motor (M302) 1645
charge corona 1643
cleaner brush motor (M108) 1639, 1640
cleaner housing motor (M106) 1639
cyclone blower motor (M104) 1638
developer bias 1644
driver routines 1633 *(continued)*
drum motor (M107) 1641
E1XX error codes 1772
erase lamp (PL101) 1641
error codes 1772, 1773, 1774, 1775, 1776
etl supply motor (M112) 1659
forms width display (LD091) 1659
fuser 1657
hot roll motor (M607) 1652
laser ready 1659
left finger belt motor (M701) 1648
mag brush motor (M101) 1642
mirror motor (M201) 1638
Oil Pump 1 (L701) 1653
oil pump 2 (L702) 1654
oil pump 3 (L703) 1654
oil pump 4 (L704) 1655
oil pump 5 (L705) 1655
oil pump 6 (L706) 1656
oiler-belt motor (M706) 1652
paper cooling fans 1657
pendulum motor (M704) 1646, 1647
precharge corona 1648
preclean corona 1643
preheat platen driver routine 1656
primary erase lamp (PL102) 1643
resolution lens motor (M202) 1661
retractor motor (M304) 1645
right finger belt motor (M702) 1648
scuff roll motor (M604) 1653
shutter control motor (M602) 1650
stacker length motor (M707) 1660
stacker length switch 1660
stacker table motor (M803) 1647
steering motor (M601) 1650

driver routines 1633 *(continued)*
toner control motor (M103) 1640
toner feed motor (M102) 1642
toner supply motor (M102) 1658
tractor motor (M303) 1644
transfer corona 1644
vacuum blower (M105) 1651
Drum, PC (310 PPM and 324 PPM only) (90H1732) (-68) 3262
Drum, PC (All except 310 PPM and 324 PPM) (57G6461) (-68) 3262
drum box, desc 3803
drum clearance gauge, desc 3804
drum cover interlock - WD41 1826
drum drive, servo control - CD10 1915
drum drive, servo control overspeed - CD09 1914
drum drive, servo control time out - CD08 1913
drum drive motor overcurrent - CD07 1912
drum ground brush, removal 2478
drum motor, adjust 2484
drum motor, location 2053
drum motor (M107) driver routine 1641
drum motor (M107) encoder routine 1707
drum motor, removal 2479
drum motor drive belt, adjust 2484
drum motor drive belt, check 2485
drum motor drive belt, removal 2479
drum shaft extension, desc 3807
drum surface voltage adjustment routine 1701
drum surface voltage measurement routine 1698
Duct, Cooling Asm (57G6660) (-54) 3456
Duct, Cooling Asm (With enhanced rear stacker cooling (24H7986) (-56) 3458
Duct, Cooling Asm (With shutter design) (90H1376) (-56) 3458
Duct, Developer Asm (88F2416) (-106) 3204
Duct, Front Flange (06F0483) (-15) 3220
Duct, Rear Flange (06F0482) (-17) 3220
duplex, control unit AC control box - WD22.1 1804
duplex, control unit AC power control - WD21.1 1802
duplex, urge unit - WD69 1870
duplex printer 1 installation 3749

E

E-Clip (06F0409) (-296) 3416
E-Clip (88F3122) (-49) 3432
E0, change loop count 1629
E0XX codes 91, 1764
E1XX error codes 1772, 1773, 1774, 1775, 1776
E2, set buzzer on or off 1630
E4, read memory address 1631
E5, set optical sensor margin check on or off 1632
electrostatic voltmeter, check 2336
electrostatic voltmeter, desc 3807
electrostatic voltmeter holder, location 2082
EMC Clip(73H0898) (-2) 3560
EN122 - CD11 1916
EN122 - WD63/2A 1862
EN122, location 2059, 2125
EN123 - CD11 1916
EN123 - WD63/1A 1862
EN123, location 2059, 2125
EN131 - CD10 1924
EN131 - WD60/1A/2A 1858
EN131, location 2073
EN131, removal 2507, 2526
Enclosure (45G1965) (-117) 3188
Enclosure (88F3699) (-4) 3514
encoder, backup roll motor - CD19 1924
Encoder, Disk (88F2960) (-234) 3402
Encoder, Disk (90H2411) (-183) 3442
Encoder, Housing Asm (88F2958) (-230) 3402
Encoder, Tension Arm (88F2796) (-76) 3322
Encoder, Tension Arm Housing (88F2794) (-73) 3322
encoder routines 1705
encoders
backup idler roll motor - CD22 1927
backup idler roll position, removal 2526
backup roll encoder, removal 2507
backup roll motor - CD19 1924
BIR position encoder, location 2073
BUR position encoder, location 2073
EN122 - WD63/2A 1862
EN122, location 2059, 2125
EN123 - WD63/1A 1862
EN123, location 2059, 2125
EN131 - CD19 1924

encoders *(continued)*
EN131 - CD22 1927
EN131 - WD60/1A/2A 1858
EN131, location 2073
EN131, removal 2507, 2526
tension arm, location 2059, 2125
tension arm, removal 3090
tension arm encoder - CD11 1916
tractor motor - CD02 1907
end-of-forms, removal 2619
end of forms sensor - CD113 2018
end-of-forms sensor, adjust 2621
end-of-forms sensor, check 2620
entering CE or service mode 3622
entering password 3622
environmental range, recommended 3661
EOF lamps, stacker - WD59 1854
EOF lamps, stacker - WD59.1 1855
EOF LED, location 2081
EOF LED, Upper & Lower (PL103) (53F1784) (-40) 3198
EOF sensor, location 2056, 2085
EOF sensor (Q103) routine 1671
EOF Sensor Lower (Q103) (53F1783) (-113) 3204
EPO (emergency power off) 3725
EPROM 0517, location 2120
EPROM Kit (B1J11 Card) (310 PPM only) (24L9752) (-39) 3496
EPROM Kit (B1J11 Card) (324 PPM only) (24L5331) (-39) 3496
EPROM Kit (B1J11 Card) (IR1/IR2 with CP16X Card Only) (90H2754) (-39) 3496
EPROM Kit (B1J11 Card) (IR1/IR2 with CP17X Card only) (24L5329) (-39) 3496
EPROM Kit (B1J11 Card) (IR3/IR4 only) (24L5330) (-39) 3496
EPROM Kit (B1J11 Card) (IS1, ID1/ID2 only) (24L4551) (-39) 3496
EPROMs
0517, location 2120
B1J11, location 2130
B1J11, removal 2218
SC0101, removal 3021
SC0103, removal 3021
SC061, removal 3020
SC091, removal 3020
SCxxx card, parts 3458
stacker control card, parts 3458
Erase, Secondary Asm (57G6700) (-68) 3210
erase lamp - WD39 1823
Erase Lamp (PL101), (57G6508) (-70) 3212
Erase Lamp (PL102) (06F0089) (-35) 3208
erase lamp and usage meter - WD39 1823
erase lamp cover, location 2082
erase lamp starter, parts 3208
erase lamp starters, removal 2498
EREP
detail report 1749
program 1747
summary report 1748
error codes
driver routine 1772, 1773, 1774, 1775, 1776
error codes *(continued)*
E0XX 91, 1764
E1XX 1772, 1773, 1774, 1775, 1776
SRC cross-references 91, 1764
error log 1565
long 1569
long filtered 1570
printing multiple copies 1570
short 1570
short filtered 1570
ESCON adapter card (F50) (38L1525) (-16B) 3562
ESCON adapter card 7025, removal 2285
ESCON adapter card 7043, removal 2302
ESCON channel basic test 1574
ESCON channel wrap plug 3809
ESCON channel wrap test 1574
Ethernet Adapter Card 10/100BaseT (F50) (94H0823) (-16B) 3562
Ethernet test results 1579
Ethernet tests 1576
Ethernet thick coax (10Base5) wrap plug 3808
Ethernet thin coax (10Base2) wrap plug 3809
etl supply motor (M112 driver routine 1659
Europe, voltage adaptation for 3662
exerciser
driver 1633
run options 1628
sensor 1666
exerciser routines, running 1627

Exhaust Link Asm (57G5994) (-81) 3232
exit window (single beam), location 2102
exit window (two beam 240), location 2106
exit window (two beam 240/300), location 2110
Expander, Perforation (06F0987) (-75) 3490
extension cable, maintenance panel 3815

F

f-theta lens (single beam), location 2102
F-theta lens (single beam), parts 3268
F-Theta lens (single beam), removal 2667
f-theta lens (two beam 240), location 2106
F-theta lens (two beam 240), parts 3278
F-Theta lens (two beam 240), removal 2763
f-theta lens (two beam 240/300), location 2110
F-theta lens (two beam 240/300), parts 3292
F-Theta lens (two beam 240/300), removal 2871
Fan, #1 (73H3577) (-12) 3560
Fan, #2 (40H1424) (-12) 3560
Fan, #3 and #4 (40H1433) (-12) 3560
Fan, (B110, B111) (06F0194) (-62) 3232
Fan, (B403) (06F0194) (-4) 3494
Fan, (Without enhanced rear stacker cooling) (06F0194) (-46) 3456
Fan (06F0194) (-142) 3204
Fan (06F0194) (-31) 3198
Fan (06F0194) (-43) 3200
Fan (1) Asm (45G1875) (-4) 3510
Fan,(1) Asm (45G1875) (-4) 3508
Fan (2) Asm (45G1876) (-1) 3510
Fan,(2) Asm (45G1876) (-1) 3508
Fan (2179914) (-4A) 3536
Fan (22F9685) (-30) 3554
Fan (57G5989) (-109) 3236
Fan, Asm (B102) (06F0194) (-20) 3306
Fan, B108 & B109 (06F0194) (-53) 3210
fan, disk drive, location 2161
Fan, Front Printhead (B201) (53F1860) (-123S) 3296
Fan, Front Printhead (B201) (53F1860) (-123T) 3282
fan, logic, location 2161
Fan, Paper Cooling (B623, B624, B625) (53F1861) (-42) 3386
Fan, Paper Cooling (B626) (53F1861) (-215) 3400
fan, power supply, location 2160
Fan, Printhead Pressurizing Asm (B202) (04H0822) (-74) 3268
Fan, Printhead Pressurizing Asm (B202) (04H0822) (-74S) 3294
Fan, Printhead Pressurizing Asm (B202) (04H0822) (-74T) 3280
Fan, Rear Printhead (B201) (53F1860) (-123) 3272
Fan, Stacker Front Cooling (With enhanced front stacker cooling)(24H8035) (-89) 3460
Fan, Upper Rear Fuser (B603, B604, B605) (06F0194) (-142) 3396
Fan Asm, DASD Bay (00G3277) (-61) 3558
Fan Assembly, Power Supply (42F7434) (-14) 3552
Fan Guard (2546641) (-32) 3554
fans
  AC power supply cooling, location 2088, 2092
  B1 board, location 2057
  B101, rear upper process fan, location 2053
  B104, location 2072
  B104, parts 3214
  B108, location 2072
  B108, parts 3210
  B108, removal 2380
  B109, location 2072
  B109, parts 3210
  B109, removal 2380
  B110, removal 2382
  B111, removal 2382
  B111,location 2070
  B112, location 2070
  B112, removal 2382
  B115, location 2070
  B201 (single beam), location 2102
  B201 (single beam), parts 3272
  B201 (single beam), removal 2668
  B201 (two beam 240), location 2106

fans *(continued)*
B201 (two beam 240), parts 3282
B201 (two beam 240), removal 2765
B201 (two beam 240/300), location 2110
B201 (two beam 240/300), parts 3296
B201 (two beam 240/300), removal 2873
B202 (single beam), location 2102
B202 (single beam), parts 3268
B202 (single beam), removal 2687
B202 (two beam 240), location 2106
B202 (two beam 240), parts 3280
B202 (two beam 240), removal 2784
B202 (two beam 240/300), location 2110
B202 (two beam 240/300), parts 3294
B202 (two beam 240/300), removal 2892
B403, location 2057
B501, location 2088, 2092
B502, location 2088, 2092
B503, location 2088, 2092
B504, location 2088, 2092
B505, location 2088, 2092
B603, location 2057
B603, removal 3010
B604, location 2059
B604, removal 2329
B605, location 2076
B605, removal 2529
B623, location 2073
B623, removal 2574
B624, location 2073
fans *(continued)*
B624, removal 2574
B625, location 2073
B625, removal 2574
B626, location 2073
B626, removal 2575
B704, location 2120
B705, location 2120
cyclone blower, location 2063
DC 1 power supply cooling, location 2088, 2092
DC 2 power supply cooling, location 2088, 2092
developer cooling, removal 2380, 2382
developer left front, location 2072
developer left front, parts 3214
developer lower rear, location 2072
developer motor cooling, location 2070
developer right rear, location 2070
disk drive, location 2161
front printhead (two beam 240), parts 3282
fuser cooling, removal 2529
fuser paper cooling, removal 2574
fuser paper cooling fan, removal 2575
fuser upper rear, location 2076
high voltage power supply,, location 2059
high voltage power supply, removal 2329
laser cooling, location 2053
logic, location 2161
lower front developer, location 2072
fans *(continued)*
MIC, location 2152
paper cooling, location 2073
power supply, location 2160
printhead front (single beam), location 2102
printhead front (single beam), removal 2668
printhead front (two beam 240), location 2106
printhead front (two beam 240), removal 2765
printhead front (two beam 240/300), location 2110
printhead front (two beam 240/300), parts 3296
printhead front (two beam 240/300), removal 2873
printhead pressurizing (single beam), location 2102
printhead pressurizing (single beam), parts 3268
printhead pressurizing (single beam), removal 2687
printhead pressurizing (two beam 240), location 2106
printhead pressurizing (two beam 240), parts 3280
printhead pressurizing (two beam 240), removal 2784
printhead pressurizing (two beam 240/300), location 2110
printhead pressurizing (two beam 240/300), parts 3294
printhead pressurizing (two beam 240/300), removal 2892

fans *(continued)*
process right front, location 2070
process right rear, location 2070
rear printhead (single beam), parts 3272
rear upper process fan, B101, location 2053
right front process, location 2070
right rear developer, location 2070
stacker cooling, location 2120
stacker rear cooling, location 2057
stacker rear cooling, removal 3010
fast path 3620
Fastener, Asm (06F0811) (-59) 3446
Fastener Asm (06F0811) (-45A) 3450
FDDI adapter (F50), (73H3405) (-16) 3560
FDDI test results 1579
FDDI tests 1578
feature tools 3800
features, installation 3788
ferrite (Coax cables for Five-Beam Printheads only)(63H6643) 3584
Ferrite Bead (88F3390) (-157) 3274
Ferrite Bead (88F3390) (-157S) 3298
Ferrite Bead (88F3390) (-157T) 3284
Ferrite Bead (88F3391) (-158) 3274
Ferrite Bead (88F3391) (-158S) 3298
Ferrite Bead (88F3391) (-158T) 3284
Ferrite Bead (88F3391) (-40) 3208
Ferrite Bead (Coax) (57G6570) (-159) 3274
Ferrite Bead (Located on FL061 cable) (88F3391) (-36) 3466
Ferrite core (88F2996) (-155) 3206
Filter (04H0823) (-72S) 3294
Filter (04H0823) (-72T) 3280
Filter (53F1862) (-72) 3268
Filter (57G6547) (-24) 3494
Filter, Fine (04H0290) (-79) 3312
filter, fine, location 2053
Filter, Fuser (57G6510) (-287) 3416
Filter, Hot Roll Motor Blower (53F1979) (-131) 3394
Filter, Manifold Distribution (53F1980) (-203) 3400
Filter, Ozone (88F0930) (-97) 3194
Filter, Power Supply (88F3386) (-17) 3510
Filter, Power Supply (88F3386) (-19) 3508
Filter Asm, Power Supply (88F3387) (-18) 3510
Filter Asm, Power Supply (88F3387) (-20) 3508
filter in service logs 1565
filter pressure switch - CD116 2021
filter pressure switch, check 2182
filter pressure switch, location 2054
filter pressure switch, removal 2182
filter pressure switch (S102) routine 1668
filters
fine, location 2053, 2063
fine filter case 2183
fuser cooling, location 2073
laser safety (single beam), location 2103
laser safety (two beam 240), location 2107
laser safety (two beam 240/300), location 2110
filters *(continued)*
manifold distribution, location 2063
manifold distribution, removal 2185
ozone, location 2063
ozone, removal 2188
vacuum, location 2059
Fin, Swing (88F3341) (-24) 3462
Fin, Swing (88F3342) (-25) 3462
fine filter, location 2063
fine filter case, removal 2183
fine filter switch - CD121 2026
fine filter switch, check 2184
fine filter switch, location 2054
fine filter switch, removal 2184
fine filter switch (S108) routine 1668
Finger Belt Drive Motor, Left (M701) & C702 Asm, (88F3380) (-28) 3476
Finger Belt Drive Motor, Right (M702) & C703 Asm, (88F3381) (-27) 3482
finger belt motor left, location 2118
finger belt motors - CD25 1930
finger belt right motor, location 2118
finger belts, left, location 2118
finger belts right, location 2118
Finger Guard (06F0569) (-47) 3456
Finger Guard (06F0569) (-83) 3460
Finger Guard (With enhanced front stacker cooling)(06F0569) (-88) 3460
Fitting (88F3041) (-149) 3396
five-beam alignment target, desc 3811
five-beam printhead - CD53 1958
FL041 - CD35 1940
FL041 - WD59.3/1A 1857
FL041, adjust 2963, 3003
FL041, location 2120
FL041, parts 3474

FL041, removal 3001
FL061 - CD35 1940
FL061 - WD59.3/1A 1857
FL061, location 2120
FL061, parts 3466
FL061, removal 2960
FL061,adjust 2962
Flange (06F0806) (-14) 3444
Flange (88F2733) (-122) 3326
Flange, Ball Bearing (53F1808) (-12) 3316
Flange, Scavenger Roll Asm (88F2543) (-8) 3244
Flange, Scuff Roll Shaft Asm (45G1901) (-254) 3404
Flange and Bearing Asm (53F1841) (-151) 3252
Flange and Bearing Asm (53F1841) (-41) 3256
Flange and Bearing Asm (53F1841) (-58) 3246
Flange and Bearing Asm, Rear (53F1971) (-61) 3388
Flange Housing (53F1842) (-36) 3254
Flange Housing (53F1842) (-53) 3244
Flange Housing and Bearing Asm (Rear) (53F1841) (-45) 3238
Flange Housing and Bearing Asm (Rear) (53F1841) (-7) 3238
Follower, Cam (06F0650) (-168) 3398
Foot, Jack (06F0754) (-101) 3392
Foot, Rubber (88F3411) (-98) 3184
form width sensor board (PW091) routine 1674
forms alignment guideline, location 2064
forms guide, upper 3045
Forms Length Belt, (65F6163) (-16) 3466
forms length card, stacker switch panel - WD59.3 1857
forms length control - CD37 1942
Forms Length Drive Belt, (65F6164) (-30) 3466
forms length drive belts, adjust 2961
Forms Length Drive Motor, (M707) (53F1996) (-43) 3468
forms length mechanism 2961
forms length rotary board, adjust 2963
Forms Length Rotary Sensor Board (FL041) (53F1995) (-113) 3474
forms length sensor, stacker - CD35 1940
Forms Length Sensor Board, (FL061) (57G6529) (-36) 3466
forms length sensor board ,adjust 2962
forms length sensor board, location 2120
forms length sensor board, removal 2960
forms length sensor card (FL061), routine 1681
forms path sensors (YS011 card) - WD63 1862
forms select switch, location 2116
forms select switch (SW721), routine 1689
forms width card, stacker switch panel - WD59.3 1857
forms width display (LD091) driver routine 1659
forms width display, location 2118
forms width display, removal 2957
forms width guide, adjust 2964
forms width hall sensor - CD04 1909
Forms Width LED Asm Board, (LD091) (53F1994) (-40) 3456
forms width sensor - CD05 1910
forms width sensor board 3048
forms width sensor board, location 2123
forms width sensor board, removal 3046
forms width sensor board circuit breaker (PW091) routine 1676
forms width sensor cb - CD05 1910
four-beam alignment target, desc 3811
four-beam printhead - CD52 1957
Frame, Retractor Asm (88F2851) (-1) 3350
Front, Cleaner Brush Hub (88F2480) (-69) 3224
front wrap sensors - CD14 1919
FS051, removal 2528
FS053, removal 2528
FS071, removal 2528
FS551, removal 2528
Fuse (04H0210) (-16) 3510
Fuse (04H0210) (-18) 3508
Fuse, 3A 250V (53F1777) (-146) 3206
Fuse, 5A (855251) (-201) 3540
fuser
  backup idler roll, removal 2522
  backup idler roll motor, removal 2524
  backup idler roll position encoder board, removal 2526
  backup roll, removal 2503

fuser *(continued)*
backup roll discharge brush, adjust 2506
backup roll discharge brush, removal 2505
backup roll encoder, removal 2507
backup roll lift motor, removal 2509
backup roll lift motor drive belt, removal 2512
backup roll lift position sensor, removal 2520
backup roll load motor, removal 2521
control box, location 2079, 2080
cooling fan, removal 2529
front wrap sensors - CD14 1919
fuser oil empty - CD117 2022
fuser wrap sensor, removal 2530, 2532
hot roll, removal 2537
hot roll collars, removal 2537
hot roll drive assembly, removal 2535
hot roll drive collar, removal 2540
hot roll drive motor, adjust 2545
hot roll drive motor, removal 2541
hot roll drive motor blower, removal 2546
hot roll front hub, removal 2548
hot roll lamp end cap, removal 2554
hot roll lamp receptacle contacts, removal 2556
hot roll lamps, removal 2550
hot roll over-temperature sensor, adjust 2561
hot roll over-temperature sensor, removal 2560
fuser *(continued)*
hot roll temperature sensor, adjust 2559
L701 - CD16 1921
L701 - CD17 1922
L702 - CD16 1921
L702 - CD17 1922
L703 - CD16 1921
L703 - CD17 1922
L704 - CD17 1922
L705 - CD17 1922
L706 - CD17 1922
location, front 2073
location, rear 2076
oil port assembly, removal 2568
oil pump, removal 2569
oiler belt end switch - CD118 2023
oiler belt end switch, adjust 2563
oiler belt end switch, removal 2562
oiler belt motor, adjust 2565
oiler belt motor- CD21 1926
oiler belt motor, removal 2564
oiler gate interlock switch, adjust 2567
oiler gate interlock switch, removal 2566
oiler gate open switch - CD119 2024
paper cooling fan, removal 2575
paper cooling fans, removal 2574
preheat control - CD74 1979
preheat control, removal 2583
preheat platen - CD73 1978
preheat platen frame, adjust 2518
preheat platen thermal - CD75 1980
S605 - CD119 2024
S610 - CD118 2023
fuser *(continued)*
S702 - CD117 2022
scuff pressure rollers, adjust 2589
scuff pressure rollers, removal 2586
scuff roll, removal 2590
scuff roll drive belt, adjust 2593
scuff roll drive motor, removal 2592
scuff roll drive motor belt, removal 2592
scuff roller pressure, check 2588
shutter motor, removal 2603
skew sensor, adjust 2607
skew sensor, removal 2604
steering motor, removal 2611
vacuum shutter, removal 2596
vacuum shutter home sensor, adjust 2602
vacuum shutter home sensor, removal 2599
fuser and stacker sensors (FSxxx & HR091) - WD58 1853
fuser cooling fan, removal 2529
fuser cooling filter, location 2073
fuser driver routine 1657
fuser fan upper rear , location 2076
fuser front wrap sensor, location 2075
fuser front wrap sensor (S617) routine 1679
fuser oil filter screen, change 3720
fuser paper cooling fan, removal 2574, 2575
fuser rear wrap sensor, location 2075
fuser rear wrap sensor (S618) routine 1679
fuser sensors (FSxxx and FUxxx cards) - WD64 1863

fuser sensors (FSxxx card) - WD65 1864
fuser wrap sensor, removal 2530, 2532
fuser wrap sensor (S620) routine 1680

G

gap adjustments
  charge corona to PC drum, adjust 2318
  charge corona to PC drum, check 2316
  deflector plate to PC drum 3040
  developer clearances 2486
  developer to PC drum 2446
  mag brush A to scraper 2462
  mag brush C to scraper 2459
  mag rolls to doctor blade 2453
  PC drum clearances 2486
  preclean corona to PC drum, adjust 2323
  primary erase lamp cover to PC drum 2499
  retractor to PC drum, adjust 3066
Gasket, EMC (F50) (93H3144) (-18) 3562
Gasket, EMC (F50) (93H3145) (-19) 3562
gate open switch, oiler - CD119 2024
gate open switch, stacker - CD120 2025
gauges
  doctor/scraper 3803
  drum clearance 3804
  pressure 3818
Gear (45F4593) (-205) 3370
Gear (88F1638) (-105) 3324
Gear (88F1638) (-14) 3420
Gear (88F3155) (-162) 3440
Gear, Bridge Feed Belt (88F1649) (-15) 3420
Gear, Bridge Feed Belt (88F1649) (-63) 3422
Gear, Drive (53F1968) (-120) 3392
Gear, Drive (88F3228) (-28) 3466
Gear, Driven (88F3255) (-116) 3474
Gear, Drum Drive (88F2607) (-30) 3260
Gear, Helical (88F3301) (-96) 3492
Gear, Hot Roll (53F1967) (-63) 3388
Gear, Idler (53F1966) (-113) 3392
Gear, Idler (88F2608) (-34) 3260
Gear, Idler (Europe 50 Hz) (88F3079) (-73) 3422
Gear, Lift (06F0150) (-225) 3402
Gear, Lift (06F0150) (-238D) 3408
Gear, Worm (06F0969) (-90) 3492
Gearbox, 50 Hz (04H0778) (-26) 3476
Gearbox, 50 Hz (06F0196) (-109) 3492
Gearbox, 50 Hz (65F6156) (-26) 3476
Gearbox, 60 Hz (04H0779) (-27) 3476
Gearbox, 60 Hz (53F2000) (-110) 3492
Gearbox, 60 Hz (65F6157) (-27) 3476
Gearbox, Asm 50 Hz (65F6156) (-25) 3482
Gearbox, Asm 60 Hz (65F6157) (-26) 3482
Gearbox, Backup Idler Roll Motor (06F0147) (-135D) 3394
Gearbox, Bridge Feed Motor (53F1880) (-98) 3424
Gearbox, Bridge Lift Motor (53F1879) (-71) 3422
Gearbox, BUR Motor (06F0147) (-135) 3394
Gearbox, Capstan Pinch Roll Open Asm (53F1806) (-97) 3322
Gearbox, Capstan Roll Motor (53F1805) (-89) 3322
Gearbox, Oiler Belt Motor (06F0164) (-7) 3444
Gearhead, Toner Control Asm (45G1896) (-113) 3248
Graphics Adapter GXT110P Card (F50), (93H2534) (-16) 3560
gray print sample 1605
Grommet (88F2720) (-193) 3332
Ground, A (57G6652) (-73) 3242
Ground, B (57G6653) (-74) 3242
ground pin 3665
Ground Strip (22F9503) (-43) 3556
grounded neutral verification test 3664
guage, doctor/scraper, 0.7 mm P/N24L4484 3799
Guard (4511305) (-5A) 3536
Guard, B201 Finger (06F0569) (-124) 3272
Guard, B201 Finger (06F0569) (-124S) 3296
Guard, B201 Finger (06F0569) (-124T) 3282
Guard, Fan (06F0569) (-41) 3230
Guard, Finger (06F0569) (-143) 3396
Guard, Finger (06F0569) (-32) 3198
Guard, Finger (06F0569) (-43) 3386
Guide (05L5442) (-210) 3370
Guide, Ball Bearing (88F3261) (-37) 3478
Guide, C Spring (88F2443) (-125) 3214

Guide, Cable (88F2840) (-94) 3322
Guide, Cam (88F2673) (-5) 3306
Guide, Card (73H3531) (-10) 3560
Guide, Charge Corona (57G6715) (-167) 3218
Guide, Forms, Right (88F3272) (-33) 3484
Guide, Forms Width (88F3245) (-93) 3470
Guide, Holder (04H0560) (-73) 3232
Guide, Holder (57G6739) (-116) 3236
Guide, Holder Asm (04H0559) (-72) 3232
Guide, Line (88F3399) (-84) 3184
Guide, Line (88F3401) (-85) 3184
Guide, Lower Paper (30H6930) (-135) 3216
Guide, Maintenance Panel (88F2885) (-47) 3358
Guide, Paper Asm (30H3176) (-227) 3336
Guide, Spring (88F2401) (-36) 3198
Guide, Spring (88F2883) (-34) 3356
Guide, Sub Holder (57G6740) (-118) 3236
Guide, Table (88F2671) (-2) 3306
Guide, Tube (88F2721) (-194) 3332
guides
  input, location 2081
  lower forms, location 2123
  upper forms, location 2082

H

Handle, Transfer Station Release (88F3339) (-238) 3338
Handle, Yoke (88F3340) (-340) 3346
Head, Gear Asm 50 Hz (310 PPM only) (04H1099) (-93) 3242
Head, Gear Asm 50 Hz (324 PPM only) (90H1295) (-93) 3242
Head, Gear Asm 50 Hz (All except 310 PPM, 324 PPM, and IR1/IR2) (45G1898) (-93) 3242
Head, Gear Asm 50 Hz (IR1/IR2 only) (89H9999) (-93) 3242
Head, Gear Asm 60 Hz (310 PPM only) (04H1091) (-94) 3242
Head, Gear Asm 60 Hz (324 PPM only) (90H1296) (-94) 3242
Head, Gear Asm 60 Hz (All except 310 PPM, 324 PPM, and IR1/IR2) (45G1899) (-94) 3242
Head, Gear Asm 60 Hz (IR1/IR2) (90H2301) (-94) 3242
Head, Gear Toner Feed Asm (45G1900) (-64) 3258
height switches, stacker table - CD34 1939
hexadecimal-to-decimal conversion 1777
High Voltage Cable, (Preclean Corona) (53F1866) (-38) 3208
High Voltage Cable (Charge Corona) (53F1867) (-171) 3218
High Voltage Cable (Precharge Corona) (53F1868) (-100) 3214
High Voltage Power Supply (45G1856) (-151) 3206
high voltage power supply, location 2059
high voltage power supply, removal 2328
high voltage power supply fan, location 2059
high voltage power supply fan, removal 2329
high voltage to coronas - WD40 1825
Hinge (88F2620) (-16) 3264
Hinge, Cleaner Brush Front Cap (88F2485) (-79) 3224
Hinge, Cover Asm (88F3398) (-81) 3184
Hinge, Cover Asm (88F3405) (-92) 3184
Hinge, Cover Asm (88F3406) (-93) 3184
Hinge, Cover Asm (88F3408) (-95) 3184
Hinge, Cover Asm (88F3416) (-103) 3184
Hinge, Cover Asm (InfoPrint 4000) (90H2360) (-81A) 3184
Hinge, Front (30H2956) (-24C) 3532
Hinge, Left Side (30H2958) (-23C) 3532
Hinge, Oiler Gate (88F2920) (-104) 3392
Hinge, Rear (30H2957) (-10C) 3532
Hinge, Right Side (30H2959) (-12C) 3532
HL1 - WD34/2B 1819
HL2 - WD34/2B 1819
HL3 - WD34/2B 1819
HL4 - WD34/2B 1819
Holder, (S103) (06F0495) (-30) 3220
Holder (88F1630) (-126) 3204

Holder (88F1630) (-47) 3200
Holder (88F2438) (-106) 3214
Holder (88F2706) (-46) 3310
Holder (88F2707) (-47) 3310
Holder, AO Driver (30H6734) (-136S) 3298
Holder, AO Driver (30H6734) (-136T) 3284
Holder, AO Lock (30H6508) (-28A) 3264
Holder, Ball Bearing (53F1808) (-254D) 3410
Holder, Ball Bearing (53F1808) (-261D) 3412
Holder, Ball Bearing Asm (06F0227) (-10) 3462
Holder, Ball Bearing Asm (06F0914) (-10) 3476
Holder, Ball Bearing Asm (06F0931) (-9) 3482
Holder, BD121 (57G6781) (-98) 3270
Holder, BD132 (57G6781) (-98S) 3294
Holder, BD132 (57G6781) (-98T) 3280
Holder, Beam Detect Mirror (08H7674) (-44T) 3276
Holder, Beam Detect Sensor (04H0812) (-97S) 3294
Holder, Beam Detect Sensor (04H0812) (-97T) 3280
Holder, Blower (06F0731) (-53) 3310
Holder, Blower (88F2968) (-129) 3394
Holder, Blower (88F3181) (-52) 3456
Holder, Blower Asm (57G6659) (-50) 3456
Holder, Brake Asm (30H5521) (-112A) 3324
Holder, Brush (88F2413) (-99) 3202
Holder, Brush (88F2414) (-100) 3202
Holder, Brush (88F2611) (-53) 3262
Holder, Brush (88F2876) (-2) 3356
Holder, Brush PY (88F2801) (-271) 3340
Holder, Charge Corona Connector (06F0510) (-168) 3218
Holder, Connector (88F2426) (-26) 3208
Holder, Connector (88F2428) (-37) 3208
Holder, Connector (88F3383) (-91) 3390
Holder, Connector on IF041 Card (04H0896) (-160) 3206
Holder, Connector on IF411 Card (90H1029) (-160) 3206
holder, corona wire (front) (90H1036) (-88) 3212
holder, corona wire (rear) (90H1037) (-87) 3212
Holder, Cyclone Blower (88F2703) (-39) 3310
Holder, Dove Prism (08H7668) (-5s) 3290
Holder, Driven Shaft (88F2854) (-10) 3350
Holder, Exhaust (57G5982) (-56) 3232
Holder, Filter Asm (88F2982) (-202) 3400
Holder, Front Doctor (02N7864) (-40) 3230
Holder, Hinge (88F2829) (-294) 3342
Holder, Hinge (88F2831) (-164) 3330
Holder, Hinge Asm (88F2828) (-293) 3342
Holder, Hinge Asm (88F2830) (-163) 3330
Holder, Laser (04H0820) (-108S) 3294
Holder, Laser (04H0820) (-108T) 3280
Holder, Laser (57G6629) (-108) 3270
Holder, Laser Safety Filter Lens (88F2662) (-151) 3274
Holder, Laser Safety Filter Lens (88F2662) (-151S) 3298
Holder, Laser Safety Filter Lens (88F2662) (-151T) 3284
Holder, LED (88F3276) (-46) 3484
Holder, LED (88F3277) (-47) 3484
Holder, Link (88F2773) (-316) 3344
Holder, Link (88F2867) (-35) 3352
Holder, Mag Brush Bias Contact (57G5957) (-105) 3248
Holder, Magnet Asm (06F0522) (-277) 3340
Holder, Mirror 1 (88F3252) (-109) 3472
Holder, Modulator AO (04H0368) (-12A) 3264
Holder, Modulator AO (04H0369) (-22A) 3264
Holder, Modulator AO (88F2618) (-12) 3264
Holder, Modulator AO (88F2622) (-22) 3264
Holder, Motor (88F2606) (-23) 3260
Holder, Motor (88F3078) (-72) 3422
Holder, Motor (88F3091) (-94) 3424
Holder, Plate (57G4446) (-46) 3244
Holder, Preclean and Erase (90H2710) (-155) 3216

Holder, Rail (88F3280) (-11) 3486
Holder, Rail (88F3281) (-21) 3486
Holder, Rail Asm (04H0561) (-77) 3232
Holder, Read Switch (88F2677) (-14) 3306
Holder, Rear Doctor (02N7865) (-39) 3230
Holder, Return Mirror (88F2644) (-66) 3268
Holder, Return Mirror (88F2644) (-66S) 3292
Holder, Return Mirror (88F2644) (-66T) 3278
Holder, Return Mirror (88F3389) (-81) 3268
Holder, Return Mirror (88F3389) (-81S) 3294
Holder, Return Mirror (88F3389) (-81T) 3280
Holder, Safety Bail (88F3264) (-46) 3478
Holder, Sensor (57G4447) (-45) 3244
Holder, Sensor (88F3092) (-28) 3208
Holder, Sensor (88F3278) (-52) 3484
Holder, Sensor Bracket (30H6611) (-106) 3472
Holder, Shaft (06F0519) (-3) 3260
Holder, Splice Lever Switch (06F1129) (-101) 3360
Holder, Spring (57G6618) (-59D) 3382
Holder, Spring (57G6813) (-9) 3380
Holder, Spring (88F2446) (-129) 3214
Holder, Spring (88F2448) (-132) 3214
Holder, stacker front cooling (With enhanced front stacker cooling) (-86) 3460
Holder, Switch (88F2786) (-281) 3342
Holder, TB (Europe 50 Hz) (88F2397) (-23) 3198
Holder, TB (US 60 Hz) (88F2396) (-22) 3198
Holder, Tension Arm Encoder (88F2793) (-72) 3322
Holder, Toner Bag Asm (88F2666) (-9) 3306
Holder, Toner Collector (88F2711) (-70) 3312
Holder, Toner Empty (57G4425) (-75) 3258
Holder, Toner Feed Motor (57G4426) (-63) 3258
Holder, Transfer Corona Shield (06F0684) (-184) 3332
Holder, Transfer Corona Shield Reel (88F2803) (-177) 3332
Holder, Transfer Sensor (88F2451) (-138) 3216
Holder, Transfer Station Sensor (88F2454) (-149) 3216
Holder, Valve Asm (06F1127) (-99) 3360
Holder, VI111 Mounting (88F1630) (-94) 3270
Hopper, Toner Inlet (88F2571) (-142) 3250
Hose (88F2900) (-130) 3364
Hose, Cyclone (88F2680) (-66) 3312
Hose, Developer Asm (88F2417) (-108) 3204
Hose, Vacuum (06F0342) (-63) 3312
Hose, Vacuum (88F2984) (-206) 3400
hot roll 3638
hot roll, location 2073
hot roll, removal 2537
hot roll collars, removal 2537
hot roll control card, location 2064
hot roll drive assembly, removal 2535
hot roll drive collar, removal 2540
hot roll drive motor, adjust 2545
hot roll drive motor, removal 2541
hot roll drive motor blower, removal 2546
hot roll front hub, removal 2548
hot roll lamp 1 - CD83 1988
hot roll lamp 1 relay - CD82 1987
hot roll lamp 2 - CD85 1990
hot roll lamp 2 relay - CD84 1989
hot roll lamp 3 - CD87 1992
hot roll lamp 3 relay - CD86 1991
hot roll lamp 4 - CD89 1994
hot roll lamp 4 relay - CD130 2035
hot roll lamp 4 relay - CD88 1993
hot roll lamp control - CD79 1984
hot roll lamp end cap, removal 2554
hot roll lamp receptacle contacts, removal 2556
hot roll lamps, AC distribution - WD34 1819
hot roll lamps, location 2073
hot roll lamps, removal 2550
hot roll motor, location 2076
hot roll motor (M607) driver routine 1652
Hot Roll Motor (M607) Encoder routine 1708
hot roll motor blower - CD128 2033
hot roll motor blower (B602) routine 1688

hot roll motor blower, location 2076
hot roll motor brushes 3638
hot roll motor over-current detection - CD81 1986
hot roll motor servo control - CD20 1925
hot roll over-temperature sensor - CD77 1982
hot roll over-temperature sensor, adjust 2561
hot roll over-temperature sensor, location 2075
hot roll over-temperature sensor, removal 2560
hot roll soft start sensors - CD80 1985
hot roll temperature control - CD76 1981
hot roll temperature control sensor - CD78 1983
hot roll temperature control sensor, location 2073
hot roll temperature sensor, adjust 2559
hot roll temperature sensor, removal 2558
hot roll thermistor, location 2075
Housing, Encoder Asm (04H1060) (-227D) 3408
Housing, Gear (88F2937) (-112) 3392
Housing, Scavenger Ball Bearing Asm (324 PPM only) (11L5165) (-22) 3244
Housing, Scavenger Ball Bearing Asm (All except 324 PPM) (45G1895) (-22) 3244
Housing, Urge (57G6488) (-201) 3368
housing motor, cleaner - CD67 1972
HR091, location 2064
HR091, removal 2534
HSW0, location 2130
HSW1, location 2130
Hub, Belt Drive (06F0359) (-18) 3444
Hub, Hot Roll, Front Asm (For “B” lamps only) (11L5177) (-297) 3418
Hub, Hot Roll, Front Asm (For “L” lamps only) (88F2948) (-297) 3418
Hub, Scuff Roll (06F0156) (-262) 3406
Hub and Bearing Asm, Hot Roll, Rear (53F1970) (-66) 3388
Hubs, Drum Asm (57G6761) (-65) 3262

I

I/O Flex Circuit (8184811) (-50) 3556
I/O planar, location 2161
I/O Planer (40H7517) (-39) 3556
Idler, Asm (57G5965) (-84) 3246
Idler, Support (57G5964) (-85) 3248
Idler, Toner Feed Asm (57G4443) (-69) 3246
Idler Asm, (310 PPM, 324 PPM only) (04H1088) (-56) 3240
Idler Asm, (All except 310 PPM and 324 PPM) (57G4415) (-56) 3240
Idler Asm (57G4411) (-66) 3242
Idler Asm, Mag Roll A (310 PPM, 324 PPM, and IR1/IR2 only) (90H2396) (-61) 3242
Idler Asm, Mag Roll A (All except 310 PPM, 324 PPM, and IR1/IR2) (57G4413) (-61) 3242
idler pulley, location 2067
Idler Pulley Asm (310 PPM, 324 PPM, and IR1/IR2 only) (04H1088) (-63) 3242
Idler Pulley Asm (310 PPM, 324 PPM and IR1/IR2 only) (04H1087) (-58) 3240
Idler Pulley Asm (All except 310 PPM, 324 PPM, and IR1/IR2) (45G1897) (-58) 3240
Idler Pulley Asm (All except 310 PPM, 324 PPM, and IR1/IR2) (45G1897) (-63) 3242
IF041, location 2113
IF041 Card (06F0389) (-60) 3202
IF411, location 2114
IF411 Card (24H8325) (-60) 3202
IF421, location 2115
IF421 Card (04H0834) (-60) 3202
IF461 Card (90H1363) (-60) 3202
impedance grounded neutral 3663
increase toner concentration 1699
initialize mag brush rolls position, adjust 2451
Inlet, Developer Mix (88F2523) (-101) 3236
inlet, developer mix, location 2066
inlet toner, location 2066
input area
location 2081
input bin, remove 3673
input bin left side cover, location 2081
input guide, location 2081
input guide chad brush, location 2081
install ozone filter 3678
installation
CE responsibilities 3654

installation *(continued)*
customer responsibilities 3654
tools required 3656
installation, features 3788
instructions for PM procedures 3625
intelligent interface wrap plug, desc 3808
intelligent interface wrap test 1584
intelligent postprocessor interface wrap plug 'B' - WD85 1897
intelligent postprocessor to MIC - WD83 1894
interface signals, pre/postprocessing 1589
interface test, printer 1582
interface test card, pre/postprocessing 1587
interface voltages, pre/postprocessing 1592
interface wrap test, coupled 1585
interface wrap test, intelligent 1584
interlock switch, pc drum cover - CD57 1962
interlock switch, pc drum cover - CD58 1963
interlocks
laser (single beam) 2648
laser (two beam 240) 2742
laser (two beam 240/300) 2849
internal control unit trace 1597
interpretation of sense bytes 1751
interrupt mirror (single beam), adjust 2712
interrupt mirror (single beam), check 2711
interrupt mirror (single beam), location 2103
Interrupter (06F1126) (-98) 3360
Isolator, (Does Not Require Screws) (81F7977) (-29) 3554
Isolator, (Requires Screws) (60X5703) (-29) 3554
Isolator (2597855) (-14) 3552
IT power distribution 3663

J

J01 (single beam), location 2154
J01 (two beam), location 2156
J13, power supply, location 2162
J14, power supply, location 2162
J16, power supply, location 2162
J165 - WD32/2B 1817
J165A - WD32/2B 1817
J166 - WD32/1B 1817
J166A - WD32/1B 1817
J205 - WD25.1/2A 1809
J205 - WD67.1/2A 1867
J205A - WD25.1/2A 1809
J205A - WD67.1/2A 1867
J208, location 2108
J216 - WD42.2/1A 1829
J216 - WD42.4/1A 1831
J216, location 2104, 2108
J216A - WD42.2/1B 1829
J216A - WD42.4/1A 1831
J216A, location 2104, 2109
J217 - WD26.1/2B 1811
J217A - WD26.1/2B 1811
J223 - WD26.1/2B 1811
J223A - WD26.1/2B 1811
J3, 16 Bit SCSI to DASD, location 2163
J36, CPU to I/O planar interface, location 2162, 2163
J37, external interface, location 2163
J38, 8 Bit SCSI to media, location 2163
J39, operator panel, location 2163
J40, power supply, location 2163
J401, location 2127
J402, location 2127
J41, power supply, location 2163
J464, location 2127
J465, location 2127
J466, location 2127
J467, location 2127
J468, location 2127
J469, location 2127
J470, location 2127
J471, location 2127
J472, location 2127
J473, location 2127
J475, location 2127
J476, location 2127
J477, location 2127
J478, location 2127
J479, location 2127
J480, location 2127
J481, location 2127
J483, location 2127
J484, location 2127
J59, diskette drive, location 2163
J650 - WD28/1B 1813
J650A - WD28/1B 1813
JA02 - WD22.1/2A 1804
JA02 - WD22/2A 1803
JA03 - WD22.1/2A 1804
JA03 - WD22/2A 1803

JA04 - WD22.1/2A 1804
JA04 - WD22/2A 1803
Japan, voltage adaptation for 3663
JC2 - WD22.1/2A 1804
JC2 - WD22/2A 1803
JH01 - WD20.1/2A 1799
JH01 - WD20.2/2A 1800
JH01A - WD20.1/2A 1799
JH01A - WD20.2/2A 1800
JJ1 - WD87/1B 1899
JJ12 - WD86/1B 1898
JJ2 - WD86/1A 1898
JJ3 - WD86/2A 1898
Jumper, Disk Drive (Not Shown) (61X7052) (-35) 3554
jumper, PJ136 - CD106 2011
Jumper, Shorting (88F3314) (-33) 3500
Jumper, Shorting (88F3315) (-34) 3500
Jumper, Shorting (88F3368) (-31) 3500
jumper plug, printer power 3819

K

K1 - WD22.1/2B 1804
K1 - WD22/2B 1803
K1–1 - WD22.1/2B 1804
K1–1 - WD22/2B 1803
K1–2 - WD22.1/1B 1804
K1–2 - WD22/1B 1803
K1–3 - WD22.1/1B 1804
K1–3 - WD22/1B 1803
K2 - WD22.1/1A 1804
K2 - WD22/1A 1803
K2–1 - WD22.1/1A 1804
K2–1 - WD22/1A 1803
K2–2 - WD22.1/1A 1804
K2–2 - WD22/1A 1803
K22 - WD22.1/2A 1804
K22 - WD22/2A 1803
K23 - WD22.1/2A 1804
K23 - WD22/2A 1803
K3 - WD22.1/2B 1804
K3 - WD22/2B 1803
K3–1 - WD22.1/1B 1804
K3–1 - WD22/1B 1803
K3–2 - WD22.1/1B 1804
K3–2 - WD22/1B 1803
K4 - WD21.1/2B 1802
K4 - WD21/2B 1801
K4–1 - WD21.1/1B 1802
K4–1 - WD21/1B 1801
K4–2 - WD21.1/2B 1802
K4–2 - WD21/2B 1801
K501 - WD16/1A 1792
K501 - WD18/1A 1795
K501 - WD19.1/2B 1797
K501 - WD19/2B 1796
K501 -WD17.1/2A 1794
K501 -WD17/2A 1793
K501 relay, location 2088, 2092
K502 - WD16/1A 1792
K502 - WD17.1/2A 1794
K502 - WD17/2A 1793
K502 - WD18/1A 1795
K502 - WD19.1/2B 1797
K502 - WD19/2B 1796
K502 relay, location 2088, 2092
K503 - WD16/1A 1792
K503 - WD17.1/1B/2B 1794
K503 - WD17/1B/2B 1793
K503 - WD18/1B 1795
K503 - WD19.1/1B/2B 1797
K503 - WD19/1B/2B 1796
K503 relay, location 2088, 2092
K505 - WD16/1B 1792
K505 - WD17.1/2B 1794
K505 - WD17/2B 1793
K505 - WD18/1B 1795
K505 - WD19.1/2B 1797
K505 - WD19/2B 1796
K505 relay, location 2088, 2092
K601 - WD35/1A 1820
K601, location 2080
Key (04H0899) (-123 3250
Key, 4 X 4 X 15 (Printers with Backup Roll Lift hardware) (88F1627) (-194) 3442
Key, 4 X 4 X 8 (90H2415) (-188) 3442
Key, shaft (13J6714) (-208) 3370
key mode switch, location 2158
Keylock - With Nut and Washer (51G9876) (-18) 3552
Keylock (51G9876) (-4) 3550
Knob (88F3710) (-7) 3514
Knob, Conveyor Roll (88F2525) (-2) 3238
Knob, Drum Asm (88F2613) (-69) 3262
Knob, Tractor Control (88F2835) (-273) 3340
Knockoff Sub-Asm (30H6921) (-19) 3220

L

L1 (single beam), removal 2680
L1 (two beam 240), removal 2777
L1 (two beam 240/300), removal 2885
L1 lamp, location 2073

L1 lens (single beam), location 2103
L1 lens (single beam), parts 3266
L1 lens (two beam 240), location 2107
L1 lens (two beam 240), parts 3278
L1 lens (two beam 240/300), location 2110
L1 lens (two beam 240/300), parts 3292
L101 - CD62 1967
L101 - WD56/2B 1850
L101, location 2068
L101, removal 2412
L102 - WD41.1/1B 1827
L102 - WD41/1B 1826
L102, location 2057
L102, parts 3204
L102 (single beam), removal 2679
L102 (two beam 240), removal 2776
L102 (two beam 240/300), removal 2884
L2 (single beam), removal 2682
L2 (two beam 240), removal 2779
L2 (two beam 240/300), removal 2887
L2 cache, location 2162
L2 lamp, location 2073
L2 lens (single beam), location 2103
L2 lens (single beam), parts 3264
L2 lens (two beam 240), location 2107
L2 lens (two beam 240), parts 3288
L2 lens (two beam 240/300), location 2111
L2 lens (two-beam 240/300), parts 3302
L3 lamp, location 2073
L4 lamp, location 2073
L401 - WD39.1/2A 1824
L401 - WD39/2A 1823
L401, location 2057
L601 - CD78 1983
L601 - WD65/1B 1864
L601, location 2073
L601, removal 2558
L701 - CD16 1921
L701 - CD17 1922
L701 - WD54.1/1B 1848
L701 - WD54/1B 1847
L701, driver routine 1653
L701, location 2059
L701 (oil pump) - WD54 1847
L701, removal 2569
L702 - CD16 1921
L702 - CD17 1922
L702 - WD54.1/1B 1848
L702 - WD54/1B 1847
L702, driver routine 1654
L702, location 2059
L702 (oil pump) - WD54 1847
L702, removal 2569
L703 - CD16 1921
L703 - CD17 1922
L703 - WD54.1/1B 1848
L703 - WD54/2B 1847
L703, driver routine 1654
L703, location 2059
L703, removal 2569
L704 - CD17 1922
L704 - WD54.1/2B 1848
L704, driver routine 1655
L704, location 2060
L704 (oil pump) - WD54 1847
L705 - CD17 1922
L705 - WD54.1/2B 1848
L705, driver routine 1655
L705, location 2060
L7056- CD17 1922
L706 - WD54.1/2B 1848
L706, driver routine 1656
L706, location 2060
Label (88F3700) (-5) 3514
Label, I/O Slots (73H2588) (-53) 3556
Label, Kit for Developer Front Cover (57G6731) (-88) 3234
Lamp, Erase Asm (57G6711) (-154) 3216
Lamp B1, Hot Roll (Europe 50 Hz) 240 V (11L5187) (-81) 3390
Lamp B1, Hot Roll (Japan 50/60 Hz) 220 V (11L5183) (-85) 3390
Lamp B1, Hot Roll (US/Canada 60 Hz) 230 V (11L5179) (-77) 3390
Lamp B2, Hot Roll (Europe 50 Hz) 240 V (11L5188) (-82) 3390
Lamp B2, Hot Roll (Japan 50/60 Hz) 220 V (11L5184) (-86) 3390
Lamp B2, Hot Roll (US/Canada 60 Hz) 230 V (11L5180) (-78) 3390
Lamp B3, Hot Roll (Europe 50 Hz) 240 V (11L5189) (-83) 3390
Lamp B3, Hot Roll (Japan 50/60 Hz) 220 V (11L5185) (-87) 3390
Lamp B3, Hot Roll (US/Canada 60 Hz) 230 V (11L5181) (-79) 3390
Lamp B4, Hot Roll (Europe 50 Hz) 240 V (11L5190) (-84) 3390
Lamp B4, Hot Roll (Japan 50/60 Hz) 220 V (11L5186) (-88) 3390
Lamp B4, Hot Roll (US/Canada 60 Hz) 230 V (11L5182) (-80) 3390

Lamp L1, Hot Roll (Europe 50 Hz) 240 V (57G6536) (-81) 3390
Lamp L1, Hot Roll (Japan 50/60 Hz) 220 V (57G6541) (-85) 3390
Lamp L2, Hot Roll (Europe 50 Hz) 240 V (04H0480) (-82) 3390
Lamp L2, Hot Roll (Japan 50/60 Hz) 220 V (04H0478) (-86) 3390
Lamp L2, Hot Roll (US/Canada 60 Hz) 230 V (04H0476) (-78) 3390
Lamp L2, Hot Roll (US/Canada 60 Hz) 230 V (57G6455) (-77) 3390
Lamp L3, Hot Roll (Europe 50 Hz) 240 V (04H0481) (-83) 3390
Lamp L3, Hot Roll (Japan 50/60 Hz) 220 V (04H0479) (-87) 3390
Lamp L3, Hot Roll (US/Canada 60 Hz) 230 V (04H0477) (-79) 3390
Lamp L4, Hot Roll (Europe 50 Hz) 240 V (57G6539) (-84) 3390
Lamp L4, Hot Roll (Japan 50/60 Hz) 220 V (57G6544) (-88) 3390
Lamp L4, Hot Roll (US/Canada 60 Hz) 230 V (57G6458) (-80) 3390
lamps
B1, B2, B3, B4, location 2073
erase, parts 3208
HL1 - WD34/2B 1819
HL2 - WD34/2B 1819
HL3 - WD34/2B 1819
HL4 - WD34/2B 1819
hot roll - CD79 1984
hot roll, location 2073
hot roll, removal 2550
hot roll 1 -CD83 1988
hot roll 1 relay - CD82 1987
lamps *(continued)*
hot roll 2 -CD85 1990
hot roll 2 relay - CD84 1989
hot roll 3 -CD87 1992
hot roll 3 relay - CD86 1991
hot roll 4 -CD89 1994
hot roll 4 relay - CD130 2035
hot roll 4 relay - CD88 1993
L1, L2, L3, L4, location 2073
PL101 - CD64 1969
PL101 - WD39.1/1B 1824
PL101 - WD39/1B 1823
PL101, location 2056, 2083
PL101, parts 3212
PL101, removal 2493
PL102 - CD63 1968
PL102 - WD39.1/1B 1824
PL102 - WD39/1B 1823
PL102, driver routine 1643
PL102, location 2083
PL102, parts 3208
PL102, removal 2490
primary erase - CD63 1968
primary erase, driver routine 1643
primary erase, location 2083
primary erase, removal 2490
primary erase lamp cover to PC drum gap 2499
primary erase lamp starter, location 2061
secondary erase - CD64 1969
secondary erase, location 2056, 2083
secondary erase, removal 2493
secondary erase lamp starter, location 2061
SR605 - CD82 1987
lamps *(continued)*
SR606 - CD84 1989
SR607 - CD86 1991
SR608 - CD130 2035
SR608 - CD88 1993
ST101 - WD39.1/1A 1824
ST101 - WD39/1A 1823
ST101, location 2061
ST101, parts 3208
ST102 - WD39.1/1A 1824
ST102 - WD39/1A 1823
ST102, location 2061
ST102, parts 3208
lamps, AC distribution to hot roll - WD34 1819
laser
aperture adjust (single beam) 2699
aperture adjust (two beam 240) 2799
aperture adjust (two beam 240/300) 2911
beam pattern adjustment (single beam) 2697
beam pattern adjustment (two beam 240) 2797
beam pattern adjustment (two beam 240/300) 2909
beam pattern check (single beam) 2696
beam pattern check (two beam 240) 2796
beam pattern check (two beam 240/300) 2908
beam power check (single beam) 2703
beam power check (two beam 240) 2803

laser *(continued)*
beam power check (two beam 240/300) 2914
cooling fan, location 2053
current meter (single beam), removal 2679
current meter (two beam 240), removal 2776
current meter (two beam 240/300), removal 2884
horizontal adjustment (single beam) 2692
horizontal adjustment (two beam 240) 2791
horizontal adjustment (two beam 240/300) 2903
L102, location 2057
laser, location 2053
laser (single beam), location 2103
laser (two beam 240), location 2107
laser (two beam 240/300), location 2110
laser current meter, location 2057
lens L1 (single beam), removal 2680
lens L1 (two beam 240)), removal 2777
lens L1 (two beam 240/300), removal 2885
lens L2 (single beam), removal 2682
lens L2 (two beam 240), removal 2779
lens L2 (two beam 240/300), removal 2887
LH101 - WD41.1/1B 1827
LH101 - WD41/1B 1826
laser *(continued)*
power adjustment A (single beam) 2705
power adjustment A (two beam 240) 2805
power adjustment A (two beam 240/300) 2916
power adjustment C (single beam) 2707
power adjustment C (two beam 240) 2807
power adjustment C (two beam 240/300) 2918
power supply (single beam), removal 2679
power supply (two beam 240), removal 2776
power supply (two beam 240/300), removal 2884
shutter (single beam), location 2103
shutter (two beam 240), location 2107
shutter (two beam 240/300), location 2111
single beam, removal 2669
two beam 240, removal 2767
two beam 240/300, removal 2875
laser, location 2053
laser (single beam), location 2103
laser (single beam), parts 3270
laser (single beam), removal 2669
laser (two beam 240), location 2107
laser (two beam 240), removal 2767
laser (two beam 240/300 - 324 PPM), parts 3294
laser (two beam 240/300), location 2110
laser (two beam 240/300), parts 3294
laser (two beam 240/300), removal 2875
laser asm (two beam 240), parts 3280
laser cooling fan, location 2053
Laser Current Meter (L102) (88F2420) (-137) 3204
laser current meter, location 2057
laser current meter (single beam), removal 2679
laser current meter (two beam 240), removal 2776
laser current meter (two beam 240/300), removal 2884
laser horizontal adjustment (single beam) 2692
laser horizontal adjustment (two beam 240) 2791
laser horizontal adjustment (two beam 240/300) 2903
laser modulator and beam detect - WD42 1828
Laser Package Asm (20 MW) (30H2786) (-107T) 3280
Laser Package Asm (20 MW) (two beam 240/300) (30H2786) (-107S) 3294
Laser Package Asm (30 MW) (Two Beam 240/300 - 324 PPM) (90H1276) (-107S) 3294
Laser Package Asm (49G8819) (-107) 3270
laser power and drum cover interlock - WD41 1826

Laser Power Supply (53F1865) (-134) 3204
Laser Power Supply (90H1277) (-134) 3204
laser power supply, location 2057
laser power supply (single beam), removal 2679
laser power supply (two beam 240), removal 2776
laser power supply (two beam 240/300), removal 2884
laser power tool, desc 3812
laser power tool support, desc 3813
laser ready driver routine 1659
laser safety filter (single beam), location 2103
laser safety filter (two beam 240/300), location 2110
laser safety filter(two beam 240), location 2107
laser shutter 2744, 2852
laser shutter (single beam) 2649
laser shutter (single beam), location 2103
laser shutter (two beam 240), location 2107
laser shutter(two beam 240/300), location 2111
Latch, Bracket (30H2989) (-2C) 3518
Latch, Cover (88F3404) (-91) 3184
Latch, Cover (88F3407) (-94) 3184
Latch, Cover (88F3410) (-97) 3184
Latch, Transfer Station (88F2824) (-237) 3338
Latch, Transfer Station Asm (88F2823) (-236) 3338
Latch, Transfer Station Yoke Hinge (88F2718) (-300) 3342
Latch, Unit (57G6816) (-20) 3380
Latch, Unit (57G6816) (-70D) 3382
LD091 - WD59.3/2B 1857
LD091, location 2118
LD091, parts 3456
LD091, removal 2957
LED, Vacuum (D602) (53F1891) (-188) 3400
LEDs
  CR1, location 2100, 2104
  CR1/CR2, location 2110
  CR2, location 2100
  D1–D7, location 2131
  D602 - WD58/2B 1853
  EOF, location 2081
  EOF LED, parts 3198
  forms width display, parts 3456
  LD091 - WD59.3/2B 1857
  LD091, parts 3456
  PL103 - WD58/2B 1853
  PL103, location 2081
  PL103, parts 3198
  PL701 - WD59.1/1B 1855
  PL701 - WD59/2B 1854
  PL701, location 2117
  PL701, parts 3472
  PL702 - WD59.1/2B 1855
  PL702 - WD59/2B 1854
  PL702, location 2118
  PL702, parts 3484
  PL703 - WD59.1/2B 1855
  PL703 - WD59/2B 1854
  PL703, location 2118
  PL703, parts 3472
LEDs *(continued)*
  power on, location 2169
  stacker height right, location 2118
  stacker jam, location 2117
  stacker jam, parts 3472
  stacker left height, location 2118
  stacker left height, parts 3472
  stacker right height, parts 3484
  vacuum, location 2064
left finger belt motor, adjust 2985
left finger belt motor (M701) driver routine 1648
left finger belt motor, removal 2984
left finger belts, adjust 2989
left finger belts, removal 2986
left stacker height sensor (Q703) routine 1693
length control, stacker forms - CD37 1942
length motor, stacker - CD36 1941
Lens, Cylinder CYL1 (08H7676) (-55S) 3292
Lens, Cylinder CYL1 (08H7676) (-55T) 3278
Lens, Cylindrical Asm (57G6774) (-55) 3266
Lens, F-theta (04H0810) (-62S) 3292
Lens, F-theta (04H0810) (-62T) 3278
Lens, F-theta (57G6775) (-62) 3268
Lens, L1 Asm (08H7675) (-54T) 3278
Lens, L1 Asm (57G6773) (-54) 3266
Lens, L1 Asm (90H1133) (-54S) 3292
Lens, L2 (04H0799) (-187S) 3302
Lens, L2 (88F2617) (-9) 3264
Lens, L2 (two beam 240), (04H0799) (-187T) 3288

Lens, Resolution Switching (two-beam 240/300) (90H1154) (-217S) 3304
lens L1 (single beam), removal 2680
lens L1 (two beam 240), removal 2777
lens L1 (two beam 240/300), removal 2885
lens L2 (single beam), removal 2682
lens L2 (two beam 240), removal 2779
lens L2 (two beam 240/300), removal 2887
lenses
CYL 1 (single beam), location 2102
CYL 1 (two beam 240), location 2106
CYL 1 (two beam 240/300), location 2110
CYL1 (single beam), parts 3266
CYL1 (single beam), removal 2665
CYL1 (two beam 240), parts 3278
CYL1 (two beam 240), removal 2761
CYL1 (two beam 240/300), parts 3292
CYL1 (two beam 240/300), removal 2869
cylinder (single beam), removal 2665
cylinder (two beam 240), location 2106
cylinder (two beam 240), parts 3278
cylinder (two beam 240), removal 2761
cylinder (two beam 240/300), location 2110
cylinder (two beam 240/300), removal 2869
cylinder lens (two beam 240/300), parts 3292
lenses *(continued)*
cylindrical (single beam), location 2102
cylindrical (single beam), parts 3266
f-theta (single beam), location 2102
F-theta (single beam), parts 3268
F-Theta (single beam), removal 2667
f-theta (two beam 240), location 2106
F-theta (two beam 240), parts 3278
F-Theta (two beam 240), removal 2763
f-theta (two beam 240/300), location 2110
F-theta (two beam 240/300), parts 3292
F-Theta (two beam 240/300), removal 2871
L1 (single beam), location 2103
L1 (single beam), parts 3266
L1 (single beam), removal 2680
L1 (two beam 240)), removal 2777
L1 (two beam 240), location 2107
L1 (two beam 240), parts 3278
L1 (two beam 240/300), location 2110
L1 (two beam 240/300), parts 3292
L1 (two beam 240/300), removal 2885
L2 (single beam), location 2103
L2 (single beam), parts 3264
L2 (single beam), removal 2682
L2 (two beam 240), location 2107
L2 (two beam 240), parts 3288
L2 (two beam 240), removal 2779
L2 (two beam 240/300), location 2111
L2 (two-beam 240/300), parts 3302
lenses *(continued)*
L2 (two beam 240/300), removal 2887
resolution switching (two beam 240/300), location 2111
resolution switching (two-beam 240/300), parts 3304
leveling the printer 3679
Lever (06F0868) (-29) 3308
Lever, Adjusting, Dove Prism (08H7670) (-11s) 3290
Lever, Adjusting, Dove Prism (08H7670) (-11T) 3276
Lever, CPU (73H3520) (-9) 3560
Lever, Exhaust Asm (88F2507) (-59) 3232
Lever, Forms Width Guide (88F3241) (-84) 3470
Lever, front (73H3525) (-9) 3560
Lever, Latch Asm (88F3262) (-42) 3478
Lever, rear (73H3529) (-9) 3560
Lever, Return Mirror Adjusting (04H0805) (-75S) 3294
Lever, Return Mirror Adjusting (04H0805) (-75T) 3280
Lever, Scuff Roll Release (88F2994) (-294) 3416
Lever, Scuff Roll Release (88F3019) (-198) 3400
Lever, Splice (06F1131) (-180) 3366
levers
scavenger roll, location 2066
scuff roll release, location 2064
splice, location 2116
transfer station open/close, location 2124

LH101 - WD41.1/1B 1827
LH101 - WD41/1B 1826
Lift Plate Asm (88F3378) (-323) 3346
Lift Plate Asm, Preheat Platen (90H1638) (-280R) 3414
light, attention, test 1582
Light, Attention Asm (88F3689) (-200) 3540
Line Cord, Chicago (53F1723) (-60) 3202
Line Cord, US 4 Wire (53F1722) (-60) 3202
Line Cord, WTC 4 Wire (53F1724) (-60) 3202
Line Cord, WTC 5 Wire (53F1725) (-60) 3202
Link, (A1) (88F3083) (-82) 3424
Link, (B) (88F3087) (-86) 3424
Link, (C2) (88F3084) (-83) 3424
Link, 1B (88F2869) (-37) 3352
Link, 2B (88F2868) (-36) 3352
Link, Asm (88F2866) (-34) 3352
Link, Pre-measure (88F2858) (-18) 3350
locations
200 volt power supply components 2088
200 volt power supply connectors 2086
400 volt power supply components 2092
400 volt power supply connectors 2090
7013-595 CPU planar connectors, locations 2162
7013-595 front view, locations 2158
locations *(continued)*
7013-595 I/O planar connectors, locations 2163
7013-595 internal view, locations 2161
7013-595 power supply connectors, locations 2164
7013-595 rear view, locations 2159
7025- F50 card loactions 2166
7025-F50 bays 2167
7043-43P external view 2168, 2170
air system 2063
auto load bridge 2064
B1 board connectors 2127
B1J1 card 2128
B1J10 card 2128
B1J11 card 2128
B1J11 components 2130
B1J3 card 2128
B1J5 card 2128
B1J7 card 2128
B1J8 card 2128
B1J9 card 2128
control unit, front 2146
control unit, rear 2148, 2150, 2152
developer carriage 2072
developer components (front) 2066
developer components (rear) 2067
developer-front 2068
developer-rear 2070
external covers 2345
FS051 2131
FS053 2131
FS071 2131
FS082 2131
FS083 2131
locations *(continued)*
FS551 2131
fuser - front 2073
fuser - rear 2076
fuser control box 2079, 2080
HR091 2133
input area 2081
internal service covers 2347
laser cooling fan 2053
PC and charging components 2082
PC211 2137
PC531 2137
PC551 2138
printer AC power supply 2084
printer components (1) 2053
printer components (2) 2055
printer components (3) 2057
printer components (4) 2059
printer interface 2113, 2114, 2115
printhead components (single-beam) 2102
printhead components (two-beam 240/300 DPI) 2110
printhead components (two-beam 240 DPI) 2106
printhead connectors (single-beam) 2100
printhead connectors (two-beam 240) 2104
printhead connectors (two-beam 240/300 DPI) 2108
PW091 2139
RB091 2135
RB092 2136
SC061 2140
SC091 2140

locations *(continued)*
SC101 2141
SC103 2141
SC106 2141
SC108 2141
side 1/side 2 verification card 2153
splicing station 2116
SQ081/SQ082 card 2142
stacker 2117, 2118
stacker control 2120
transfer station - lower 2122
transfer station - upper, front 2123
transfer station - upper, rear 2125
YS011 2144
Lock, Bearing (88F2582) (-15) 3254
Lock, Cord (Europe 50 Hz) (88F2399) (-26) 3198
Lock, Cord (US 60 Hz) (88F3371) (-19) 3198
Lock Nut, M5 (06F0407) (-29A) 3450
log, PM 3623
Logo, IBM cover (89H9677) 3186
Logo, Rear (70F9921) (-5) 3550
logs
bookmark 1565, 1566
details 1565
error 1565
filter 1565
MPSRC (definition) 1566
PM 1567
print 1568, 1569
printing multiple copies 1570
sense data 1565
service 1564
summary 1566
long error log 1569
long filtered error log 1570
loop test, MIC 1580
low voltage power supply & MIC fan - WD20 1798
low voltage power supply & MIC fan - WD20.1 1799
low voltage power supply & MIC fan - WD20.2 1800
lower forms guide, location 2123
lower forms guide, removal 3042
lower front tractor, removal 3113
lower preheat platen, location 2074
lower rear tractor, removal 3116
lower retractor, adjust 3060
lower retractor, removal 3059
lower tractor guide plates, adjust 3133
lower tractor guide plates, removal 3132
lower tractor positioning cable B, removal 3140, 3141
lower tractor timing, adjust 3146
LPS101 - WD41.1/2B 1827
LPS101 - WD41/1B 1826
lubrication
AC motor gear assemblies 2628
backup idler roll open/close mechanism 2628
backup roll open/close mechanism 2628
bridge-raising link 2628
cleaner housing cam assembly 2235, 2628
drum drive gear 2628
hot roll bearing assembly 2628
hot roll drive assembly 2536
hot roll drive gears 2628
lubrication *(continued)*
hot roll drive motor 2545
hot roll front hub 2549
hot roll NB collar (K) assembly 2628
PC drum shaft extension threads 2469, 2628
pendulum-driving link 2628
preheat platen lift plate assembly 2581, 2628
stacker belt guide shaft 2628
stacker table guide and screw shaft 2628
stacker table helical wheel mechanism 2628
vacuum shutter drive gear assembly 2628

M

M018 - CD65 1970
M1 (two beam 240), location 2107
M1 (two beam 240/300), location 2111
M1 mirror (single beam), adjust 2694
M1 mirror (single beam), location 2103
M1 mirror (two beam 240), adjust 2794
M1 mirror (two beam 240/300), adjust 2906
M101 - CD60 1965
M101 - WD29/1B 1814
M101 (3 phase AC motor) - WD29 1814
M101, adjust 2390
M101, location 2067, 2070
M101, removal 2389
M101, thermal sense - CD61 1966
M102 - WD30/2B 1815
M102, adjust 2420

M102, location 2067
M102, removal 2419
M102 (single phase AC motor) - WD30 1815
M103 - CD62 1967
M103 - WD30/2B 1815
M103, adjust 2408
M103, location 2067, 2068
M103, parts 3248
M103, removal 2407
M103 (single phase AC motor) - WD30 1815
M104 - CD71 1976
M104 - WD29/1B 1814
M104 (3 phase AC motor) - WD29 1814
M104, check 2177
M104, location 2063
M104, removal 2177
M105 - CD68 1973
M105 - WD29/2B 1814
M105 (3 phase AC motor) - WD29 1814
M105, check 2191
M105, location 2063
M105, removal 2191
M106 - CD67 1972
M106, adjust 2235
M106, check 2235
M106, location 2053
M106 (motor) - WD44 1834
M106, parts 3220
M106, removal 2233
M107 - WD45/2A 1835
M107, adjust 2484
M107, location 2053
M107 (motor) - WD45 1835
M107, overcurrent detection - CD07 1912
M107, removal 2479
M108 - WD29/2B 1814
M108 (3 phase AC motor) - WD29 1814
M108, adjust 2228
M108, check 2229
M108, location 2053
M108, parts 3222
M108, removal 2228
M108, thermal - CD66 1971
M108 assembly, removal 2227
M112 - WD32/2B 1817
M112 (AC motor) - WD32 1817
M112 ,adjust 2437
M112, removal 2431
M112, toner supply motor, location 2068
M2 (single beam), parts 3266
M2 (two beam 240), location 2107
M2 (two beam 240), parts 3276
M2 (two beam 240/300), location 2111
M2 mirror (single beam), adjust 2701
M2 mirror (single beam), check 2700
M2 mirror (single beam), location 2103
M2 mirror (two beam 240), adjust 2802
M2 mirror (two beam 240), check 2800
M2 mirror (two beam 240/300), adjust 2912
M2 mirror (two beam 240/300), parts 3290
M201 - CD49 1954
M201 - CD50 1955
M201 - WD46.1/1B 1837
M201 - WD46/2B 1836
M201 - WD67.1/1B 1867
M201 - WD67/1B 1866
M201 (motor) - WD46 1836
M201 (single beam), location 2103
M201 (single beam), parts 3264
M201 (single beam), removal 2684
M201 (two beam 240), location 2107
M201 (two beam 240), parts 3276
M201 (two beam 240), removal 2781
M201 (two beam 240/300 - 324 PPM), parts 3290
M201 (two beam 240/300), location 2111
M201 (two beam 240/300), parts 3290
M201 (two beam 240/300), removal 2889
M202 - WD46.2/1B 1838
M202 (motor) - WD46.2 1838
M202 (two beam 240/300), location 2111
M202 (two-beam 240/300), parts 3302
M202 (two beam 240/300), removal 2893
M301 - CD38 1943
M301 - WD30/1B 1815
M301, location 2060, 2125
M301, removal 3028
M301 (single phase AC motor) - WD30 1815
M302 - CD41 1946
M302 - WD30/1B 1815
M302, adjust 3039
M302, location 2060, 2125
M302, removal 3038
M302 (single phase AC motor) - WD30 1815
M303 - CD03 1907
M303 - WD47/2A 1839

M303, adjust 3112
M303, location 2060, 2125
M303 (motor) - WD47 1839
M303, removal 3111
M303 location 2060
M304 - CD01 1906
M304 - WD48/2A 1840
M304, adjust 3058
M304, location 2122
M304 (motor) - WD48 1840
M304, removal 3057
M601 - CD13 1918
M601 - WD49/2B 1841
M601, location 2064
M601 (motor) - WD49 1841
M601, removal 2611
M601 and skew sensor - WD49 1841
M602 - CD70 1975
M602 - WD50/1B 1842
M602, location 2064
M602 (motor) - WD50 1842
M602, removal 2603
M603 - CD18 1923
M603 - WD31/1B 1816
M603 (AC motor) - WD31 1816
M603, location 2076
M603, removal 2521
M604 - CD15 1920
M604 - WD33/1B 1818
M604 (AC motor) - WD33 1818
M604, location 2074
M604, removal 2592
M605 - CD42 1947
M605 - WD31/1B 1816
M605 (AC motor) - WD31 1816
M605, check 2198
M605, location 2060
M605, removal 2198
M606 - CD40 1945
M606 - WD31/1B 1816
M606 (AC motor) - WD31 1816
M606, adjust 2208
M606, check 2202, 2208
M606, removal 2202
M606,location 2060
M607 - CD20 1925
M607 - WD51/1A 1843
M607, adjust 2545
M607, location 2076
M607 (motor) - WD51 1843
M607, overcurrent detection - CD81 1986
M607, removal 2541
M608 - CD69 1974
M609 - CD22 1927
M609 - CD23 1928
M609 - WD31/2B 1816
M609 (AC motor) - WD31 1816
M609, location 2076
M609, removal 2524
M610 - CD24 1929
M610 - WD51.1/1B 1844
M610, location 2064
M610 (motor) - WD51.1 1844
M610, removal 2509
M701 - CD25 1930
M701 - WD33/1B 1818
M701 (AC motor) - WD33 1818
M701, adjust 2985
M701, location 2118
M701, parts 3476
M701, removal 2984
M702 - CD25 1930
M702 - WD33/2B 1818
M702 (AC motor) - WD33 1818
M702, adjust 2991
M702, location 2118
M702, parts 3482
M702, removal 2990
M704 - CD27 1932
M704 - WD52/1B 1845
M704, adjust 3006
M704, location 2117
M704 (motor) - WD52 1845
M704, overcurrent - CD28 1933
M704, removal 3004
M706 - CD21 1926
M706 - WD53/1B 1846
M706, adjust 2565
M706, location 2074
M706 (motor) - WD53 1846
M706, removal 2564
M707 - CD36 1941
M707 - WD53/2B 1846
M707, adjust 3000
M707, location 2120
M707 (motor) - WD53 1846
M707, parts 3468
M707, removal 2997
M803 - CD31 1936
M803 - WD33/2B 1818
M803 (AC motor) - WD33 1818
M803, location 2120
M803, parts 3492
M803, removal 3013
M901 - WD69/1B 1870
M902 - WD69/2B 1870
machine component damage 3663

mag brush A, location 2066, 2067, 2068, 2082
mag brush A to scraper gap, adjust 2462
mag brush angle, adjust 2464
mag brush B, location 2066, 2067, 2068, 2082
mag brush belt, adjust 2373
mag brush belt, removal 2372
mag brush bias - CD59 1964
Mag Brush Bias Contact (57G4451) (-106) 3248
mag brush bias voltage 2330
mag brush C, location 2066, 2067, 2068, 2082
mag brush C to scraper gap, adjust 2459
mag brush motor - CD60 1965
mag brush motor, adjust 2390
mag brush motor, location 2067, 2070
mag brush motor (M101) driver routine 1642
mag brush motor, removal 2389
mag brush motor, thermal sense - CD61 1966
mag brush rolls, adjust 2394
mag brush rolls, removal 2392
mag rolls to doctor blade gap, adjust 2453
maintenance
  operator cleaning 3619
  operator print-quality check 3619
  operator replacements 3619
  service tasks 3620
maintenance panel 1606
  adjustment routines 1695, 1696
maintenance panel 1606 *(continued)*
  driver routines 1633, 1635
  encoder routines 1705
  error codes 1772, 1773, 1774, 1775, 1776
  MP021 - WD43/1A 1833
  MP021, location 2081
  routines (by part ID) 1711, 1712, 1713, 1714, 1715, 1716, 1717
  run options 1628
  sensor routines 1662, 1663, 1666
maintenance panel - WD43 1833
maintenance panel, desc 3815
maintenance panel, location 2081
manifold distribution filter, location 2063
manifold distribution filter, removal 2185
Mask, Duct Asm (88F2387) (-113) 3194
MASW, location 2130
MD141, mirror motor driver board, location 2134
MD141, parts 3204
MD141 (single beam), removal 2685
MD141 (two beam 240), removal 2782
MD192, parts 3204
MD192 (two beam 240/300), removal 2890
MD192, voltage adjust 2638
mechanism diagnostics 1580
mechanism interface card (single beam), removal 2245
mechanism interface card (two beam), removal 2248
mechanism interface trace 1597
mechnaism interface card (single beam), location 2154
mechnaism interface card (two beam), location 2156
memory
  backup roll timing values 1722
  clear (position 8) 1725
  developer mix setting 1615, 1616, 1617, 1618
  memory addresses for backup roll timing values 1723
  oil feed rate 1615, 1617
  oiler belt cycle time 1615, 1617
  page counter 1616, 1618
  read from or write to 1611
  reading from 1612
  steering control changes 1615, 1617
  steering gain 1616, 1618
  steering pulley rotation 1615, 1617
  toner control program 1620, 1622
  toner feed button 1615, 1617
  values in addresses 1615, 1617
  writing to 1613
memory addresses for backup roll timing values 1723
memory card, (field converted IR3/IR4 only), location 2166
Memory Card (12H1331) (-41) 3556
Memory Card (30H6702) (-8A) 3524
Memory Card (90H2627) (-8A) 3524
Memory Card (93H2641) (-14) 3560
memory card, location 2161, 2166
memory card slots (A thru H), location 2162
Memory Module, 128MB (93H4702) (-15) 3560
Memory Module, 32MB (93H4700) (-15) 3560

Metal, D15 X 15 CU (88F1639) (-165) 3330
Metal, D15 X 15 CU (88F1639) (-295) 3342
meter
L102 3204
L102 - WD41.1/1B 1827
L102 - WD41/1B 1826
L102, location 2057
L401 - WD39.1/2A 1824
L401 - WD39/2A 1823
L401, location 2057
laser current , parts 3204
laser current, location 2057
usage meter, location 2057
meter - ESV, desc 3807
MIC (single beam), removal 2245
MIC (two beam), removal 2248
MIC card
basic test 1580
isolation wrap test 1734
isolation wrap test single beam printhead 1735
isolation wrap test two beam printhead 1738
LED display, reading 1580
loop test 1580
MIC Card (04H0693) (-16B) 3528
MIC Card (11L6149) (-16B) 3528
MIC Card (89H9831) (-21A) 3524
MIC Card (90H0987) (-16B) 3528
MIC Card (90H1150) (-21A) 3524
MIC Card (90H1315) (-16B) 3528
MIC fan - WD20 1798
MIC fan - WD20.1 1799
MIC fan - WD20.2 1800
MIC fans, location 2152
MIC memory card, parts 3524
mic side 2 verification test 1727
MIC to coupled pre/postprocessor interface - WD82 1893
MIC to intelligent postprocessor - WD83 1894
MIC to MIC SCSI cable 3766
MIC to operator alert assembly - WD79 1887
MIC to operator's panel - WD78 1886
MIC to printer control cable (1 of 2) - WD76 1884
MIC to printer control cable (2 of 2) - WD77 1885
MIC wrap cable (PJJ2, PJJ3 and PJJ12) - WD86 1898
MIC wrap plugs 3816
MIC wrap plugs (PJJ1 and PJJ6) - WD87 1899
micr print sample 1605
micro channel adapter slots, location 2163
Micro Head (04H0798) (-184S) 3302
Micro Head (04H0798) (-184T) 3288
microcode, installation 3769
microcode, updating 1594
Mirror, 2 Asm (04H0801) (-35T) 3276
Mirror, 2 Asm (57G6654) (-35) 3266
Mirror, Beam Detect Asm (04H0802) (-42S) 3292
Mirror, Beam Detect Asm (04H0802) (-42T) 3276
Mirror, Beam Detect Asm (57G6771) (-42) 3266
Mirror, Interrupt (57G6779) (-90) 3270
Mirror, M2 Asm (04H0801) (-35S) 3290
Mirror, Return (88F2645) (-67) 3268
Mirror, Return (88F2645) (-67S) 3292
Mirror, Return (88F2645) (-67T) 3278
Mirror, Return Asm (04H0803) (-65S) 3292
Mirror, Return Asm (04H0803) (-65T) 3278
Mirror, Return Asm (88F2643) (-65) 3268
Mirror, Tool (88F3377) (-75) 3268
mirror 1 (two beam 240), location 2107
mirror 1 (two beam 240/300), location 2111
mirror 2 (two beam 240), location 2107
mirror 2 (two beam 240/300), location 2111
mirror motor - CD49 1954
mirror motor - CD50 1955
mirror motor (M201) driver routine 1638
mirror motor (single beam), location 2103
mirror motor (single beam), removal 2684
mirror motor (two beam 240), location 2107
mirror motor (two beam 240), removal 2781
mirror motor (two beam 240/300), location 2111
mirror motor (two beam 240/300), removal 2889
mirror motor driver board, adjust 2638
mirror motor driver board (single beam), removal 2685

mirror motor driver board (two beam 240), removal 2782
mirror motor driver board (two beam 240/300), removal 2890
Mirror Motor Driver Board MD141 (45G1860) (-128) 3204
Mirror Motor Driver Board MD192 (24H8025) (-128) 3204
mirror motor driver card, location 2055
mirrors
beam detect, adjust 2714
beam detect (single beam), location 2102
beam detect (single beam), parts 3266
beam detect (two beam 240), adjust 2813, 2924
beam detect (two beam 240), check 2812
beam detect (two beam 240), location 2106
beam detect (two beam 240), parts 3276
beam detect (two beam 240/300), check 2923
beam detect (two beam 240/300), location 2110
beam detect (two beam 240/300), parts 3292
interrupt, adjust 2712
interrupt, check 2711
interrupt (single beam), location 2103
interrupt (single beam), parts 3270
M1 (single beam), adjust 2694
M1 (single beam), location 2103
M1 (two beam 240), adjust 2794
mirrors *(continued)*
M1 (two beam 240), location 2107
M1 (two beam 240/300), adjust 2906
M1 (two beam 240/300), location 2111
M2 (single beam), adjust 2701
M2 (single beam), check 2700
M2 (single beam), location 2103
M2 (single beam), parts 3266
M2 (two beam 240), adjust 2802
M2 (two beam 240), check 2800
M2 (two beam 240), location 2107
M2 (two beam 240), parts 3276
M2 (two beam 240/300), adjust 2912
M2 (two beam 240/300), location 2111
M2 (two beam 240/300), parts 3290
mirror 1 (two beam 240), location 2107
mirror 1 (two beam 240/300), location 2111
mirror 2 (two beam 240), location 2107
mirror 2 (two beam 240/300), location 2111
return , check 2720
return (single beam), location 2103
return (single beam), parts 3268
return (two beam 240), check 2820
return (two beam 240), location 2107
return (two beam 240), parts 3278
return (two beam 240/300), check 2931
return (two beam 240/300), location 2111
mirrors *(continued)*
return (two beam 240/300), parts 3292
Mixer, Developer (T) Asm (All Except 310 PPM, 324 PPM, 480/600 DPI and 229 duplex) (57G6658) (-26) 3254
MJ04 - WD81.3/1B 1891
MJ04 - WD81.4/1B 1892
MJ13 - WD73.3/1B 1877
MJ13 - WD73.4/1B 1878
MJ21 - WD73.5/1A/2A 1879
MJ22 - WD73.5/1A/2A 1879
mode, CE or service 3622
Modifier, Path Asm (57G6809) (-47) 3352
modify backup roll lift motor open/close timing (position 5) 1721
modify steering servo (position 5) 1719
Motor , Resolution Switching (M202) (30H6819) (-201I) 3302
Motor, Backup Idler Roll (M609) and Capacitor (C613) Asm (04H0544) (-136D) 3394
Motor, Backup Roll (M603) and Capacitor (C603) Asm (53F1962) (-136) 3394
Motor, Backup Roll Lift (M610) (90H2402) (-121) 3438
Motor, Bridge Feed (M605) and Capacitor (C605) Asm (53F1878) (-96) 3424
Motor, Bridge Lift (M606) and Capacitor (C606) Asm (53F1877) (-70) 3422
Motor, Capstan Pinch Roll (M301) and Capacitor (C301) Asm (53F1803) (-96) 3322

Motor, Capstan Roll (M302) and Capacitor (C302) Asm (53F1802) (-88) 3322
Motor, Drum (M107) (53F1870) (-21) 3260
Motor, Hot Roll (M607) (53F1801) (-118) 3392
Motor, Hot Roll (M607) Asm (88F2945) (-117) 3392
Motor, Mag Brush (M101) (324 PPM only) (90H1294) (-91) 3242
Motor, Mag Brush (M101) (Except 324 PPM and 480/600 DPI) (53F1832) (-91) 3242
Motor, Mag Brush (M101) (IR1/IR2 only) (89H9998) (-91) 3242
Motor, Mirror M201 (04H0845) (-2T) 3276
Motor, Mirror M201 (324 PPM) (04H0845) (-2s) 3290
Motor, Mirror M201 (57G6409) (-2) 3264
Motor, Mirror M201 (Except 324 PPM) (57G6409) (-2s) 3290
Motor, Oiler Belt (M706) (06F0163) (-8) 3444
Motor, Retractor (M304) (53F1804) (-20) 3350
Motor, Retractor Asm (M304) (88F2859) (-19) 3350
Motor, Scuff Roll (M604) and Capacitor (C604) Asm (53F1972) (-246) 3404
Motor, Shutter Control Vacuum Asm (M602) (53F1964) (-79) 3432
Motor, Steering Asm (M601) (57G6511) (-51) 3432
Motor, Toner Feed (M102) and Capacitor (C102) Asm (45G1881) (-66) 3258
Motor, Tractor (M303) (53F1800) (-108) 3326
Motor, Tractor (M303) Asm (88F2740) (-107) 3326
Motor, Urge Unit (45F4351) (-198a) 3370
Motor Asm, Backup Roll Lift Motor (90H1106) (-130) 3438
Motor Asm, Toner Auger Drive (04H0890) (-165) 3252
motor B602 - WD27 1812
motor B703 - WD27 1812
Motor Holder (30H6821) (-203S) 3302
motor M106 - WD44 1834
motor M107 - WD45 1835
motor M112, AC - WD32 1817
motor M201 - WD46 1836
motor M202 - WD46.2 1838
motor M303 - WD47 1839
motor M304 - WD48 1840
motor M601 - WD49 1841
motor M601 and skew sensor - WD49 1841
motor M602 - WD50 1842
motor M607 - WD51 1843
motor M610 - WD51.1 1844
motor M704 - WD52 1845
motor test 1586
motor voltage test 1592
motors
backup idler roll - CD22 1927
backup idler roll, driver routine 1651
backup idler roll, location 2076
backup idler roll, removal 2524
motors *(continued)*
backup idler roll, thermal - CD23 1928
backup roll - CD18 1923
backup roll, driver routine 1651
backup roll, location 2076
backup roll lift - CD24 1929
backup roll lift, driver routine 1661
backup roll lift, location 2064
backup roll lift, removal 2509
backup roll load, removal 2521
bloom, driver routine 1661
bridge feed - CD42 1947
bridge feed, check 2198
bridge feed, driver routine 1649
bridge feed, location 2060
bridge feed, removal 2198
bridge lift - CD40 1945
bridge lift, adjust 2208
bridge lift, check 2202, 2208
bridge lift, driver routine 1649
bridge lift, location 2060
bridge lift, removal 2202
capstan pinch roll - CD38 1943
capstan pinch roll, driver routine 1646
capstan pinch roll, location 2060, 2125
capstan pinch roll, removal 3028
capstan roll - CD41 1946
capstan roll, adjust 3039
capstan roll, driver routine 1645
capstan roll, location 2060, 2125
capstan roll, removal 3038
cleaner brush - CD65 1970
cleaner brush, adjust 2228, 2229

motors *(continued)*
cleaner brush, driver routine 1639, 1640
cleaner brush, M108, location 2053
cleaner brush, removal 2228
cleaner brush, thermal - CD66 1971
cleaner brush assembly, removal 2227
cleaner brush,parts 3222
cleaner housing - CD67 1972
cleaner housing, adjust 2235
cleaner housing, check 2235
cleaner housing, location 2053
cleaner housing, parts 3220
cleaner housing, removal 2233
cyclone blower - CD71 1976
cyclone blower - CD72 1977
cyclone blower, check 2177
cyclone blower, driver routine 1638
cyclone blower, location 2063
cyclone blower motor, removal 2177
drum, adjust 2484
drum, driver routine 1641
drum, location 2053
drum, removal 2479
drum drive, overcurrent detection - CD07 1912
drum drive, servo control overspeed - CD09 1914
drum drive, servo control position - CD10 1915
drum drive, servo control time out - CD08 1913
erase lamp, driver routin 1641
etl supply, driver routine 1659
finger belt left, location 2118
motors *(continued)*
finger belt right, location 2118
finger belts - CD225 1930
forms length drive, parts 3468
forms width display, driver routine 1659
hot roll, driver routine 1652
hot roll, location 2076
hot roll drive, adjust 2545
hot roll drive, removal 2541
hot roll over-current - CD81 1986
hot roll servo control – CD20 1925
LD091, driver routine 1659
left finger belt, adjust 2985
left finger belt, driver routine 1648
left finger belt, removal 2984
left finger belt drive, parts 3476
M101 - WD29/1B 1814
M101, adjust 2390
M101- CD60 1965
M101, driver routine 1642
M101, location 2067, 2070
M101, removal 2389
M101, thermal - CD61 1966
M102 - WD30/2B 1815
M102, adjust 2420
M102, driver routine 1642, 1658
M102, location 2067
M102, removal 2419
M103 - CD62 1967
M103 - WD30/2B 1815
M103, adjust 2408
M103, driver routine 1640
M103, location 2067, 2068
M103, parts 3248
M103, removal 2407
motors *(continued)*
M104 - CD71 1976
M104 - CD72 1977
M104 - WD29/1B 1814
M104, check 2177
M104, driver routine 1638
M104, location 2063
M104, removal 2177
M105 - CD68 1973
M105 - WD29/2B 1814
M105, driver routine 1651
M105, location 2063
M106 - CD67 1972
M106 - WD44/2B 1834
M106, adjust 2235
M106, check 2235
M106, location 2053
M106, parts 3220
M106, removal 2233
M107 - WD45/2A 1835
M107, adjust 2484
M107, driver routine 1641
M107, location 2053
M107, overcurrent detection - CD07 1912
M107, removal 2479
M107, servo control overspeed - CD09 1914
M107, servo control position - CD10 1915
M107, servo control time out - CD08 1913
M108 - CD65 1970
M108 - WD29/2B 1814
M108, adjust 2228
M108, check 2229

motors *(continued)*
M108, cleaner brush, location 2053
M108, driver routine 1639, 1640
M108, parts 3222
M108, removal 2227, 2228
M108, thermal - CD66 1971
M112 - WD32/2B 1817
M112, adjust 2437
M112, driver routine 1659
M112, location 2068
M112, removal 2431
M201 - CD49 1954
M201 - CD50 1955
M201 - WD46.1/1B 1837
M201 - WD46/2B 1836
M201 - WD67.1/1B 1867
M201 - WD67/1B 1866
M201 - WD67.2/1B 1868
M201, driver routine 1638
M201 (single beam), location 2103
M201 (single beam), parts 3264
M201 (single beam), removal 2684
M201 (two beam 240), location 2107
M201 (two beam 240), parts 3276
M201 (two beam 240), removal 2781
M201 (two beam 240/300 - 324 PPM), parts 3290
M201 (two beam 240/300), location 2111
M201 (two beam 240/300), parts 3290
M201 (two beam 240/300), removal 2889
M202 - WD46.2/1B 1838
M202, driver routine 1661
motors *(continued)*
M202 (two beam 240/300), location 2111
M202 (two-beam 240/300), parts 3302
M202 (two beam 240/300), removal 2893
M301 - CD38 1943
M301 - WD30/1B 1815
M301, driver routine 1646
M301, location 2060, 2125
M301, removal 3028
M302 - CD41 1946
M302 - WD30/1B 1815
M302, adjust 3039
M302, driver routine 1645
M302, location 2060, 2125
M302, removal 3038
M303 - CD02 1907
M303 - WD47/2A 1839
M303, adjust 3112
M303, driver routine 1644
M303, location 2060, 2125
M303, removal 3111
M304 - CD01 1906
M304 - WD48/2A 1840
M304, adjust 3058
M304, driver routine 1645
M304, location 2122
M304, removal 3057
M601 - CD13 1918
M601 - WD49/2B 1841
M601, driver routine 1650
M601, location 2064
M601, removal 2611
M602 - CD69 1974
motors *(continued)*
M602 - CD70 1975
M602 - WD50/1B 1842
M602, driver routine 1650
M602, location 2064
M602, removal 2603
M603 - CD18 1923
M603 - WD31/1B 1816
M603, driver routine 1651
M603, location 2076
M603, removal 2521
M604 - CD15 1920
M604 - WD33/1B 1818
M604, driver routine 1653
M604, location 2074
M604, removal 2592
M605 - CD42 1947
M605 - WD31/1B 1816
M605, check 2198
M605, driver routine 1649
M605, location 2060
M605, removal 2198
M606 - CD40 1945
M606 - WD31/1B 1816
M606, adjust 2208
M606, check 2202, 2208
M606, driver routine 1649
M606, location 2060
M606, removal 2202
M607 - WD51/1A 1843
M607, adjust 2545
M607, driver routine 1652
M607, location 2076
M607, over-current detection - CD81 1986
M607, removal 2541

motors *(continued)*
M607, servo control - CD20 1925
M609 - CD22 1927
M609 - CD23 1928
M609 - WD31/2B 1816
M609, driver routine 1651
M609, location 2076
M609, removal 2524
M610 - CD24 1929
M610 - WD51.1/1B 1844
M610, driver routine 1661
M610, location 2064
M610, removal 2509
M701 - CD25 1930
M701 - WD33/1B 1818
M701, adjust 2985
M701, driver routine 1648
M701, location 2118
M701, parts 3476
M701, removal 2984
M702 - CD25 1930
M702 - WD33/2B 1818
M702, adjust 2991
M702, driver routine 1648
M702, location 2118
M702, parts 3482
M702, removal 2990
M704 - CD27 1932
M704 - WD52/1B 1845
M704, adjust 3006
M704, driver routine 1646, 1647
M704, location 2117
M704, overcurrent - CD28 1933
M704, removal 3004
M706 - CD21 1926
M706 - WD53/1B 1846
motors *(continued)*
M706, adjust 2565
M706, driver routine 1652
M706, location 2074
M706, removal 2564
M707 - CD36 1941
M707 - WD53/2B 1846
M707, adjust 3000
M707, driver routine 1660
M707, location 2120
M707, parts 3468
M707, removal 2997
M803 - CD31 1936
M803 - WD33/2B 1818
M803, driver routine 1647
M803, location 2120
M803, parts 3492
M803, removal 3013
M901 - WD69/1B 1870
M902 - WD69/2B 1870
mag brush - CD60 1965
mag brush, adjust 2390
mag brush, driver routine 1642
mag brush, location 2070
mag brush, removal 2389
mag brush, thermal sense - CD61 1966
mirror - CD49 1954
mirror - CD50 1955
mirror, driver routine 1638
mirror (single beam), location 2103
mirror (single beam), parts 3264
mirror (single beam), removal 2684
mirror (two beam 240), location 2107
mirror (two beam 240), parts 3276
mirror (two beam 240), removal 2781
motors *(continued)*
mirror (two beam 240/300 - 324 PPM), parts 3290
mirror (two beam 240/300), location 2111
mirror (two beam 240/300), parts 3290
mirror (two beam 240/300), removal 2889
oiler belt - CD21 1926
oiler belt, adjust 2565
oiler belt, driver routine 1652
oiler belt, location 2074
oiler belt, removal 2564
pendulum - CD27 1932
pendulum, adjust 3006
pendulum, driver routine 1646, 1647
pendulum, location 2117
pendulum, overcurrent - CD28 1933
pendulum, removal 3004
PL101, driver routine 1641
precharge corona, driver routine 1648
resolution lens, driver routine 1661
resolution lens (two beam 240/300), location 2111
resolution lens (two beam 240/300), removal 2893
resolution switching lens (two-beam 240/300), parts 3302
retractor, adjust 3058
retractor, driver routine 1645
retractor, location 2122
retractor, removal 3057
retractor motor - CD01 1906
retractor motor overcurrent - CD03 1908

motors *(continued)*
right finger belt, adjust 2991
right finger belt, driver routine 1648
right finger belt, removal 2990
rightt finger belt drive, parts 3482
scuff roll - CD15 1920
scuff roll, driver routine 1653
scuff roll, location 2074
scuff roll drive, removal 2592
shutter control - CD69 1974
shutter control - CD70 1975
shutter control, driver routine 1650
shutter control, location 2064
shutter motor, removal 2603
stacker length - CD36 1941
stacker length, driver routine 1660
stacker length drive, adjust 3000
stacker length drive, location 2120
stacker length drive, removal 2997
stacker length switch, driver routine 1660
stacker table, driver routine 1647
stacker table, location 2120
stacker table (M803) - CD31 1936
stacker table, parts 3492
stacker table, removal 3013
steering - CD13 1918
steering, driver routine 1650
steering, location 2064
steering motor, removal 2611
toner control - CD62 1967
toner control, adjust 2408
toner control, location 2067, 2068
toner control, parts 3248
toner control, removal 2407
motors *(continued)*
toner control motor, driver routine 1640
toner feed, adjust 2420
toner feed, driver routine 1642
toner feed, location 2067
toner feed, removal 2419
toner supply, adjust 2437
toner supply, driver routine 1658
toner supply, location 2068
toner supply, removal 2431
tractor - CD02 1907
tractor, driver routine 1644
tractor, location 2060, 2125
tractor, removal 3111
vacuum blower - CD68 1973
vacuum blower, driver routine 1651
vacuum blower, location 2063
motors (M101, M104, M105 M108), 3 phase AC - WD29 1814
motors (M102, M103, M301 & M302), single phase AC - WD30 1815
motors (M603, M605, M606 & M609), AC - WD31 1816
motors (M604, M701, M702 & M803), AC - WD33 1818
motors B602, B703 & 200 VAC blowers - WD27 1812
motors M706 and M707 - WD53 1846
Mount, Cover (30H2967) (-17A) 3520
Mount, Cover (30H2968) (-20A) 3520
mounting bracket, location 2062
mounting plate, location 2151, 2153
Mouse, 3 button (Not Shown) (76H5084) (-61) 3558
moveable guide pins, location 2116
MP021 - WD43/1A 1833
MP021, location 2081
MPSRC (definition) 1566
multiple copies, printing 1570

N

NF501, location 2088, 2092
normal print (position 0) 1610
Nut (0037913) (-12A) 3524
Nut (06F7017) (-6) 3514
Nut (1622393) (-9A) 3520
Nut (1622401) (-203) 3368
Nut (1622403) (-1A) 3536
Nut (1622403) (-22A) 3520
Nut (1622403) (-2C) 3532
Nut (1622403) (-31) 3554
Nut (1622403) (-5A) 3524
Nut (1622403) (-5B) 3528
Nut (1622404) (-14A) 3536
Nut (1622437) (-19C) 3532
Nut, Fan (1622403) (-14) 3552
Nut, M12 (1622408) (-14C) 3532
Nut, M5 (06F0407) (-141) 3194
Nut M5 (06F0407) (-89) 3184

O

O701 - WD59.1/1B 1855
O701 - WD59/2B 1854
O702 - WD59.1/1B 1855
O702 - WD59/2B 1854
O703 - WD59.1/2B 1855
O703 - WD59/2B 1854
off, power procedure 2631
offset test 1586

offset voltage test 1592
Oil, Fuser (04H0289) (-154) 3396
oil empty sensor, fuser - CD117 2022
oil empty sensor, location 2061
oil feed rate 1615, 1617
Oil Pan (30H6587) (-79) 3448
oil port assembly, removal 2568
oil pump, removal 2569
Oil Pump 1 (L701) driver routine 1653
oil pump 1, location 2059
oil pump 2 (L702) driver routine 1654
oil pump 2, location 2059
oil pump 3 (L703) driver routine 1654
oil pump 3, location 2059
oil pump 4 (L704) driver routine 1655
oil pump 4, location 2060
oil pump 5 (L705) driver routine 1655
oil pump 5, location 2060
oil pump 6 (L706) driver routine 1656
oil pump 6, location 2060
oil pumps
L701 - WD54.1/1B 1848
L701 - WD54/1B 1847
L702 - WD54.1/1B 1848
L702 - WD54/1B 1847
L703 - WD54.1/1B 1848
L703 - WD54/2B 1847
L704 - WD54.1/2B 1848
L705 - WD54.1/2B 1848
L706 - WD54.1/2B 1848
oil pumps L701, L702 & L703 - WD54 1847
oil pumps L701, L702, L703, L704, L705, & L706 - WD54.1 1848
oil reservoir, location 2060
Oiler, Port Asm (3 pump) (All except 324 PPM) (30H2995) (-50) 3446
Oiler, Port Asm (6 pump) (90H1284) (-50) 3446
oiler belt, location 2074
oiler belt cycle time 1615, 1617
oiler belt end switch - CD118 2023
oiler belt end switch, adjust 2563
oiler belt end switch, location 2075
oiler belt end switch, removal 2562
oiler belt end switch (S610) routine 1687
oiler belt motor - CD21 1926
oiler belt motor, adjust 2565
oiler belt motor, location 2074
oiler-belt motor (M706) driver routine 1652
oiler belt motor, removal 2564
oiler empty sensor (S702) routine 1688
oiler gate interlock switch, adjust 2567
oiler gate interlock switch, removal 2566
oiler gate open switch - CD119 2024
oiler gate open switch, location 2075
oiler gate open switch (S605) routine 1687
Oiler Port Asm (24H8366) (IR1/IR2) (-35A) 3450
Oiler Port Asm (90H1369) (IR3/IR4) (-35A) 3450
Oiler Port Guide Shaft (24H8148) (-36A) 3450
Oiler Wick Roll (24H8173) (-41A) 3450
Oiler Wick Roll (IR3/IR4) (90H1758) (-41A) 3450
on, power procedure 2630
online diagnostics 1743
op panel 1559
OP panel 1559
op panel test 1561
open sensor, transfer station - CD108 2013
operator alarm volume control, location 2148
operator alert - CD90 1995
operator alert, test 3781
operator alert accessory contacts, location 2148
operator alert assembly 2254
operator alert assembly, attach 3740
operator alert assembly, removal 2251
operator alert assembly to MIC - WD79 1887
operator alert connector, location 2146
operator alert light, location 2146
operator maintenance 3619
print-quality check 3619
replacement tasks 3619
tasks 3619
operator panel 1559
operator panel, install 3696
operator panel, location 2081
Operator Panel and Switch Asm (94F3592) (-17) 3552
Operator Panel Control Asm (93H2922) (-5) 3560
operator panel test 1582
operator’s panel to MIC - WD78 1886
optical sensor margin tests (position 9) 1726
optional slot, location 2158
other tools 3800

over temperature protection 1791
over-temperature sensor, hot roll - CD77 1982
overall print quality 1602
Overlay, Chinese Simplified (30H6656) (-35) 3538
Overlay, Chinese Simplified (Duplex) (30H6650) (-123) 3188
Overlay, Chinese Simplified (Simplex) (30H6660) (-123) 3188
Overlay, Chinese Traditional (30H6654) (-35) 3538
Overlay, Chinese Traditional (Duplex) (30H6648) (-123) 3188
Overlay, Chinese Traditional (Simplex) (30H6658) (-123) 3188
Overlay, English (45G1753) (-35) 3538
Overlay, English (Duplex) (45G1975) (-123) 3188
Overlay, English (Simplex) (57G6440) (-123) 3188
Overlay, French (45G1755) (-35) 3538
Overlay, French (Duplex) (45G1976) (-123) 3188
Overlay, French (Simplex) (57G6441) (-123) 3188
Overlay, German (45G1757) (-35) 3538
Overlay, German (Duplex) (45G1977) (-123) 3188
Overlay, German (Simplex) (57G6442) (-123) 3188
Overlay, Italian (45G1759) (-35) 3538
Overlay, Italian (Duplex) (45G1978) (-123) 3188
Overlay, Italian (Simplex) (57G6443) (-123) 3188
Overlay, Portuguese Brazil (30H2974) (-35) 3538
Overlay, Portuguese Brazil (Duplex) (30H6652) (-123) 3188
Overlay, Portuguese Brazil (Simplex) (30H2976) (-123) 3188
Overlay, Spanish (45G1761) (-35) 3538
Overlay, Spanish (Duplex) (45G1979) (-123) 3188
Overlay, Spanish (Simplex) (57G6444) (-123) 3188
ozone filter, install 3678
ozone filter, location 2063
ozone filter, removal 2188

P

P1015, location 2068
P1016, location 2069
P13, planar, location 2164
P14, planar, location 2164
P16, planar, location 2164
P165 - WD32/2B 1817
P165A - WD32/2B 1817
P166 - WD32/1B 1817
P166A - WD32/1B 1817
P205 - WD25.1/2A 1809
P205 - WD67.1/2A 1867
P205A - WD25.1/2A 1809
P205A - WD67.1/2A 1867
P208, location 2108
P216 - WD42.2/1B 1829
P216 - WD42.4/1A 1831
P216, location 2104, 2108
P216A - WD42.2/1A 1829
P216A - WD42.4/1A 1831
P216A, location 2105, 2109
P217 - WD26.1/2B 1811
P217A - WD26.1/2B 1811
P223 - WD26.1/2B 1811
P223A - WD26.1/2B 1811
P2S2 - WD83.2/1B 1895
P2S2 connector, location 2153
P3S2 - WD83.2/1B 1895
P3S2 connector, location 2153
P40, I/O planar, location 2164
P41, I/O planar, location 2164
P45A, location 2164
P45B, location 2164
P45C, CDROM power, location 2164
P45D, Diskette power, location 2164
P46A, logic fan, location 2164
P46B, tape drive fan, location 2164
P47, power supply fan, location 2164
P49A, disk drive fan E, location 2164
P49B, disk drive fan F, location 2164
P49C, disk drive fan G, location 2164
P612 - WD66/1B/2B 1865
P612TC - WD66/1A 1865
P650 - WD28/1B 1813
P650A - WD28/1B 1813
P65A, disk drive E, location 2165
P65B, disk drive, location 2165
P65C, disk drive F, location 2165
P65D, disk drive, location 2165
P66A, disk drive G, location 2165
P66B, disk drive, location 2165
Pad, Oil Pan (30H6594) (-78) 3448
paddle, toner hopper, location 2066, 2067
page counter 1616, 1618

panel
stacker control panel, parts 3456
SW511, parts 3456
Panel, Contrast Control (45G1857) (-168) 3364
Panel, Maintenance Asm (53F1778) (-49) 3358
Panel, Operator (57G1218) (-122) 3188
panel, operator, test 1582
Panel, Operator Asm (45G1906) (-116) 3188
Panel, Printer Control (SW721) (45G1884) (-169) 3364
panel, stacker switch (SW511 & FSxxx card) - WD59.2 1856
panel switch, stacker (forms length & width cards) - WD59.3 1857
panel test 1561
paper cooling fan, location 2073
paper cooling fans driver routine 1657
parallel channel adapter card (F50), (08J6472) (-16B) 3562
parallel channel adapter card 7025, removal 2290
parallel channel adapter card 7043, removal 2307
parallel channel basic test 1573
parallel channel signal (tailgate to controller) - WD70 1871
parallel channel signal (tailgate to controller) - WD71 1872
parallel channel signal (tailgate to controller, 1 of 2) - WD70 1871
parallel channel signal (tailgate to controller, 2 of 2) - WD71 1872
parallel channel tailgate, removal 2255
parallel channel wrap blocks 3817
parallel channel wrap test 1573
parts, tracked 3638
password 1558
password, entering 3622
password, special features 3769
path modifier, location 2123
path modifier and springs, adjust 3051
path modifier and springs, removal 3051
path modifier gauge 3817
path modifier position, adjust 3052
PC drum
cleaning 2474
clearances 2486
cover interlock switch - CD57 1962
cover interlock switch - CD58 1963
cover interlock switch, adjust 2477
cover interlock switch, removal 2476
drum box 3803
drum ground brush 2478
drum shaft extension, desc 3807
locations 2082
M107, adjust 2484
M107, removal 2479
motor, adjust 2484
motor, removal 2479
motor drive belt, adjust 2484
motor drive belt, check 2485
motor drive belt, removal 2479
removal 2467
S122, adjust 2477
S122, removal 2476
surface voltage, adjust 2331
PC drum, install 3729
PC drum, removal 2467
PC drum clearances 2486
PC Drum Cover Interlock Switch, (S122) (88F2889) (-105) 3204
PC drum cover interlock switch, adjust 2477
PC drum cover interlock switch, location 2056
PC drum cover interlock switch, removal 2476
PC drum cover interlock switch (S122) routine 1669
PC drum surface voltage, adjust 2331
PC211, location 2053
PC211 Card (04H0978) 3200
PC531, location 2053
PC531 Card (04H0842) (-57) 3200
PC551 Card (24H8024) (-57) 3200
PC551 card, adjust 2406
PC551 card, location 2053
Pedestal and Wheel (11H8156) (-26) 3564
Pendulum Discharge Brush, (06F0223) (-26) 3462
Pendulum Discharge Brush, (06F0224) (-27) 3462
pendulum motor - CD27 1932
pendulum motor, adjust 3006
pendulum motor, location 2117
pendulum motor (M704) driver routine 1646, 1647
pendulum motor, overcurrent - CD28 1933
pendulum motor, removal 3004
pendulum position sensor - CD29 1934
pendulum position sensor, adjust 3008
pendulum position sensor, location 2117

pendulum position sensor, removal 3007
Pendulum Position Sensor (S619), (06F0228) (-48) 3464
pendulum position sensor (S619) routine 1685
pendulum static discharge brush, removal 3009
Pendulum Timing Belt, (06F0111) (-22) 3462
performing PM off-schedule 3620
performing PM procedures 3625
PH01 - WD20.1/2A 1799
PH01 - WD20.2/2A 1800
PH01A - WD20.1/2A 1799
PH01A - WD20.2/2A 1800
PH601 - WD35/1B 1820
PH601 - WD66/1B 1865
PH601, location 2074
PH601, removal 2576
PH602 - WD35/2B 1820
PH602 - WD66/2B 1865
PH602, location 2074
PH602, removal 2576
phase-to-ground voltage 3664
phase-to-neutral voltage 3664
phase to phase 3662
phase-to-phase voltage 3664
Pin, (A) (88F3086) (-85) 3424
Pin (1693629) (-5C) 3518
Pin (88F3090) (-93) 3424
Pin, Center (24H8166) (-15A) 3450
Pin, Center (24H8170) (-5A) 3450
Pin, Contact (53F1983) (-307) 3418
Pin, Contact Slide Asm (53F1982) (-51) 3386
Pin, Cover Hinge (53F1607) (-6A) 3520
Pin, Cover Hinge (88F3397)(-80) 3184
Pin, Latch (88F2919) (-169) 3398
Pin, Link (88F2870) (-38) 3352
Pin, Preheat Platen (24H8385) (-281R) 3414
Pin, Pressure Roller (06F0863) (-57D) 3382
Pin, Pressure Roller (06F0863) (-7) 3380
Pin, Rear Clamp (88F2554) (-99) 3248
Pin, Shift Stopper (88F2758) (-254) 3338
Pin, Stand (88F3418) (-106) 3184
Pin, Tractor Door Hinge (88F3458) (-3) 3316
Pipe (88F2679) (-65) 3312
PJ000 - WD61.1/2A 1860
PJ012TC, location 2131
PJ1 - WD87/1B 1899
PJ1000 - WD55/1B 1849
PJ1000 - WD62/1A 1861
PJ1000 - WD63/1B 1862
PJ1000, location 2116
PJ1001 - WD61.1/1A/2A 1860
PJ1001 - WD61/1A/2A 1859
PJ1001, location 2116
PJ1002 - WD61.1/1A 1860
PJ1002 - WD61/1A 1859
PJ1002, location 2116
PJ1003 - WD 40/1A 1825
PJ1003 - WD25.1/2A 1809
PJ1003 - WD25/2A 1808
PJ1003 - WD29/1B 1814
PJ1003 - WD38.1/2B 1822
PJ1003 - WD38/2B 1821
PJ1003 - WD41.1/2A 1827
PJ1003 - WD41/2A 1826
PJ1003 - WD42/1A/2A 1828
PJ1003 - WD42.2/1A 1829
PJ1003 - WD42.3/2A 1830
PJ1003 - WD42.4/1A 1831
PJ1003 - WD42.5/1A 1832
PJ1003 - WD46.1/2B 1837
PJ1003 - WD46/2B 1836
PJ1003 - WD55/1B 1849
PJ1003 - WD56/2A 1850
PJ1003 - WD57.1/2A 1852
PJ1003 - WD57/2A 1851
PJ1003 - WD67.1/2B 1867
PJ1003 - WD67/2B 1866
PJ1003, location 2054
PJ1006 - WD40/1A/2B 1825
PJ1006, location 2054
PJ1007 - WD32/1B 1817
PJ1007 - WD46/1A 1836
PJ1007 - WD67.1/2B 1867
PJ1007 - WD67/2B 1866
PJ1007 - WD88/1A 1900
PJ1007, location 2054
PJ1008 - WD57.1/2A 1852
PJ1008 - WD57/2A 1851
PJ1008, location 2054
PJ1010 - WD62/1B 1861
PJ1010, location 2116
PJ1011 - WD26.1/1A 1811
PJ1011 - WD26/1A 1810
PJ1011, location 2071
PJ1012 - WD32/1A 1817
PJ1012, location 2062
PJ1013 - WD32/1A 1817
PJ1013, location 2062

PJ1014 - WD32/2A 1817
PJ1014, location 2062
PJ1015 - WD32/2A 1817
PJ1015, location 2062
PJ1016 - WD32/1B 1817
PJ1016, location 2062
PJ1017 - WD32/2B 1817
PJ1017, location 2069
PJ1018 - WD32/1A 1817
PJ1018, location 2113, 2114
PJ1020 - WD46.1/1A 1837
PJ1020 - WD46/1A 1836
PJ1020 - WD46.2/1A/2A 1838
PJ1020, location 2054
PJ105 - WD30/2B 1815
PJ105, location 2068
PJ106 - WD29/1B 1814
PJ106, location 2070
PJ107 - WD57.1/1B 1852
PJ107 - WD57/1B 1851
PJ107, location 2068
PJ108 - WD57.1/1B 1852
PJ108 - WD57/1B 1851
PJ108, location 2070
PJ110 - WD56/2B 1850
PJ110, connector, location 2067
PJ111 - WD56/2B 1850
PJ111, connector, location 2067
PJ112 - WD56/1B 1850
PJ112, location 2070
PJ113 - WD29/1B 1814
PJ113 - WD56/2A 1850
PJ113 - WD57.1/1A/1B 1852
PJ113 - WD57/1A/1B 1851
PJ113, location 2070
PJ114 - WD56/2A 1850
PJ114 - WD57.1/1A/1B 1852
PJ114 - WD57/1A/1B 1851
PJ114, location 2070
PJ115 - WD40/1B/2B 1825
PJ115, location 2060
PJ116 - WD40/2A 1825
PJ116, location 2060
PJ118 - WD29/1B 1814
PJ118, location 2070
PJ119 - WD61.1/2B 1860
PJ119 - WD61/2B 1859
PJ119, location 2084
PJ12 - WD86/1B 1898
PJ120 - WD29/2B 1814
PJ120, location 2053
PJ122, location 2053
PJ123 - WD29/1A 1814
PJ123, location 2063
PJ124 - WD29/1B 1814
PJ124, location 2063
PJ125 - WD61.1/1B 1860
PJ125 - WD61/1B 1859
PJ125, location 2116
PJ127 - WD57.1/1A/1B 1852
PJ127 - WD57/1A/1B 1851
PJ127, location 2053
PJ128 - WD56/1A 1850
PJ128, location 2053
PJ131, location 2053
PJ132 - WD45/1A 1835
PJ132, location 2053
PJ134 - WD29/2B 1814
PJ134, location 2053
PJ135 - WD29/1B/2B 1814
PJ135 - WD32/2B 1817
PJ135 - WD56/1A 1850
PJ135 - WD57.1/1A/1B 1852
PJ135 - WD57/1A/2A 1851
PJ135, location 2054
PJ136 - WD41.1/1A/2A 1827
PJ136 - WD41/1A/2A 1826
PJ136 - WD42/1A/2A 1828
PJ136 - WD42.2/1A 1829
PJ136 - WD42.3/1A 1830
PJ136 - WD42.4/1A 1831
PJ136 - WD42.5/1A 1832
PJ136 - WD46.1/2B 1837
PJ136 - WD46/2B 1836
PJ136, location 2054
PJ136 jumper - CD106 2011
PJ138 - WD62/1A 1861
PJ138, location 2116
PJ141 - WD56/1A 1850
PJ141 - WD63/1A 1862
PJ141, location 2116
PJ146 - WD30/1B 1815
PJ146, location 2057
PJ147 - WD61.1/1B 1860
PJ147 - WD61/1B 1859
PJ147, location 2055, 2082
PJ148 - WD61.1/1B 1860
PJ148 - WD61/1B 1859
PJ148, location 2055
PJ149 - WD61.1/2B 1860
PJ149 - WD61/1B 1859
PJ149, location 2072
PJ15 - WD20/2A 1798
PJ150 - WD57.1/2B 1852
PJ150 - WD57/2B 1851
PJ150, location 2063
PJ154 - WD59.3/2A 1857
PJ154, location 2120

PJ157 - WD52/2B 1845
PJ157 - WD59.1/1A 1855
PJ157 - WD59/1A/2A 1854
PJ157, location 2120
PJ159 - WD39.1/1A/1B 1824
PJ159 - WD39/1A/1B 1823
PJ159, location 2054
PJ16 - WD20/2A 1798
PJ160 - WD39.1/1A/1B 1824
PJ160 - WD39/1A/1B 1823
PJ160, location 2054
PJ161 - WD39.1/1B 1824
PJ161 - WD39/1B 1823
PJ161, location 2055
PJ162 - WD39.1/1B 1824
PJ162 - WD39/1B 1823
PJ162, location 2054
PJ165 - WD26.1/2A 1811
PJ165 - WD26/2A 1810
PJ165, location 2072
PJ166 - WD42/1A 1828
PJ166 - WD42.2/1A 1829
PJ166 - WD42.4/1A 1831
PJ166 - WD42.5/1A 1832
PJ166, location 2054
PJ170 - WD58/2B 1853
PJ170, location 2081
PJ172 - WD26.1/1A 1811
PJ172 - WD26/1A 1810
PJ172, location 2055, 2084
PJ173 - WD45/1A 1835
PJ173, location 2054
PJ174 - WD39.1/1B 1824
PJ174 - WD39/1B 1823
PJ174, location 2054
PJ175 - WD57.1/1B 1852
PJ175 - WD57/1B 1851
PJ175, location 2055
PJ183 - WD59.3/1A 1857
PJ183, location 2120
PJ185 - WD40/1B 1825
PJ185, location 2070
PJ190 - WD56/1B 1850
PJ190, location 2070
PJ191 - WD56/1A 1850
PJ191, location 2063
PJ192 - WD26.1/2A 1811
PJ192 - WD26/2A 1810
PJ192, location 2072
PJ193 - WD26.1/1A 1811
PJ193 - WD26/1A 1810
PJ193 - WD29/1B 1814
PJ193, location 2070
PJ194 - WD30/2B 1815
PJ194, location 2071
PJ196 - WD30/2B 1815
PJ196, location 2071
PJ198 - WD41.1/2B 1827
PJ198 - WD41/2A 1826
PJ198, location 2055
PJ199 - WD26.1/1B 1811
PJ199 - WD26/1B 1810
PJ199, location 2071
PJ2 - WD86/1A 1898
PJ201 - WD76/1A 1884
PJ201 - WD77/1A 1885
PJ201, location 2113, 2114, 2115
PJ202 - WD76/1B 1884
PJ202 - WD77/1B 1885
PJ202, location 2113, 2114, 2115
PJ203 - WD42/2B 1828
PJ203 - WD42.3/2A 1830
PJ203, location 2113, 2114, 2115
PJ204 - WD42/1A 1828
PJ204 - WD42.2/1A 1829
PJ204 - WD42.4/2B 1831
PJ204 - WD42.5/2A 1832
PJ204, location 2113, 2114, 2115
PJ205 - WD25.1/2B 1809
PJ205 - WD25/2A/2B 1808
PJ205 - WD67/2A 1866
PJ205, location 2113, 2114, 2115
PJ205A, location 2114, 2115
PJ206 - WD42/1A 1828
PJ206 - WD42.4/2A 1831
PJ206 - WD42.5/2A 1832
PJ206, location 2100, 2104, 2108
PJ207 - WD42/1A 1828
PJ207 - WD42.2/1A 1829
PJ207 - WD42.4/1A 1831
PJ207 - WD42.5/1A 1832
PJ207, location 2100, 2104, 2108
PJ208 - WD46.1/2B 1837
PJ208 - WD46/2B 1836
PJ208, location 2100, 2104
PJ209, location 2100
PJ210 - WD42/1A 1828
PJ210 - WD42.2/1A 1829
PJ210 - WD42.4/1A 1831
PJ210 - WD42.5/1A 1832
PJ210 - WD46.1/2B 1837
PJ210 - WD46/2B 1836
PJ210, location 2100, 2104, 2108
PJ211 - WD42/2B 1828
PJ211 - WD42.3/2A 1830
PJ211, location 2100, 2104, 2108
PJ212 - WD42/2A 1828
PJ212 - WD42.3/1A 1830

PJ212, location 2100, 2104, 2108
PJ213 - WD42/1B 1828
PJ213 - WD42.2/1B 1829
PJ213 - WD42.4/1B 1831
PJ213 - WD42.5/1B 1832
PJ213, location 2101, 2104, 2108
PJ214 - WD42/1B 1828
PJ214 - WD42.2/1B 1829
PJ214 - WD42.4/1B 1831
PJ214 - WD42.5/1B 1832
PJ214, location 2101, 2104, 2108
PJ215 - WD42/1B 1828
PJ215 - WD42.2/1B 1829
PJ215 - WD42.4/1B 1831
PJ215 - WD42.5/1B 1832
PJ215, location 2101, 2104, 2108
PJ216 - WD42/1A 1828
PJ216, location 2101
PJ217 - WD26/2B 1810
PJ217, location 2101, 2105, 2109
PJ217A, location 2105, 2109
PJ219 - WD46.1/2B 1837
PJ219 - WD46/2B 1836
PJ219 - WD67.1/1B 1867
PJ219 - WD67/1B 1866
PJ219, location 2101, 2105, 2109
PJ220 - WD42/1A 1828
PJ220 - WD42.2/1B 1829
PJ220 - WD42.4/1B 1831
PJ220 - WD42.5/1A 1832
PJ220, location 2101, 2105, 2109
PJ222 - WD26.1/2B 1811
PJ222 - WD26/2B 1810
PJ222, location 2101
PJ223 - WD26/2B 1810
PJ223, location 2101, 2105, 2109
PJ223A, location 2105, 2109
PJ224 - WD46.1/2A 1837
PJ224 - WD46/2A 1836
PJ224 - WD67.1/1B 1867
PJ224 - WD67/1B 1866
PJ224, location 2134
PJ225 - WD46.1/1A 1837
PJ225 - WD46/1A 1836
PJ225 - WD67.1/1B 1867
PJ225, location 2134
PJ226 - WD46.1/1A 1837
PJ226 - WD46/1A 1836
PJ226 - WD67.1/1B 1867
PJ226 - WD67/1B 1866
PJ226, location 2134
PJ227 - WD20.1/1A/2A 1799
PJ227 - WD20/1A 1798
PJ227 - WD20.2/1A/2A 1800
PJ227 - WD22.1/1A 1804
PJ227 - WD22/1A 1803
PJ227, location 2113, 2114, 2115
PJ229 - WD82/1A 1893
PJ229 - WD83/1A 1894
PJ229 - WD88/1B 1900
PJ229, location 2113, 2114, 2115
PJ231 - WD67.1/1B 1867
PJ231 - WD67/1B 1866
PJ231, location 2134
PJ232 - WD78/1A 1886
PJ232, location 2113, 2114, 2115
PJ233 - WD42.2/2B 1829
PJ233 - WD42.4/2B 1831
PJ233 - WD42.5/2A 1832
PJ233, location 2114, 2115
PJ233S2 - WD83.2/1B 1895
PJ233S2, location 2113, 2115
PJ234 - WD42.4/2B 1831
PJ234 - WD42.5/2A 1832
PJ234, location 2115
PJ235 - WD42.4/2B 1831
PJ235 - WD42.5/2A 1832
PJ235, location 2115
PJ236 - WD42.2/2A 1829
PJ236 - WD42.4/2A 1831
PJ236 - WD42.5/2A 1832
PJ236, location 2105, 2109
PJ237 - WD42.2/2A 1829
PJ237 - WD42.4/1A 1831
PJ237 - WD42.5/1A 1832
PJ237, location 2105, 2109
PJ238 - WD42.2/2B 1829
PJ238 - WD42.4/1B 1831
PJ238 - WD42.5/1B 1832
PJ238, location 2105, 2109
PJ239 - WD42.2/2B 1829
PJ239 - WD42.4/1B 1831
PJ239 - WD42.5/1B 1832
PJ239, location 2105, 2109
PJ240 - WD42.2/2B 1829
PJ240 - WD42.4/1B 1831
PJ240 - WD42.5/1B 1832
PJ240, location 2105, 2109
PJ241 - WD42.2/2B 1829
PJ241 - WD42.4/1B 1831
PJ241 - WD42.5/1B 1832
PJ241, location 2105, 2109
PJ242 - WD42.2/2B 1829
PJ242 - WD42.4/1B 1831
PJ242 - WD42.5/1B 1832
PJ242, location 2109
PJ243 - WD42.4/2B 1831
PJ243 - WD42.5/1B 1832

PJ244 - WD42.4/2B 1831
PJ244 - WD42.5/2B 1832
PJ245 - WD42.4/1A 1831
PJ245 - WD42.5/1A 1832
PJ246 - WD42.4/1B 1831
PJ246 - WD42.5/1A 1832
PJ247 - WD42.4/2B 1831
PJ247 - WD42.5/2B 1832
PJ248 - WD42.4/2B 1831
PJ248 - WD42.5/2B 1832
PJ249 - WD42.4/2B 1831
PJ249 - WD42.5/2B 1832
PJ250 - WD42.4/2B 1831
PJ250 - WD42.5/2B 1832
PJ251 - WD32/1A 1817
PJ251, location 2115
PJ252 - WD42.4/2A 1831
PJ252 - WD42.5/2A 1832
PJ253 - WD42.4/2A 1831
PJ254 - WD42.4/2A 1831
PJ254 - WD42.5/2A 1832
PJ255 - WD42.4/2A 1831
PJ255 - WD42.5/2A 1832
PJ256 - WD42.4/2B 1831
PJ256 - WD42.5/1B 1832
PJ257 - WD42.4/2B 1831
PJ257 - WD42.5/2B 1832
PJ258 - WD46.2/2A 1838
PJ258, location 2109
PJ259 - WD46.2/1B 1838
PJ259, location 2109
PJ260 - WD46.2/2A 1838
PJ260, location 2109
PJ261 - WD46.2/1B 1838
PJ261, location 2134
PJ262 - WD46.2/1A 1838
PJ262, location 2134
PJ263, location 2134
PJ264, location 2134
PJ265 - WD42.5/2A 1832
PJ266 - WD42.5/2A 1832
PJ267 - WD42.5/2A 1832
PJ268 - WD42.5/2B 1832
PJ269 - WD42.5/2B 1832
PJ270 - WD42.5/2B 1832
PJ271 - WD42.5/2B 1832
PJ272 - WD42.5/2B 1832
PJ3 - WD86/2A 1898
PJ301 - WD63/1A 1862
PJ301, location 2123
PJ302, location 2123
PJ303 - WD63/1A 1862
PJ303, location 2123
PJ304 - WD63/2A 1862
PJ304, location 2123
PJ305 - WD63/2A 1862
PJ305, location 2123
PJ306 - WD63/1A 1862
PJ306, location 2123
PJ307 - WD63/1A 1862
PJ307, location 2123
PJ308 - WD47/1A 1839
PJ308, location 2060
PJ309 - WD48/2A 1840
PJ309, location 2123
PJ310 - WD30/1B 1815
PJ310, location 2060, 2125
PJ311 - WD30/1B 1815
PJ311, location 2060, 2125
PJ312 - WD47/1A 1839
PJ312, location 2057, 2060, 2125
PJ313 - WD48/1A 1840
PJ313, location 2123
PJ318 - WD39.1/2A 1824
PJ318 - WD39/2A 1823
PJ318, location 2057
PJ322S2 - WD83.2/1B 1895
PJ322S2, location 2122
PJ324S2 - WD83.2/1B 1895
PJ3S2 - WD20.1/2B 1799
PJ3S2 - WD20.2/2B 1800
PJ401 - WD76/1A 1884
PJ401 - WD77/1A 1885
PJ401, location 2057
PJ402 - WD43/1A/1B 1833
PJ402, location 2057
PJ439 - WD26.1/1B 1811
PJ439 - WD26/1B 1810
PJ439, location 2057
PJ448 - WD43/1A 1833
PJ448, location 2081
PJ463 - WD64/2A 1863
PJ464 - WD25.1/2A 1809
PJ464 - WD25/2A 1808
PJ464 - WD33/1B 1818
PJ464 - WD38.1/2B 1822
PJ464 - WD38/2B 1821
PJ464 - WD42/2A 1828
PJ464 - WD42.3/2A 1830
PJ464 - WD46.1/2B 1837
PJ464 - WD46/2B 1836
PJ464 - WD55/1A 1849
PJ464 - WD57.1/2B 1852
PJ464 - WD57/2B 1851
PJ464 - WD67.1/2A 1867
PJ464 - WD67/2A 1866
PJ464, location 2057
PJ465 - WD55/1A 1849

PJ465 - WD63/1B 1862
PJ465, location 2057
PJ466 - WD27/1B 1812
PJ466 - WD49/1B 1841
PJ466 - WD55/1B 1849
PJ466 - WD60/1B 1858
PJ466 - WD64/1B/2B 1863
PJ467 - WD52/2A 1845
PJ467 - WD55/2B 1849
PJ468 - WD45/2B 1835
PJ468 - WD47/1B 1839
PJ468 - WD48/1B 1840
PJ468 - WD51/1B 1843
PJ468, location 2057
PJ469 - WD38.1/2A 1822
PJ469 - WD38/2A 1821
PJ469, location 2058
PJ470 - WD38.1/1A/2A 1822
PJ470 - WD38/1A/2A 1821
PJ470, location 2058
PJ471 - WD38.1/1A/2A 1822
PJ471 - WD38/1A/2A 1821
PJ472 - WD39.1/1A 1824
PJ472 - WD39/1A 1823
PJ472 - WD42/1A 1828
PJ472 - WD42.2/1A 1829
PJ472 - WD57/2A 1851
PJ472 - WD61/1A 1859
PJ472, location 2058
PJ473 - WD52/1A 1845
PJ473 - WD58/1A 1853
PJ473 - WD59.1/1A 1855
PJ473 - WD59/2A 1854
PJ474 - WD65/1B 1864
PJ475 - WD45/1A 1835
PJ475 - WD47/1A 1839
PJ475 - WD48/2A 1840
PJ476 - WD51/1A 1843
PJ477 - WD39.1/1A/2A 1824
PJ477 - WD39/1A/2A 1823
PJ479 - WD53/2B 1846
PJ480 - WD28/2A 1813
PJ480 - WD31/1A 1816
PJ480 - WD33/2A 1818
PJ480 - WD35/1A 1820
PJ480 - WD50/1B 1842
PJ480 - WD53/1B 1846
PJ480 - WD54.1/1B/2B 1848
PJ480 - WD54/1B 1847
PJ481 - WD25.1/1A/2A 1809
PJ481 - WD25/2A 1808
PJ481 - WD29/2A 1814
PJ481 - WD30/2A 1815
PJ481 - WD67.1/1A 1867
PJ481 - WD67/1A 1866
PJ481, location 2058
PJ483 - WD33/1B 1818
PJ483 - WD65/2A 1864
PJ501 - WD29/2A 1814
PJ501 - WD30/2A 1815
PJ501, location 2084
PJ502 - WD29/1A 1814
PJ502 - WD30/1A 1815
PJ502, location 2084
PJ503 - WD29/1A/2A 1814
PJ503 - WD30/1B/2B 1815
PJ503, location 2084
PJ504 - WD46.1/2A 1837
PJ504 - WD46/2A 1836
PJ504 - WD67.1/1B 1867
PJ504 - WD67/1B 1866
PJ504, location 2086, 2090
PJ505 - WD24/1B 1807
PJ505, location 2084
PJ506 - WD24/1B 1807
PJ507 - WD24/2B 1807
PJ507, location 2084
PJ508, location 2084
PJ509 - WD25.1/1A 1809
PJ509 - WD25/1A 1808
PJ509, location 2142
PJ510 - WD25.1/1A 1809
PJ510 - WD25.1/2A 1809
PJ510 - WD25/1A 1808
PJ510 - WD25/2A 1808
PJ510 - WD67.1/2A 1867
PJ510 - WD67/2A 1866
PJ510, location 2142
PJ511 - WD24/1A 1807
PJ511 - WD25/1B 1808
PJ511, location 2142
PJ512 - WD25.1/1B 1809
PJ512 - WD25/1B 1808
PJ512, location 2142
PJ513 - WD24/1A 1807
PJ513 - WD67.1/1A 1867
PJ513 - WD67/1A 1866
PJ513, location 2142
PJ514 - WD24/2A 1807
PJ514, location 2142
PJ515 - WD67.1/1A 1867
PJ515 - WD67/1A 1866
PJ515, location 2142
PJ516 - WD67.1/2A 1867
PJ516 - WD67/2A 1866
PJ516, location 2142
PJ517 - WD67.1/1A 1867
PJ517 - WD67/1A 1866

PJ517, location 2142
PJ520 - WD16/2B 1792
PJ520 - WD18/1B 1795
PJ520, location 2084
PJ521 - WD16/2B 1792
PJ521 - WD18/2B 1795
PJ521, location 2084
PJ522 - WD16/2B 1792
PJ522 - WD18/2B 1795
PJ522, location 2084
PJ523 - WD17.1/1B 1794
PJ523 - WD17/1B 1793
PJ523 - WD19.1/1B 1797
PJ523 - WD19/1A 1796
PJ523, location 2084
PJ524 - WD17.1/1A 1794
PJ524 - WD17/1A 1793
PJ524 - WD19.1/1A 1797
PJ524 - WD19/1A 1796
PJ524, location 2084
PJ525 - WD17.1/1A 1794
PJ525 - WD17/1A 1793
PJ525 - WD19.1/1A 1797
PJ525 - WD19/1A 1796
PJ525, location 2086, 2090
PJ526 - WD17.1/1A 1794
PJ526 - WD17/1A 1793
PJ526 - WD19.1/1A 1797
PJ526 - WD19/1A 1796
PJ526, location 2086, 2090
PJ527 - WD17.1/1A 1794
PJ527 - WD17/1A 1793
PJ527 - WD19.1/1A 1797
PJ527 - WD19/1A 1796
PJ527, location 2086, 2090
PJ528 - WD17.1/1A 1794
PJ528 - WD17/1A 1793
PJ528 - WD19.1/2A 1797
PJ528 - WD19/2A 1796
PJ528, location 2086, 2090
PJ529 - WD17.1/2A 1794
PJ529 - WD17/2A 1793
PJ529 - WD19.1/2A 1797
PJ529 - WD19/2A 1796
PJ529, location 2086, 2090
PJ530 - WD17.1/2A 1794
PJ530 - WD17/2A 1793
PJ530 - WD19.1/2A 1797
PJ530 - WD19/2A 1796
PJ530, location 2086, 2090
PJ531 - WD16/1B 1792
PJ531 - WD18/1B 1795
PJ531, location 2086, 2090
PJ532 - WD16/2B 1792
PJ532 - WD18/2B 1795
PJ532 - WD26.1/1A 1811
PJ532 - WD26/1A 1810
PJ532 - WD27/1A 1812
PJ532 - WD28/1A 1813
PJ532 - WD29/1A 1814
PJ532 - WD31/2A 1816
PJ532 - WD33/1A 1818
PJ532, location 2084
PJ533 - WD29/1A 1814
PJ533 - WD30/1A 1815
PJ533, location 2084
PJ534 - WD41.1/1A 1827
PJ534 - WD41/1A 1826
PJ534, location 2084
PJ548 - WD25/1A 1808
PJ551 - WD24/2A 1807
PJ551, location 2086, 2090
PJ552 - WD24/1A 1807
PJ552, location 2086, 2090
PJ553 - WD24/1A 1807
PJ553, location 2086, 2090
PJ554 - WD24/1A 1807
PJ554, location 2086, 2090
PJ555 - WD24/1A 1807
PJ555, location 2086, 2090
PJ559 - WD17.1/2A 1794
PJ559 - WD17/2A 1793
PJ559 - WD19.1/2A 1797
PJ559 - WD19/2A 1796
PJ559, location 2086, 2090
PJ561 - WD24/1B 1807
PJ561, location 2086, 2090
PJ562 - WD24/1B 1807
PJ562, location 2086, 2090
PJ563, location 2087, 2091
PJ564, location 2087, 2091
PJ571 - WD24/1B 1807
PJ571 - WD25.1/1B 1809
PJ571, location 2087, 2091
PJ572 - WD24/2A 1807
PJ572, location 2087, 2091
PJ573 - WD24/2A 1807
PJ573, location 2087, 2091
PJ574 - WD24/1A 1807
PJ574, location 2087, 2091
PJ575 - WD24/1A 1807
PJ575, location 2087, 2091
PJ584 - WD24/1B 1807
PJ584 - WD67.1/1A 1867
PJ584 - WD67/1B 1866
PJ584, location 2087, 2091
PJ585 - WD24 /1B 1807
PJ585, location 2087, 2091

PJ591 - WD24/1A 1807
PJ591 - WD67.1/1A 1867
PJ591 - WD67/1A 1866
PJ591, location 2087, 2091
PJ593 - WD24/1A 1807
PJ593, location 2087, 2091
PJ594, location 2087, 2091
PJ594 -WD24/2A 1807
PJ595 - WD41.1/1B 1827
PJ595 - WD41/1A 1826
PJ595, location 2058
PJ596 - WD41.1/1B 1827
PJ596 - WD41/1B 1826
PJ596, location 2058
PJ597 - WD41.1/1B 1827
PJ597 - WD41/1A 1826
PJ597, location 2058
PJ598 - WD41.1/1B 1827
PJ598 - WD41/2B 1826
PJ598, location 2058
PJ599 - WD41.1/1B 1827
PJ599 - WD41/1B 1826
PJ599, location 2058
PJ6 - WD87/1A 1899
PJ6000 - WD31/2A 1816
PJ6000, location 2136
PJ6001 - WD31/2B 1816
PJ6001, location 2078
PJ6002 - WD31/2B 1816
PJ6002, location 2078
PJ6003 - WD60/2A 1858
PJ6003, location 2074
PJ6004 - WD78/1A 1886
PJ6004, location 2081
PJ6005 - WD27/1B 1812
PJ6005 - WD31/2B 1816
PJ6005 - WD33/2B 1818
PJ6005 - WD34/2A 1819
PJ6005 - WD49/1B 1841
PJ6005 - WD55/1B 1849
PJ6005 - WD58/1A 1853
PJ6005 - WD59.1/1A 1856
PJ6005 - WD60/1B 1858
PJ6005 - WD64/2A 1863
PJ6005 - WD65/1A/2A 1864
PJ6005 - WD66/1A 1865
PJ6005, location 2131
PJ6006 - WD58/1A 1853
PJ6006 - WD59.3/2B 1857
PJ6006, location 2131
PJ6007 - WD33/1B 1818
PJ6007 - WD49/1A 1841
PJ6007 - WD58/1A 1853
PJ6007 - WD60/1B 1858
PJ6007 - WD65/1A 1864
PJ6007 - WD65/2A 1864
PJ6007, location 2131
PJ6008 - WD33/1B 1818
PJ6008 - WD65/2A 1864
PJ6008, location 2131
PJ6009 - WD33/1B 1818
PJ6009 - WD49/1A 1841
PJ6009 - WD58/1B 1853
PJ6009 - WD60/1A/2A 1858
PJ6009 - WD65/1B/2B 1864
PJ6009, location 2064
PJ601 - WD28/1A 1813
PJ601 - WD31/2A 1816
PJ601 - WD33/1A 1818
PJ601 - WD34/1B 1819
PJ601 - WD65/2B 1864
PJ601, location 2135, 2136
PJ6010 - WD33/1B 1818
PJ6010 - WD49/1A 1841
PJ6010 - WD58/1A 1853
PJ6010 - WD60/1B 1858
PJ6010 - WD65/1B/2A 1864
PJ6010, location 2065
PJ6011 - WD65/1B 1864
PJ6011, location 2065
PJ6012 - WD59.2/1A 1856
PJ6012, location 2131
PJ6013 - WD59.3/1B 1857
PJ6013, location 2131
PJ6014 - WD59.1/2B 1855
PJ6014, location 2074
PJ6015 - WD59.1/2B 1855
PJ6015, location 2075
PJ6016 - WD59.1/2B 1855
PJ6016, location 2075
PJ6017 - WD59.1/2B 1855
PJ6018 - WD51.1/1B 1844
PJ6018, location 2065
PJ6019 - WD51.1/1B 1844
PJ6019, location 2065
PJ602 - WD28/1A 1813
PJ602 - WD31/1A/2A 1816
PJ602 - WD33/1A/2A 1818
PJ602 - WD65/2B 1864
PJ602, location 2135, 2136
PJ603 - WD34/1B 1819
PJ603, location 2135, 2136
PJ604 - WD28/2A 1813
PJ604 - WD31/1A 1816
PJ604 - WD33/2A 1818
PJ604, location 2135, 2136
PJ605 - WD59.3/1B 1857
PJ605, location 2118

PJ606 - WD60/1A 1858
PJ606, location 2074
PJ609, location 2131
PJ612 - WD27/1B 1812
PJ612 - WD31/1B/2B 1816
PJ612 - WD33/2B 1818
PJ612 - WD64/2A 1863
PJ612 - WD65/1A/2A 1864
PJ612 - WD66/1A 1865
PJ612, location 2131
PJ615, location 2064
PJ616 - WD50/1B 1842
PJ616, location 2064
PJ617 - WD64/2A 1863
PJ617, location 2060, 2076
PJ618 - WD64/2A 1863
PJ618, location 2060, 2076
PJ619 - WD35/1B/2B 1820
PJ619, location 2080
PJ620 - WD27/1A 1812
PJ620 - WD28/1A 1813
PJ620 - WD31/1B 1816
PJ620 - WD33/1A 1818
PJ620, location 2076
PJ621 - WD34/2B 1819
PJ621, location 2080
PJ622 - WD27/1A 1812
PJ622 - WD28/1A 1813
PJ622 - WD31/1A 1816
PJ622 - WD33/1A 1818
PJ622, location 2080
PJ623 - WD27/2A 1812
PJ623 - WD33/1A/2A 1818
PJ623, location 2080
PJ626 - WD27/1A 1812
PJ626 - WD28/1A 1813
PJ626 - WD31/2A 1816
PJ626 - WD33/1A 1818
PJ626, location 2079
PJ627 - WD65/1A 1864
PJ627, location 2079
PJ628 - WD65/1A 1864
PJ628, location 2079
PJ629 - WD31/1B 1816
PJ629 - WD33/2B 1818
PJ629, location 2079
PJ630 - WD35/1A 1820
PJ630, location 2079
PJ632 - WD51/1A 1843
PJ632, location 2076
PJ633 - WD29/2B 1814
PJ633, location 2063
PJ636 - WD58/1B 1853
PJ636, location 2064
PJ637 - WD58/2B 1853
PJ637, location 2064, 2074
PJ638 - WD49/1A 1841
PJ638, location 2064
PJ640 - WD58/1B/2B 1853
PJ640, location 2074
PJ643, location 2077
PJ645 - WD65/2B 1864
PJ645, location 2074
PJ646 - WD31/1B 1816
PJ646, location 2077
PJ647 - WD33/1B 1818
PJ647, location 2064
PJ649 - WD27/1B 1812
PJ649, location 2077
PJ650, location 2077
PJ650A, location 2077
PJ652 - WD31/1B 1816
PJ652, location 2077
PJ653 - WD33/1A 1818
PJ653, location 2074
PJ654 - WD31/1B 1816
PJ654, location 2061, 2077
PJ655, location 2061, 2077
PJ657 - WD27/1A 1812
PJ657, location 2077
PJ661 - WD35/1B 1820
PJ661, location 2077
PJ662 - WD35/2B 1820
PJ662, location 2077
PJ664 - WD34/2B 1819
PJ664, location 2077
PJ665 - WD34/2B 1819
PJ665, location 2078
PJ666 - WD34/2B 1819
PJ666, location 2074
PJ667 - WD65/1A 1864
PJ667 - WD66/1B 1865
PJ667, location 2078
PJ668 - WD65/2A 1864
PJ668 - WD66/2B 1865
PJ668, location 2078
PJ672 - WD29/2B 1814
PJ672, location 2063
PJ674 - WD50/1B 1842
PJ674, location 2078
PJ676 - WD27/2B 1812
PJ676, location 2078
PJ677 - WD51/1A 1843
PJ677, location 2078
PJ682 - WD65/1B 1864
PJ682, location 2074
PJ684 - WD27/1B 1812
PJ684 - WD31/1B 1816

PJ684, location 2078
PJ685 - WD664/2A 1863
PJ685, location 2078
PJ686 - WD64/2A 1863
PJ686, location 2061, 2078
PJ687 - WD28/1B 1813
PJ687, location 2055
PJ688 - WD28/1B 1813
PJ688, location 2055
PJ689 - WD28/1B 1813
PJ689, location 2055
PJ690 - WD28/2B 1813
PJ690, location 2074
PJ699 - WD31/2A 1816
PJ699, location 2136
PJ702 - WD59.1/1B 1855
PJ702 - WD59/2B 1854
PJ702, location 2117, 2120
PJ703 - WD59.1/1B 1855
PJ703 - WD59/1B 1854
PJ703, location 2120
PJ705 - WD59.1/1B 1855
PJ705 - WD59/1B 1854
PJ705, location 2120
PJ711 - WD59.1/1B 1855
PJ711 - WD59/1B 1854
PJ711, location 2117, 2120
PJ715 - WD33/1A 1818
PJ715, location 2118
PJ717 - WD33/2A 1818
PJ717, location 2118
PJ718 - WD33/1A/2A 1818
PJ718, location 2058
PJ723 - WD53/1B 1846
PJ723, location 2074
PJ725 - WD64/2A 1863
PJ725, location 2061
PJ727 - WD59.3/1A 1857
PJ727, location 2121
PJ728 - WD59.1/1B 1856
PJ728, location 2118
PJ730 - WD59.1/2B 1855
PJ730 - WD59/2B 1854
PJ730, location 2117, 2121
PJ731 - WD59.1/2B 1855
PJ731 - WD59/2B 1854
PJ731, location 2117, 2121
PJ732 - WD59.1/2B 1855
PJ732 - WD59/2B 1854
PJ732, location 2118
PJ733 - WD59.1/2B 1855
PJ733 - WD59/2B 1854
PJ733, location 2118
PJ734 - WD59.1/1B 1855
PJ734, location 2121
PJ737 - WD59.1/1B 1855
PJ737 - WD59/1B 1854
PJ737, location 2118
PJ742 - WD53/2B 1846
PJ742, location 2121
PJ745 - WD54/1B 1847
PJ745, location 2061, 2078
PJ746 - WD27/1A 1812
PJ746, location 2058
PJ747 - WD27/1B 1812
PJ747, location 2058
PJ749 - WD52/2A 1845
PJ749 - WD55/2B 1849
PJ749 - WD59.1/1A 1855
PJ749 - WD59/1A 1854
PJ749 - WD59.3/2A 1857
PJ749, location 2121
PJ750 - WD52/1A 1845
PJ750 - WD59.1/1A 1855
PJ750 - WD59/2A 1854
PJ750, location 2121
PJ750A, location 2121
PJ751 - WD52/1B 1845
PJ751, location 2121
PJ752 - WD52/1B 1845
PJ752, location 2117
PJ754 - WD33/2B 1818
PJ754, location 2058
PJ755 - WD52/1A 1845
PJ755, location 2121
PJ756 - WD52/1A 1845
PJ756, location 2121
PJ760 - WD51.1/1A 1844
PJ776 - WD54.1/1B/2B 1848
PJ776, location 2061
PJ777 - WD51.1/1A 1844
PJ778 - WD51.1/2A 1844
PJ803 - WD33/2A 1818
PJ803, location 2121
PJ804 - WD33/2B 1818
PJ804, location 2121
PJ823 - WD52/2B 1845
PJ823, location 2074
PJ830 - WD59.3/2A 1857
PJ830, location 2121
PJ878, location 2152
PJ879, location 2152
PJA01 - WD22.1/1A 1804
PJA01 - WD22/1A 1803
PJA01, location 2148
PJA02, location 2148
PJA03, location 2148
PJA04, location 2148

PJA05 - WD22.1/1B 1804
PJA05 - WD22/1B 1803
PJA05, location 2148
PJA06 - WD22.1/1B 1804
PJA06 - WD22/1B 1803
PJA06, location 2148
PJA07 - WD22.1/2B 1804
PJA07 - WD22/2B 1803
PJA07, location 2148
PJA08 - WD22.1/1B 1804
PJA08 - WD22/1B 1803
PJA08, location 2148
PJA09 - WD22.1/2B 1804
PJA09 - WD22/2B 1803
PJA09, location 2148
PJA10 - WD22.1/1A 1804
PJA10 - WD22/1A 1803
PJA10, location 2149
PJA11 - WD22.1/1A 1804
PJA11 - WD22/1A 1803
PJA11, location 2149
PJB01 - WD21.1/1B 1802
PJB01 - WD21/1B 1801
PJB01, location 2146
PJB02 - WD21.1/1A 1802
PJB02 - WD21/1A 1801
PJB02, location 2146
PJC01 - WD23.1/1A/1B 1806
PJC01 - WD23/1B 1805
PJC01, location 2152
PJC02 - WD23.1/1A/1B 1806
PJC02 - WD23/1B 1805
PJC02, location 2152
PJC03 - WD23.1/2A/2B 1806
PJC03 - WD23/2B 1805
PJC03, location 2152
PJC3 - WD22.1/2A 1804
PJC3 - WD22/2A 1803
PJE01 - WD78/1B 1886
PJE01, location 2081
PJE02 - WD78/1B 1886
PJE02, location 2081
PJE03 - WD78/1B 1886
PJE03, location 2081
PJF01 - WD82/1B 1893
PJF01 - WD83/1B 1894
PJF01, location 2150
PJF02 - WD82/1B 1893
PJF02 - WD83/1B 1894
PJF02, location 2150
PJF03 - WD82/1B 1893
PJF03 - WD83/1B 1894
PJF03, location 2150
PJF04 - WD82/1B 1893
PJF04 - WD83/1B 1894
PJF04 - WD84/1A 1896
PJF04 - WD85/1A 1897
PJF04, location 2150, 2151
PJF05 - WD82/1B 1893
PJF05 - WD83/1B 1894
PJF05 - WD84/1A 1896
PJF05 - WD85/1A 1897
PJF05, location 2150, 2151
PJF06 - WD82/1B 1893
PJF06 - WD83/1B 1894
PJF06 - WD84/1A 1896
PJF06 - WD85/1A 1897
PJF06, location 2151
PJG02 - WD20/2B 1798
PJH01 - WD20.1/1A 1799
PJH01 - WD20/1A 1798
PJH01 - WD20.2/1A 1800
PJH01, location 2149
PJH02 - WD20.1/1A/2A 1799
PJH02 - WD20/1A/2A 1798
PJH02 - WD20.2/1A/2A 1800
PJH02, location 2149
PJH03 - WD20.1/1A/2A 1799
PJH03 - WD20/1A/2A 1798
PJH03 - WD20.2/1A/2A 1800
PJH03, location 2149
PJJ05 - WD20.1/2B 1799
PJJ05 - WD20.2/1B 1800
PJJ1 - WD79/1A 1887
PJJ1 - WD82/1A 1893
PJJ1 - WD83/1A 1894
PJJ1 - WD83.2/1A 1895
PJJ1, location 2153
PJJ1 (single beam), location 2154
PJJ1 (two beam), location 2156
PJJ10 - WD20.1/2B 1799
PJJ10 - WD20/1A 1798
PJJ10 - WD20.2/1B 1800
PJJ10 (single beam), location 2154
PJJ10 (two beam), location 2156
PJJ11 - WD82/1A 1893
PJJ11 - WD83/1A 1894
PJJ11 (single beam), location 2154
PJJ11 (two beam), location 2156
PJJ12 - WD32/1A 1817
PJJ12 (single beam), location 2154
PJJ12 (two beam), location 2156
PJJ13 - WD72/1B 1873
PJJ13 - WD73.1/1B 1875
PJJ13 - WD73/1B 1874
PJJ13 - WD73.2/1B 1876
PJJ13 (single beam), location 2154
PJJ13 (two beam), location 2156

PJJ2, location 2154
PJJ2 (two beam), location 2156
PJJ3 - WD78/1A 1886
PJJ3 (single beam), location 2154
PJJ3 (two beam), location 2156
PJJ4 - WD81.1/1B 1889
PJJ4 - WD81/1B 1888
PJJ4 - WD81.2/1B 1890
PJJ4 (single beam), location 2154
PJJ4 (two beam), location 2156
PJJ5 - WD20/1A 1798
PJJ5 (single beam), location 2154
PJJ5 (two beam), location 2156
PJJ6 - WD76/1B 1884
PJJ6 - WD77/1B 1885
PJJ6 (single beam), location 2154
PJJ6 (two beam), location 2156
PJJ7 - WD82/1A 1893
PJJ7 - WD83/1A 1894
PJJ7 - WD83.2/1A 1895
PJJ7 (single beam), location 2154
PJJ7 (two beam), location 2156
PJJ8 - WD72/1B 1873
PJJ8 - WD73.1/1B 1875
PJJ8 - WD73/1B 1874
PJJ8 - WD73.2/1B 1876
PJJ8 - WD74/1A/1B 1880
PJJ8 - WD75.1/1A/1B 1882
PJJ8 - WD75/1A/1B 1881
PJJ8 - WD75.2/1A/1B 1883
PJJ8 (single beam), location 2154
PJJ8 (two beam), location 2156
PJJ878 - WD20.1/1A 1799
PJJ878 - WD20.2/1A 1800
PJJ879 - WD20.1/1A 1799
PJJ879 - WD20.2/1A 1800
PJJ9 - WD82/1A 1893
PJJ9 - WD83/1A 1894
PJJ9 (single beam), location 2154
PJJ9 (two beam), location 2156
PJMJ07 - WD83.2/1A 1895
PJMJ10 - WD20.1/1B 1799
PJMJ10 - WD20.2/1B 1800
PJMJ12 - WD32/1A 1817
PJT01 - WD20.1/1B 1799
PJT01 - WD20.2/2B 1800
PJT01 - WD20/2B 1798
PJT01 - WD84/1B 1896
PJT01 - WD85/1B 1897
PJT01, location 2152
PJU7 (single beam), location 2155
PL101 - CD64 1969
PL101 - WD39.1/1B 1824
PL101 - WD39/1B 1823
PL101, location 2056, 2083
PL101, parts 3212
PL101, removal 2493
PL102 - CD63 1968
PL102 - WD39.1/1B 1824
PL102 - WD39/1B 1823
PL102, location 2083
PL102, parts 3208
PL102, removal 2490
PL103 - WD58/2B 1853
PL103, adjust 2621
PL103, check 2620
PL103, location 2081
PL103, removal 2619
PL701 - WD59.1/1B 1855
PL701 - WD59/2B 1854
PL701, adjust 2980
PL701, location 2117
PL701, parts 3472
PL701, removal 2978
PL702 - WD59.1/2B 1855
PL702 - WD59/2B 1854
PL702, adjust 2975
PL702, location 2118
PL702, parts 3484
PL702, removal 2973
PL703 - WD59.1/2B 1855
PL703 - WD59/2B 1854
PL703, adjust 2972
PL703, location 2118
PL703, parts 3472
PL703, removal 2970
Planar, I/O (73H4746) (-6) 3560
Plate (45G1750) (-121) 3188
Plate, Adjust (88F2878) (-4) 3356
Plate, Adjust (88F2981) (-200) 3400
Plate, Airshield (310 PPM only) (24H7992) (-89) 3470
Plate, AO Modulator Base (04H0788) (-162S) 3300
Plate, AO Modulator Base (04H0788) (-162T) 3286
Plate, Bias (57G4450) (-110) 3248
Plate, Bias (57G5958) (-104) 3248
Plate, Brake Pressure (06F0803) (-29) 3444
Plate, Cable Clamp (88F2842) (-159) 3330
Plate, Card Mounting, Side1/Side 2 3534
Plate, Circle (04H0789) (-164S) 3300
Plate, Circle (04H0789) (-164T) 3286
Plate, Clamper (88F2499) (-24) 3228

Plate, Cleaner Brush Motor (88F2478) (-55) 3222
Plate, Cleaner Housing Motor Asm (88F2471) (-26) 3220
Plate, Connection (88F2760) (-61) 3320
Plate, Connector Hold (06F0509) (-170) 3218
Plate, Cover Mount (30H2919) (-21A) 3520
Plate, Disk (30H5520) (-110A) 3324
Plate, Exhaust (88F1655) (-9) 3180
Plate, Ground (88F3052) (-5) 3420
Plate, Grounding (88F2771) (-143) 3328
Plate, Guide (06F1117) (-113) 3362
Plate, Guide (06F1118) (-119) 3362
Plate, Hold IF (57G6686) (-59) 3200
Plate, Idler (57G4442) (-70) 3246
Plate, Lamp Guide (For “B” lamps only) (11L5178) (-301) 3418
Plate, Lamp Guide (For “L” lamps only) (88F2950) (-301) 3418
Plate, Latch (30H2985) (-11C) 3532
Plate, Latch Asm (Europe 50 Hz) (88F3096) (-121) 3426
Plate, Link (57G5992) (-83) 3232
Plate, Link (88F2772) (-315) 3344
Plate, Link (88F2775) (-326) 3346
Plate, Mag Brush Motor (88F2536) (-90) 3242
Plate, Mag Roll Adjusting (57G4407) (-23) 3238
Plate, Magnet (88F2820) (-14) 3316
Plate, Magnet (Printers with 8-inch minimum paper width) (04H1055) (-14) 3316
Plate, Magnet Cleaner Brush (88F2487) (-86) 3224
Plate, Mirror 2 (57G6656) (-38) 3266
Plate, Mirror 2 (57G6656) (-38S) 3290
Plate, Mirror 2 (57G6656) (-38T) 3276
Plate, Mixing Asm (04H1095) (-86) 3258
Plate, Mixing U2 Asm (04H1094) (-90) 3258
Plate, Mixing U3 (04H1096) (-91) 3258
Plate, Motor Mounting (88F3230) (-46) 3468
Plate, Motor Nut (06F0808) (-9) 3444
Plate, Mount (88F2768) (-218) 3336
Plate, Mounting (30H3033) (-5C) 3532
Plate, Mounting (30H6782) (-18A) 3524
Plate, Mounting (57G5971) (-22) 3228
Plate, Nut (06F0798) (-88) 3434
Plate, Nut (57G4449) (-116) 3248
Plate, Nut (88F3070) (-45) 3420
Plate, Nut (88F3134) (-91) 3434
Plate, Nut (90H1108) (-126) 3438
Plate, PM Nut (06F0621) (-28) 3482
Plate, PM Nut (06F0621) (-29) 3476
Plate, Pre-measure Link Asm (88F2865) (-33) 3350
Plate, Pressure (06F1140) (-6) 3356
Plate, Rise (04H0796) (-179S) 3302
Plate, Rise (04H0796) (-179T) 3288
Plate, Scavenger Roll Adjustment (57G4436) (-25) 3244
Plate, Scavenger Roll Stopper (88F2541) (-4) 3244
Plate, Sensor (04H1108) (-225D) 3408
Plate, Sensor (30H6813) (-205S) 3302
Plate, Sensor (88F2722) (-195) 3332
Plate, Sensor (88F2962) (-236) 3402
Plate, Sensor (88F3081) (-79) 3424
Plate, Sensor (S103) (88F2472) (-31) 3220
Plate, Side Latch (30H2986) (-13C) 3532
Plate, Slide (06F1116) (-111) 3362
Plate, Suction (30H3177) (-110) 3436
Plate, Taper (04H0792) (-169S) 3300
Plate, Taper (04H0792) (-169T) 3286
Plate, Tension Position Arm (88F2844) (-288) 3342
Plate, Terminal (88F2952) (-308) 3418
Plate, TF Protector (04H1093) (-95) 3258
Plate, Toner Empty Beat (88F2598) (-76) 3258
Plate, Toner Feed (30H6693) (-52) 3256
Plate, Tray TN (88F2524) (-105) 3236
Plate, Upper Toner Belt (30H2767) (-19) 3254
Plate, VI141 Card Mounting (30H6728) (-93S) 3294
Plate, VI141 Card Mounting (30H6728) (-93T) 3280
Plate, Y.S Nut (88F2452) (-143) 3216
Plate Assembly (06H2792) (-30) 3564
Platen, Lower Preheat (IS1, and ID1/ID2 only) (90H1032) (-38) 3430
Platen, Lower Preheat (480/600 DPI Printer 2 only) (24H8379) (-38) 3430
Platen, Lower Preheat (All except 480/600 DPI Printer 2, IS1, ID1/ID2, and 324 PPM) (57G6546) (-38) 3430

Platen, Upper Preheat (PH601) (480/600 DPI Printer 2, IS1, and ID1/ID2) (24H8378) (-31) 3430
Platen, Upper Preheat (PH601) (All except 480/600 DPI Printer 2, IS1, ID1/ID2, and 324 PPM) (57G6545) (-31) 3430
plates
conveyor roll lift, adjust 2441
deflector, location 2072, 2082
Plug, Preheat Platen Vaccum Manifold (24H8380) (-42) 3432
pm
changing a counter 3623
checklist 3620
log 3623
performing off-schedule 3620
procedures
1.5 Mft 3627
12 Mft 3635
18 Mft 3637
3 Mft 3629
6 Mft 3631
9 Mft 3633
backup idler roll 3638
backup roll 3638
general instructions 3625
hot roll 3638
hot roll motor brushes 3638
recording completed 3624
service schedule (checklist) 3620
specially tracked parts 3638
PM, completing 1567
PM counter, changing 1567
PM log 1567
PN01 - WD20.1/2A 1799
PN01 - WD20.2/2A 1800
ports, audio, location 2169
position 0, normal print 1610
position 5, modify backup roll lift motor open/close timing 1721
position 5, modify steering servo 1719
position 5, read memory address string 1718
position 8, clear memory 1725
position 9, optical sensor margin tests 1726
position switch, cleaner housing - CD67 1972
postprocessor, intelligent to MIC - WD83 1894
postprocessor interface wrap plug 'B' - WD85 1897
postprocessor print sample 1605
potentiometer, 140V adjust, location 2084
power
ac power supply, removal 2635
ac power supply access 2633
dc 1, removal 2637
dc 2, removal 2641
power-off, printer only 2631
power-off, procedure 2631
power-off procedure 2631
power-on, printer only 2630
power-on, procedure 2630
power-on procedure 2630
printer only power control panel switch settings, duplex 2632
SQ081, removal 2642
SQ082, removal 2642
SR081, removal 2643
power adjustment A (single beam) 2705
power adjustment A (two beam 240) 2805
power adjustment A (two beam 240/300) 2916
power adjustment C (single beam) 2707
power adjustment C (two beam 240) 2807
power adjustment C (two beam 240/300) 2918
power control (simplex), AC - WD23 1805
Power Control Asm (30H3190) (-7A) 3536
Power Control Card (45G1741) (-32) 3538
power control panel, location 2146
power control panel, removal 2257
power control panel card, location 2146
power control panel switch settings 2632
Power Cord, Y assembly (90H1655) (–226) 3370
power cord connector, location 2058
Power Cord with switch assembly (05L5971) (–225) 3370
power distribution, printer DC - WD38 1821
power-off, printer only 2631
power-off, procedure 2631
power-off procedure 2631
power on 3725
power-on 2630
power-on, printer only 2630
power-on LED, location 2169
power-on procedure 2630

power receptacle 3664
power requirements
3-phase 3662
50 Hz 3662
60 ampere 3662
60 Hz 3662
adapting voltages 3662
circuit breaker 3662
disconnecting 3662
European configuration 3662
IT power distribution system 3663
Japan configuration 3663
U.S. configuration 3662
voltage ranges 3664
World Trade configuration 3662
power supplies
ac, removal 2635
ac power supply access 2633
DC, location 2146, 2148
DC 1, location 2088, 2092
DC 2, location 2088, 2092
dc 1, removal 2637
dc 2, removal 2641
high voltage, location 2059
high voltage, parts 3206
laser, location 2057
laser, parts 3204
location, AC, printer 2084
location, components, 200 volt 2088
location, components, 400 volt 2092
location, connectors, 200 volt 2086
location, connectors, 400 volt 2090
LPS101 - WD41.1/2B 1827
LPS101 - WD41/1B 1826
RS/6000, Type 7013 Model 595, location 2161
power supplies *(continued)*
SQ081, removal 2642
SQ082, removal 2642
SR081, removal 2643
power supply, (24 VD) - CD105 2010
Power Supply (400V), AC (310 PPM) (45G1870) (-5) 3510
Power Supply (400V), AC (324 PPM and IR3/IR4 only) (90H1752) (-5) 3510
Power Supply (400V), AC (IR1/IR2, IS1, ID1/ID2 only) (89H9660) (-5) 3510
Power Supply (8184794) (-13) 3552
Power Supply, AC Asm (30H6719) (-15A) 3536
Power Supply, DC Asm (30H2868) (-16A) 3536
Power Supply (F50) (93H6809) (-23) 3562
power supply, location 2161
power supply, low voltage - WD20 1798
power supply, low voltage - WD20.1 1799
power supply, low voltage - WD20.2 1800
power supply, printer AC - WD16 1792
power supply, printer AC - WD17 1793
power supply, printer AC - WD17.1 1794
power supply, printer AC - WD18 1795
power supply, printer AC - WD19 1796
power supply, printer AC - WD19.1 1797
Power Supply 200V AC (310 PPM) (45G1869) (-5) 3508
Power Supply 200V AC (324 PPM and IR3/IR4) (90H1751) (-5) 3508
Power Supply 200V AC (IR1/IR2, IS1, ID1/ID2 only) (89H9659) (-5) 3508
power supply card, removal 2642
power supply cover, location 2164
Power Supply DC1 (200V) (45G1844) (-16) 3508
Power Supply DC1 (400V) (45G1844) (-14) 3510
Power Supply DC2 (200V) (45G1843) (-17) 3508
Power Supply DC2 (400V) (45G1843) (-15) 3510
power switch, location 2158
power switch (On/Off pushbutton), location 2169
power switches 3768
power tool pedestal, location 2107, 2111
PP1 - WD82/1B 1893
PP1 - WD83/1B 1894
PP2 - WD82/1B 1893
PP2 - WD83/1B 1894
PP3 - WD82/1B 1893
PP3 - WD83/1B 1894
PQE (single beam printhead) - WD81 1888
PQE Card (02N6400) (-17A) 3524
PQE Card (04H0760) (-15B) 3528
PQE Card (24H8038) (-15B) 3528
PQE Card (310 PPM) (04H0761) (-15B) 3528
PQE Card (324 PPM) (11L6201) (-15B) 3528
PQE Card (90H2539) (-17A) 3524
PQE card (single beam), location 2154
PQE card (single beam), removal 2258

PQE card (two beam), location 2156
PQE card (two beam), removal 2260
PQE stroke width (single beam), adjust 2734
PQE stroke width (two beam 240), adjust 2840
PQE stroke width (two beam 240/300), adjust 2949
pre and postprocessing printer circuitry - WD88 1900
pre-measure unit, adjust 3055
pre/postprocessing interface cards, removal 2262
pre/postprocessing interface signals, checking 1589
pre/postprocessing interface test card 1587
pre/postprocessing interface test card and cable 3818
pre/postprocessing interface voltages, checking 1592
pre/postprocessing tailgate, location 2149
pre/postprocessing tailgate connector, location 2149
pre/postprocessor diagnostics 1583
pre/postprocessor interface, coupled to MIC - WD82 1893
pre-postprocessor interface wrap plug 'A' - WD84 1896
precharge corona - CD48 1953
precharge corona, cleaning 2321
precharge corona, location 2083
precharge corona, removal 2320
Precharge Corona Asm, (57G6505) (-60) 3210
precharge corona driver routine 1648
precharge corona voltage, adjust 2342
preclean corona - CD47 1952
preclean corona, cleaning 2321
preclean corona, location 2083
preclean corona, removal 2320
Preclean Corona Asm (30H6934) (-41) 3210
Preclean Corona Asm (57G6505) (-41) 3210
preclean corona driver routine 1643
preclean corona to PC drum gap, adjust 2323
preclean corona voltage, adjust 2341
preclean corona voltage, check 2341
preheat control - CD74 1979
preheat control - WD66 1865
preheat control, location 2081
preheat control, removal 2583
preheat platen
PH601 - WD35/1B 1820
PH601 - WD66/1B 1865
PH602 - WD35/2B 1820
PH602 - WD66/2B 1865
PJ601 - WD65/2B 1864
PJ602 - WD65/2B 1864
preheat platen - CD73 1978
preheat platen, AC distribution - WD35 1820
preheat platen driver routine 1656
preheat platen frame, adjust 2518
preheat platen lift plate assembly, removal 2580
preheat platen lower, removal 2576
preheat platen thermal - CD75 1980
preheat platen upper , removal 2576
preheat platen vacuum, adjust 2189
Preheat Potentiometer Asm (09G7012) (-2) 3514
preparing to read from or write to memory 1611
pressure gauge 3818
preventive maintenance
fast path 3620
types 3618
primary erase lamp - CD63 1968
primary erase lamp, location 2083
primary erase lamp (PL102) driver routine 1643
primary erase lamp, removal 2490
primary erase lamp cover to PC drum gap 2499
primary erase lamp sensor - CD63 1968
primary erase lamp sensor, location 2056, 2083
primary erase lamp sensor (Q101) routine 1671
primary erase lamp sensor, removal 2492
Primary Erase Lamp Sensor Asm (Q101) (53F1869) (-156) 3216
primary erase lamp starter - CD63 1968
primary erase lamp starter, location 2061
primary print sample 1602
print 1568
print log 1569
print pack 1569
print sample terms 1601
print samples 1600
print skew (single beam), adjust 2719

print skew (two beam 240), adjust 2819
print skew (two beam 240/300), adjust 2930
print width (single beam), adjust 2716
print width (two beam 240), adjust 2816
print width (two beam 240/300), adjust 2927
print width adjustment, printhead 2927
printer 1 remote power - CD92 1997
printer AC power supply - WD16 1792
printer AC power supply - WD17 1793
printer AC power supply - WD17.1 1794
printer AC power supply - WD18 1795
printer AC power supply - WD19 1796
printer AC power supply - WD19.1 1797
printer activation test 1582
printer and control unit installation 3666
  damage checks 3667
printer control panel - CD115 2020
printer control panel, location 2056, 2116
printer control panel, removal 2622
printer control panel (SW721) routine 1675
printer DC power distribution - WD38 1821
printer DC power units and sequence card - WD24 1807
printer diagnostics 1606
printer interface, location 2113, 2115
printer interface (two-beam 240), location 2114
printer interface card, parts 3202
printer interface test 1582
printer local power switch, location 2142
printer power jumper plug 3819
printer remote power - CD91 1996
printer right end cover, install 3743
printer sequence card - WD25 1808
printer speed control - WD67 1866
printer status window 1557
printhead
  AFCCU interface extension cable 3808
  alignment target, five-beam laser 3811
  alignment target, four-beam laser 3811
  alignment tool, single-beam laser 3810
  alignment tool, two-beam 240/300 DPI laser 3811
  alignment tool, two-beam laser 3810
  AOM driver power (two beam 240), adjust 2757, 2865
  BD121 - CD123 2028
  BD131 - CD124 2029
  BD132 - CD124 2029
  BD141 - CD124 2029
  beam detect - CD124 2029
  beam detect - CD54 1959
  beam detect card - CD123 2028
  components (two-beam 240 DPI), locations 2106
  five-beam - CD53 1958
  four-beam - CD52 1957
  laser, location 2053
  laser safety (single beam) 2647
  laser safety (two beam 240) 2741
  laser safety (two beam 240/300) 2848
  laser shutter (single beam) 2649
printhead *(continued)*
  laser shutter (two beam 240) 2744
  laser shutter (two beam 240/300) 2852
  locations, components (single-beam) 2102
  locations, components (two-beam 240/300 DPI) 2110
  locations, connectors (single-beam) 2100
  locations, connectors (two-beam 240) 2104
  locations, connectors (two-beam 240/300 DPI) 2108
  power tool, laser 3812
  power tool support, laser 3813
  registration template 3820
  resolution switching lens position error - CD56 1961
  tractor alignment 3814
  two-beam - CD126 2031
  video data - CD51 1956
  video data - CD55 1960
printhead alignment 3735
printhead alignment (single beam) 3735
printhead alignment (two beam 240) 3735
printhead alignment (two beam 240/300) 3735
printhead front fan (single beam), location 2102
printhead front fan (single beam), removal 2668
printhead front fan (two beam 240), location 2106

printhead front fan (two beam 240), removal 2765
printhead front fan (two beam 240/300), location 2110
printhead front fan (two beam 240/300), removal 2873
printhead interface card (single beam), location 2103
printhead interface card (single beam), removal 2686
printhead interface card (two beam 240), location 2107
printhead interface card (two beam 240), removal 2783
printhead interface card (two beam 240/300), location 2111
printhead interface card (two beam 240/300), removal 2891
printhead power print sample 1605
printhead pressurizing fan (single beam), location 2102
printhead pressurizing fan (single beam), removal 2687
printhead pressurizing fan (two beam 240), location 2106
printhead pressurizing fan (two beam 240), removal 2784
printhead pressurizing fan (two beam 240/300), location 2110
printhead pressurizing fan (two beam 240/300), removal 2892
printing multiple log copies 1570
prism
  dove (two beam 240), location 2106
  dove (two beam 240), parts 3276
prism *(continued)*
  dove (two beam 240/300), location 2110
  dove (two beam 240/300), parts 3290
  Wollaston (two beam 240), location 2107
  Wollaston (two beam 240), parts 3278
  Wollaston (two beam 240), removal 2785
  Wollaston (two beam 240/300 - 324 PPM), parts 3292
  Wollaston (two beam 240/300), location 2111
  Wollaston (two beam 240/300), parts 3292
  Wollaston (two beam 240/300), removal 2897
Prism, Wollaston (04H0847) (-56T) 3278
Prism, Wollaston (two beam 240/300) (30H6695) (-56S) 3292
Prism, Wollaston (two beam 240/300 - 324 PPM) (11H5157) (-56S) 3292
Prism Asm, Dove (04H0829) (-6s) 3290
Prism Asm, Dove (04H0829) (-6T) 3276
process fan right front, location 2070
process fan right rear, location 2070
process sensors (S112, S113, S114, & S116) - WD57 1851
process sensors and switches (PC211, PC531, & PC551 cards) - WD56 1850
processor card, location 2166
Pulley (05L5440) (-202) 3370
Pulley (88F2765) (-211) 3334
Pulley, Backup Roll Lift (90H2418) (-193) 3442
Pulley, Backup Roll Lift Motor (90H2403) (-121) 3438
Pulley, Cable (88F2751) (-249) 3338
Pulley, Cable Asm (88F2745) (-154) 3330
Pulley, Cable Asm (88F2745) (-98) 3324
Pulley, Cable Asm (88F2748) (-329) 3346
Pulley, Cam (88F3021) (-191) 3400
Pulley, Cleaner Brush Driven 50/60 Hz (04H0780) (-111) 3226
Pulley, Cleaner Brush Driven 50Hz (57G4383) (-111) 3226
Pulley, Cleaner Brush Driven 60 Hz (57G4384) (-112) 3226
Pulley, Conveyor Roll (310 PPM, 324 PPM, and IR1/IR2 only) (04H1089) (-12) 3238
Pulley, Conveyor Roll (All Except 310 PPM, 324 PPM, IR1/IR2) (57G4408) (-12) 3238
Pulley, Drive (88F2778) (-90) 3322
Pulley, Drive (88F3222) (-18) 3466
Pulley, Drive (88F3226) (-26) 3466
Pulley, Driven (04H0212) (-123) 3326
Pulley, Driven (04H0212) (-18) 3462
Pulley, Driven (06F0912) (-13) 3482
Pulley, Driven (06F0912) (-14) 3476
Pulley, Idler (06F0523) (-39) 3260
Pulley, Idler (45G1897) (-68) 3242
Pulley, Idler (65F6161) (-48) 3488
Pulley, Idler Asm (57G5998) (-128) 3326

Pulley, Idler Asm (57G5998) (-137) 3328
Pulley, Idler Asm (65F6161) (-5) 3466
Pulley, Mag Roll Brush (310 PPM, 324 PPM, and IR1/IR2 only) (04H1090) (-50) 3238
Pulley, Mag Roll Brush (All except 310 PPM, 324 PPM, IR1/IR2) (90H1373) (-50) 3238
Pulley, Motor (88F2741) (-110) 3326
Pulley, Pendulum Drive (06F0687) (-6) 3462
Pulley, Plastic (06F0213) (-15) 3428
Pulley, Plastic (06F0213) (-48) 3432
Pulley, Rear (88F3137) (-98) 3436
Pulley, Scavenger Roll Asm (06F0616) (-27) 3244
Pulley, Scuff Roll (310 PPM and 324 PPM only) (04H0776) (-257) 3404
Pulley, Scuff Roll (All except 310 PPM and 324 PPM) (88F2975) (–257) 3404
Pulley, Steering Motor (88F3123) (-53) 3432
Pulley, Table Drive (88F1653) (-103) 3492
Pulley, Table Drive (88F1653) (-24) 3486
Pulley, Tension Asm (88F2737) (-134) 3328
Pulley, Toner Auger Drive (04H0888) (-164) 3252
Pulley, Toner Control Asm (06F0616) (-7) 3254
Pulley, Toner Feed (53F1847) (-46) 3256
Pulley, Toner Feed Asm (57G4444) (-63) 3246
Pulley, Toner Supply Asm (04H0893) (-153) 3252
Pulley, Urge Unit (45G4592) (-204) 3370
Pulley, Vacuum Shutter Drive (88F3156) (-167) 3440
pulleys
  idler, location 2067
  toner auger drive, location 2066
Pump, Oil Asm (Six pump system) (L701, L702, L703, L704, L705, L706) (90H1283) (-148) 3396
Pump, Oil Asm (Three pump system) (L701, L702, L703) (57G6825) (-148) 3396
pumps
  L701, location 2059
  L702, location 2059
  L703, location 2059
  L704, location 2060
  L705, location 2060
  L706, location 2060
  oil, removal 2569
  oil 1, location 2059
  oil 2, location 2059
  oil 3, location 2059
  oil 4, location 2060
  oil 5, location 2060
  oil 6, location 2060
pumps, oil (L701, L702 & L703) - WD54 1847
pumps, oil (L701, L702, L703, L704, L705, & L706) - WD54.1 1848
PW091, location 2123
PW091, removal 3046

Q

Q101 - CD63 1968
Q101 - WD61.1/1B 1860
Q101 - WD61/1B 1859
Q101, location 2056, 2083
Q101, parts 3216
Q101, removal 2492
Q102 - CD64 1969
Q102 - WD61.1/1B 1860
Q102 - WD61/1B 1859
Q102, location 2083
Q102, parts 3214
Q102, removal 2495
Q103 - CD113 2018
Q103,, location 2085
Q103 - WD61.1/2B 1860
Q103 - WD61/2B 1859
Q103, adjust 2621
Q103, check 2620
Q103, location 2056
Q103, parts 3204
Q103, removal 2619
Q201 - WD46.1/1B 1837
Q201 - WD46/2B 1836
Q301 - CD06 1911
Q301 - CD129 2034
Q301 - WD63/1A 1862
Q301, adjust 3153
Q301, location 2123
Q301, removal 3152
Q701 - CD26 1931
Q701, adjust 2980
Q701, location 2117

Q701, parts 3472
Q701, removal 2978
Q702, adjust 2975
Q702, location 2117
Q702, parts 3484
Q702, removal 2973
Q703 - CD32 1937
Q703, adjust 2972
Q703, location 2117
Q703, parts 3472
Q703, removal 2970

R

R5 switch, location 2100
R501 - WD16/1A 1792
R501 - WD18/1B 1795
R501 resistor, location 2088, 2092
R502 - WD16/1A 1792
R502 - WD18/1B 1795
R502, resistor, location 2089
R502 resistor, location 2093
R503 - WD16/1A 1792
R503 - WD18/1B 1795
R503, resistor, location 2089
R503 resistor, location 2093
R504 - WD18/1A 1795
R505 - WD18/1A 1795
R506 - WD18/1A 1795
R507 - WD17.1/1B 1794
R507 - WD17/1B 1793
R507 - WD19.1/1B 1797
R507 - WD19/1B 1796
R507, resistor, location 2089
R507 resistor, location 2093
R601 - WD35/1A 1820
R601 relay, location 2079
R602 - WD35/1A 1820
R602 relay, location 2079
R603 - WD35/1A 1820
R603 relay, location 2079
R604 - WD35/1A 1820
R604 relay, location 2079
R605 - WD35/1A 1820
R605 relay, location 2079
R606 - WD35/1A 1820
R606 relay, location 2079
R613 - WD35/1A 1820
R613 relay, location 2079
R614 - WD35/1A 1820
R614 relay, location 2079
Rail, Preclean Guide (57G6714) (-161) 3218
Rail, Slide (88F2427) (-32) 3208
RB091 relay board, location 2135
RB101, location 2085
RB101, Relay Board (53F1752) (-6) 3508, 3510
RB241, location 2062
RB241, parts 3206
read from or write to memory 1611
read memory address string (position 5) 1718
reading from memory 1612
reading the MIC LED display 1580
rear height stud adjusting shaft, location 2072
rear upper process fan, location 2053
receptacle 3665
Receptacle, Hot Roll Lamp (88F2940) (-52) 3386
Receptacle, Hot Roll Lamp (88F2943) (-49) 3386
Receptacle, Hot Roll Lamp Asm (88F2939) (-47) 3386
recording completed PM 3624
recording PM as completed 1567
Reel, Transfer Corona Shield (88F2804) (-178) 3332
Reel, Transfer Corona Shield Asm (88F2802) (-175) 3332
registration
  checking with scale (single beam) 2724
  checking with scale (two beam 240) 2824, 2935
  checking with template (single beam) 2723
  checking with template (two beam 240) 2823
  checking with template (two beam 240/300) 2934
  horizontal (single beam), adjustment 2730
  horizontal (two beam 240), adjustment 2830
  horizontal (two beam 240/300), adjustment 2941
  process direction (single beam), adjustment 2725
  process direction (two beam 240), adjust 2825
  process direction (two beam 240/300), adjust 2936
  scan direction (single beam), adjustment 2730

registration *(continued)*
scan direction (two beam 240), adjustment 2830
scan direction (two beam 240/300), adjustment 2941
vertical (single beam), adjustment 2725
vertical (two beam 240), adjust 2825
vertical (two beam 240/300), adjust 2936
registration (single beam), adjust 2721
registration (two beam 240), adjust 2821
registration (two beam 240/300), adjust 2932
registration template 3820
reinstallation 3796
Relay, (1) 200V (45G1891) (-13) 3508
Relay, (2) 200V (45G1892) (-14) 3508
Relay, (Europe 50 Hz and Norway 50 Hz) (K601) (53F1815) (-10) 3500
Relay, (K501-503) 400V (45G1892) (-12) 3510
Relay, (K505) 200V/400V (53F1764) (-3) 3508, 3510
Relay, (US/Canada 60 Hz and Japan 50 Hz or 60 Hz) (K601) (53F1774) (-9) 3500
Relay, Socket (88F3311) (-7) 3500
Relay, Solid State (06F0172) (-5) 3500
Relay Board (RB241) (04H0901) (-156) 3206
relay board RB101, location 2085
relays
hot roll lamp 1 - CD82 1987
hot roll lamp 2 - CD84 1989
relays *(continued)*
hot roll lamp 3 - CD86 1991
hot roll lamp 4 - CD130 2035
hot roll lamp 4 - CD88 1993
K1 - WD22.1/2B 1804
K1 - WD22/2B 1803
K1–1 - WD22.1/2B 1804
K1–1 - WD22/2B 1803
K1–2 - WD22.1/1B 1804
K1–2 - WD22/1B 1803
K1–3 - WD22.1/1B 1804
K1–3 - WD22/1B 1803
K2 - WD22.1/1A 1804
K2 - WD22/1A 1803
K2–1 - WD22.1/1A 1804
K2–1 - WD22/1A 1803
K2–2 - WD22.1/1A 1804
K2–2 - WD22/1A 1803
K22 - WD22/2A 1803, 1804
K23 - WD22.1/2A 1804
K23 - WD22/2A 1803
K3 - WD22.1/2B 1804
K3 - WD22/2B 1803
K3–1 - WD22.1/1B 1804
K3–1 - WD22/1B 1803
K3–2 - WD22.1/1B 1804
K3–2 - WD22/1B 1803
K4 - WD21.1/2B 1802
K4 - WD21/2B 1801
K4–2 - WD21.1/1B 1802
K4–2 - WD21.1/2B 1802
K4–2 - WD21/1B 1801
K4–2 - WD21/2B 1801
K501 - WD17.1/2A 1794
K501 - WD17/2A 1793
K501 - WD18/1A 1795
relays *(continued)*
K501 - WD19.1/2B 1797
K501 - WD19/2B 1796
K501, location 2088, 2092
K501 -WD16/1A 1792
K502 - WD16/1A 1792
K502 - WD17.1/2A 1794
K502 - WD17/2A 1793
K502 - WD18/1A 1795
K502 - WD19.1/2B 1797
K502 - WD19/2B 1796
K502, location 2088, 2092
K503 - WD16/1A 1792
K503 - WD17.1/1B/2B 1794
K503 - WD17/1B/2B 1793
K503 - WD18/1B 1795
K503 - WD19.1/1B/2B 1797
K503 - WD19/1B/2B 1796
K503, location 2088, 2092
K505 - WD16/1B 1792
K505 - WD18/1B 1795
K505 - WD19.1/2B 1797
K505 - WD19/2B 1796
K505, location 2088, 2092
K505 -WD17.1/2B 1794
K505 -WD17/2B 1793
K601 - WD35/1A 1820
R601, location 2079
R602, location 2079
R603, location 2079
R604, location 2079
R605, location 2079
R606, location 2079
R613, location 2079
R614, location 2079
SR601 - WD34/2A 1819

relays *(continued)*
SR601 - WD35/1A 1820
SR601, location 2080
SR602 - WD34/2A 1819
SR602 - WD35/1A 1820
SR602, location 2080
SR603 - WD34/2A 1819
SR603 - WD35/1A 1820
SR603, location 2080
SR604 - WD34/2A 1819
SR604 - WD35/1A 1820
SR604, location 2080
SR605 - CD82 1987
SR605 - WD34/2A 1819
SR605 - WD35/1A 1820
SR605, location 2080
SR606 - CD84 1989
SR606 - WD34/2B 1819
SR606 - WD35/1B 1820
SR606, location 2080
SR607 - CD86 1991
SR607 - WD34/2B 1819
SR607 - WD35/1B 1820
SR607, location 2080
SR608 - CD130 2035
SR608 - CD88 1993
SR608 - WD34/2B 1819
SR608 - WD35/1B 1820
SR608, location 2080
relocation 3794
reminder, PM due 3620
remote power, printer - CD91 1996
remote power, printer 1 - CD92 1997
remote power cable 3765
removals
ac power supply 2635
removals *(continued)*
auto load bridge assembly 2193
B108 2380
B109 2380
B110 2382
B111 2382
B112 2382
B1J10 2213
B1J11 2215
B1J11 EPROM, removal 2218
B602 2546
B604 2329
B605 2529
backup idler roll motor 2524
backup roll lift motor 2509
backup roll lift motor drive belt 2512
backup roll lift position sensor 2520
backup roll load motor 2521
bias contact brushes 2361
bias contact plate assembly 2362
bridge down switch 2195
bridge feed belts 2196
bridge feed gears 2197
bridge feed motor and gearbox 2198
bridge lift motor 2202
bridge lift motor and gearbox 2203
bridge up switch 2209
buffer card 2352
charge corona 2313
cleaner brush 2220
cleaner brush drive belt 2222
cleaner brush drive cone 2224
cleaner brush driven cone 2225
cleaner brush motor 2228
cleaner brush motor assembly 2227
cleaner brush rotation sensor 2230
removals *(continued)*
cleaner housing motor 2233
cleaner housing switch 2233
cleaner skirt 2236
conveyor roll 2363
conveyor roll rotation sensor 2368
corona cleaning brushes 2324
cyclone blower 2173
cyclone blower drive belt 2175
cyclone blower motor 2177
cyclone blower rotation sensor 2178
D603, removal 2604
dc 1 power supply 2637
dc 2 power supply 2641
developer 2355
developer cooling fans 2380, 2382
developer drain lever sensor 2383
developer front seal 2385
developer rear seal 2386
developer run switch 2387
drum motor 2479
drum motor drive belt 2479
EN131, removal 2526
erase lamp starters 2498
filter pressure switch 2182
fine filter switch 2184
FS051 2528
FS053 2528
FS071 2528
FS551 2528
fuser cooling fan 2529
fuser paper cooling fan 2575
fuser paper cooling fans 2574
fuser wrap sensor 2530, 2532
ground brush, removal 2478
high voltage power supply 2328

removals *(continued)*
high voltage power supply fan 2329
hot roll 2537
hot roll collars 2537
hot roll drive assembly 2535
hot roll drive collar 2540
hot roll drive motor 2541
hot roll drive motor blower 2546
hot roll front hub 2548
hot roll lamps 2550
hot roll over-temperature sensor 2560
L101 2412
M101 2389
M102 2419
M103 2407
M104 2177
M105 2191
M106 2233
M107 2479
M108 2227, 2228
M112 2431
M601 2611
M602 2603
M603 2521
M604 2592
M605 2198
M606 2202
M607 2541
M609 2524
M610 2509
M706 2564
mag brush belt 2372
mag brush motor 2389
mag brush rolls 2392
manifold distribution filter 2185
oiler belt motor 2564
removals *(continued)*
oiler gate interlock switch 2566
ozone filter 2188
PC drum 2467
PC drum cover interlock switch 2476
PL101 2493
PL102 2490
power supply card 2642
precharge corona 2320
preclean corona 2320
primary erase lamp 2490
primary erase lamp sensor, removal 2492
printer operator panel 2351
Q101, removal 2492
Q102, removal 2495
S102 2182
S103 2233
S106 2414
S107 2387
S108 2184
S112 2383
S113 2368
S114 2230
S116 2178
S118 2187
S121 2438
S122 2476
S604 2599
S605 2566
S608 2209
S609 2195
S613 2560
S617 2530
S618, removal 2530
S620 2532
removals *(continued)*
S624 2520
SC0101 EPROM 3021
SC0103 EPROM 3021
SC061 3019
SC061 EPROM 3020
SC091 3019
SC091 EPROM 3020
SC101 3019
SC103 3019
scavenger roll 2396
scuff roll drive motor 2592
secondary erase lamp 2493
secondary erase lamp sensor, removal 2495
shutter motor 2603
skew sensor, removal 2604
SQ081 2642
SQ082 2642
SR081, removal 2643
ST101 2498
ST102 2498
steering motor 2611
toner collector bottle assembly 2186
toner collector bottle switch 2187
toner control belt 2374
toner control motor 2407
toner control sensor 2412
toner control shaft 2410
toner empty sensor 2414
toner feed belt 2376
toner feed gate 2417
toner feed motor 2419
toner feed scraper blade 2421
toner feed shaft 2425
toner hopper paddle 2428

removals *(continued)*
toner inlet 2431
toner supply belt, removal 2378
toner supply motor 2431
toner supply switch 2438
transfer corona 2320
transfer corona cleaning brush 2326
vacuum blower 2191
vacuum shutter home sensor 2599
YS011 2627
remove boxes 3670
remove packing tape 3670
replacement tasks 3619
report, EREP detail 1749
report, EREP summary 1748
reset button, location 2158, 2169
reset switch 1608
Resistor, Asm (88F2874) (-56) 3352
Resistor, with Thermal Switch Asm (06F1023) (-15) 3500
Resistor, without Thermal Switch Asm (06F1022) (-14) 3500
resistors
R501 - WD16/1A 1792
R501 - WD18/1B 1795
R501, location 2088, 2092
R502 - WD16/1A 1792
R502 - WD18/1B 1795
R502, location 2089
R5021, location 2093
R503 - WD16/1A 1792
R503 - WD18/1B 1795
R503, location 2089, 2093
R504 - WD18/1A 1795
R505 - WD18/1A 1795
R506 - WD18/1A 1795
resistors *(continued)*
R507 - WD17.1/1B 1794
R507 - WD17/1B 1793
R507 - WD19.1/1B 1797
R507 - WD19/1B 1796
R507, location 2089
R5071, location 2093
R601 - WD35/1A 1820
R603 - WD35/1A 1820
R604 - WD35/1A 1820
R605 - WD35/1A 1820
R606 - WD35/1A 1820
R613 - WD35/1A 1820
R614 - WD35/1A 1820
resolution lens motor (M202) routine 1661
resolution lens motor (two beam 240/300), location 2111
resolution lens motor (two beam 240/300), removal 2893
resolution lens position sensor, (S202) routine 1694
resolution lens sensor (two beam 240/300), location 2111
resolution lens sensor (two beam 240/300), removal 2895
resolution switching lens (two beam 240/300), location 2111
resolution switching lens (two-beam 240/300), parts 3304
resolution switching lens motor postion sensor - CD56 1961
restore disk 1594
restore forms 1595
Retainer, Memory Card (91F1066) (-25) 3554
Retainer, Remote BUS TAG (85X6837) (-24A) 3524
Retainer, Remote BUS TAG (85X6837) (-24B) 3528
Retainer, Spring (88F2482) (-74) 3224
Retaining Ring (06F0418) (-219S) 3304
Retaining Ring D5 (06F0418) (-37A) 3450
Retractor, Lower (57G6502) (-42) 3352
retractor, lower, location 2083
Retractor, Upper (57G6501) (-41) 3352
retractor, upper, location 2083
retractor acceleration time, adjust 2214
retractor acceleration time adjustment routine 1700
retractor acceleration time setting 2214
retractor accleration switch, location 2129
retractor detent position, adjust 3063
retractor lower, location 2124
retractor motor - CD01 1906
retractor motor, adjust 3058
retractor motor, location 2122
retractor motor (M304) driver routine 1645
retractor motor (M304) encoder routine 1707
retractor motor, removal 3057
retractor motor overcurrent - CD03 1908
retractor to PC drum gap, adjust 3066
retractor upper, location 2124
retractors
lower, location 2083, 2124
upper, location 2083, 2124
return mirror (single beam), check 2720

return mirror (single beam), location 2103
return mirror (single beam), parts 3268
return mirror (two beam 240), check 2820
return mirror (two beam 240), location 2107
return mirror (two beam 240), parts 3278
return mirror (two beam 240/300), check 2931
return mirror (two beam 240/300), location 2111
return mirror (two beam 240/300), parts 3292
right finger belt motor, adjust 2991
right finger belt motor (M702) driver routine 1648
right finger belt motor, removal 2990
right finger belts, adjust 2994
right finger belts, removal 2992
right stacker height sensor (Q702) routine 1692
Ring, Clamp (06F0292) (-194) 3400
Ring, Clamp (06F0292) (-54) 3432
Ring, Clamping (06F0292) (-121) 3326
Ring, Clamping (06F0292) (-91) 3322
Ring, Clamping (88F1640) (-274) 3340
Ring, Clamping (88F1640) (-298) 3342
Ring (Europe 50 Hz) (88F3101) (-129) 3426
Ring, O (88F3350) (-124) 3250
Ring, O (88F3351) (-129) 3250
Ring, pushon (For IBM logo) (89H9677) 3186
Ring, Retaining (Printers with Backup Roll Lift hardware) (06F0418) (-195) 3442
Ring, Seal (88F2969) (-132) 3394
Ring, Tight (06F0292) (-111) 3326
Ring, Tight (06F0292) (-117) 3226
Ring, Tight (06F0292) (-121) 3392
Ring, Tight (06F0292) (-123) 3438
Ring, Tight (06F0292) (-19) 3462
Ring, Tight (06F0292) (-7) 3462
Rod (11L6063) (-6C) 3518
Rod (30H6831) (-8C) 3518
Rod (30H6882) (-6C) 3518
Rod, Connecting Asm (53F1811) (-29) 3350
Roll, Backup (480/600 DPI Only) (24H8013) (-75) 3432
Roll, Backup (All Except 480/600 DPI) (57G6460) (-75) 3432
Roll, Capstan Asm (57G6802) (-208) 3334
Roll, Capstan Sub Asm (57G6499) (-214) 3336
Roll, Conveyor (57G6530) (-1) 3238
roll, conveyor, location 2067
Roll, Drive (74H8397) (-211) 3370
Roll, Hot Asm (24H8386) (IR2 only) (-68) 3388
Roll, Hot Asm (30H2789) (-68) 3388
Roll, Hot Asm (30H3098) (IR1 only) (-68) 3388
Roll, Hot Asm (90H1757) (IR3/IR4) (-68) 3388
Roll, Hot Asm (90H2642) (-68) 3388
Roll, Idler (04H0504) (-270D) 3412
Roll, Magnetic A (30H2934) (-19) 3238
Roll, Magnetic B (30H2935) (-20) 3238
Roll, Magnetic C (30H2936) (-21) 3238
Roll, Scavenger (57G6534) (-7) 3244
roll, scavenger, location 2067
Roll, Toner Control (57G6751) (-1) 3254
Roller (65F6159) (-36) 3486
Roller (65F6160) (-35) 3486
Roller, Capstan Pinch Asm (57G6803) (-215) 3336
Roller, Capstan Pinch Sub Asm (53F1810) (-219) 3336
Roller, Guide (88F3284) (-32) 3486
Roller, Pinch Sub Asm (57G6500) (-222) 3336
Roller, Power Roller Asm (45F4589) (-200) 3370
Roller, Power Roller Asm (57G6490) (-200) 3368
Roller, Pressure (06F0153) (-56D) 3382
Roller, Pressure (06F0153) (-6) 3380
rolls
  backup, removal 2503
  backup idler, removal 2522
  backup idler roll (BIR), location 2073
  backup roll (BUR), location 2073
  capstan pinch, location 2123
  capstan pinch, removal 3024
  capstan roll, adjust 3035
  capstan roll, removal 3033
  conveyor, location 2066, 2067
  conveyor, removal 2363
  conveyor roll angle, adjust 2440
  hot, location 2073
  hot, removal 2537
  hot roll collars, removal 2537
  hot roll drive assembly, removal 2535

rolls *(continued)*
hot roll drive collar, removal 2540
initialize mag brush rolls position, adjust 2451
mag brush, adjust 2394
mag brush, removal 2392
scavenger, adjust 2398
scavenger, location 2067, 2069, 2083
scavenger, removal 2396
scuff, assembly, location 2075
scuff, removal 2590
scuff pressure, assembly, location 2075
scuff pressure, removal 2586
rotation sensor, cleaner brush - CD65 1970
rotation sensor, cyclone blower – CD72 1977
routine options
E0, change loop count 1629
E2, set buzzer on or off 1630
E4, read memory address 1631
E5, set optical sensor margin check on or off 1632
RR belt holder (90H2715) (35) 3484
RS/6000 controller
7013-595 controller, removal 2269
7013-595 CPU planar connectors, locations 2162
7013-595 disk drive, removal 2273
7013-595 front view, locations 2158
7013-595 I/O planar connectors, locations 2163
7013-595 internal view, locations 2161
RS/6000 controller *(continued)*
7013-595 power supply connectors, locations 2164
7013-595 rear view, locations 2159
7025- F50 card loactions 2166
7025 controller, removal 2279
7025 ESCON, removal 2285
7025-F50 bay, locations 2167
7025 hard disk drive, removal 2282
7025 parallel channel, removal 2290
7043-43P external view, locations 2168, 2170
7043 controller, removal 2296
7043 hard disk drive, removal 2299
7043 parallel channel, removal 2307
automatic tests 1741
concurrent mode 1743
from the laptop 1743, 1744
microcode, updating 2266
online diagnostics 1743
SMS Screen 1745
Rubber (06F1049) (-18) 3482
Rubber (06F1049) (-19) 3476
Rubber, Scuff Roll Kit (Contains 17 Scuff Rolls) (30H6749) (-265) 3406
Rubber, Scuff Roll Tire (06F0154) (-265) 3406
run CFS/BTS voltage test 1592
run options 1628
run switch, developer - CD114 2019
running diagnostics 1571, 1627
running traces 1596

S

S101 - CD107 2012
S101 - WD61.1/1B 1860
S101 - WD61/1B 1859
S101, check 2624
S101, location 2116
S101, removal 2623
S102 - CD116 2021
S102 - WD56/1B 1850
S102, check 2182
S102, location 2054
S102, removal 2182
S103 - CD67 1972
S103 - WD56/1B 1850
S103, adjust 2235
S103, check 2235
S103, location 2054
S103, parts 3220
S103, removal 2233
S106 - WD56/2B 1850
S106, location 2069
S106, removal 2414
S107 - CD114 2019
S107 - WD56/1B 1850
S107, location 2069
S107, removal 2387
S108 - CD121 2026
S108 - WD56/2B 1850
S108, check 2184
S108, location 2054
S108, removal 2184
S112 - CD112 2017
S112 - WD57.1/1B 1852
S112 - WD57/1B 1851
S112, check 2384

S112, location 2069
S112, removal 2383
S113 - CD60 1965
S113 - WD57.1/1B 1852
S113 - WD57/1B 1851
S113, location 2067
S113, removal 2368
S114 - CD65 1970
S114 - WD57.1/1B 1852
S114 - WD57/1B 1851
S114, check 2231
S114, location 2056
S114, parts 3224
S114, removal 2230
S116 - Cd72 1977
S116 - WD57.1/2B 1852
S116 - WD57/2B 1851
S116, adjust 2179
S116, check 2179
S116, location 2063
S116, removal 2178
S118 - CD110 2015
S118 - WD56/1B 1850
S118, adjust 2187
S118, check 2187
S118, location 2063
S118, removal 2187
S121 - CD122 2027
S121 - WD56/1B 1850
S121, location 2069
S121, removal 2438
S122 - CD57 1962
S122 - CD58 1963
S122 - WD41.1/2B 1827
S122 - WD41/2B 1826
S122, adjust 2477
S122, location 2056
S122, parts 3204
S122, removal 2476
S202 - CD56 1961
S202 - WD46.2/2A 1838
S202 (sensor) - WD46.2 1838
S202 (two beam 240/300), location 2111
S202 (two-beam 240/300), parts 3302
S202 (two beam 240/300), removal 2895
S301 - CD43 1948
S301 - WD63/2A 1862
S301, location 2122, 2123
S301, removal 3031
S302 - CD108 2013
S302 - WD61.1/2B 1860
S302 - WD61/2B 1859
S302, location 2056, 2072
S302, parts 3216
S302, removal 3158
S32 - WD21.1/1A 1802
S32 - WD21/1A 1801
S601 - CD80 1985
S601 - WD65/1B 1864
S602 - CD80 1985
S602 - WD65/1B 1864
S604 - CD70 1975
S604 - WD58/1B 1853
S604, adjust 2602
S604, location 2065
S604, removal 2599
S605 - CD119 2024
S605 - WD58/2B 1853
S605, adjust 2567
S605, location 2075
S605, removal 2566
S606 - CD109 2014
S606 - WD58/1B 1853
S606, location 2065
S608 - CD39 1944
S608 - WD64/2A 1863
S608, adjust 2211
S608, check 2210
S608, location 2061
S608, removal 2209
S609 - CD44 1949
S609 - WD64/2A 1863
S609, check 2195
S609, location 2061
S609, removal 2195
S610 - CD118 2023
S610 - WD64/2A 1863
S610, adjust 2563
S610, location 2075
S610, removal 2562
S613 - CD77 1982
S613 - WD65/2B 1864
S613, adjust 2561
S613, location 2075
S613, removal 2560
S617 - WD58/1B 1853
S617 -CD14 1919
S617, location 2075
S617, removal 2530
S618 - WD58/1B 1853
S618 -CD14 1919
S618, location 2075
S618, removal 2530
S619 - CD29 1934
S619 - WD52/2B 1845
S619, adjust 3008

S619, location 2117
S619, parts 3464
S619, removal 3007
S620 - WD58/2B 1853
S620 -CD14 1919
S620, location 2075
S620, removal 2532
S621 - CD76 1981
S621 - WD59.1/2B 1855
S621, location 2075
S621, thermistor, adjust 2614
S621, thermistor, fuser, removal 2613
S622 - CD76 1981
S622 - WD59.1/2B 1855
S622, location 2075
S622, thermistor, adjust 2614
S622, thermistor, fuser, removal 2613
S623 - CD76 1981
S623 - WD59.1/2B 1855
S623, location 2075
S623, thermistor, adjust 2614
S623, thermistor, fuser, removal 2613
S624 - CD24 1929
S624 - WD51.1/1B 1844
S624, location 2065
S624, removal 2520
S701 - CD34 1939
S701 - WD59.1/1B 1855
S701 - WD59/1B 1854
S701, adjust 3016
S701, location 2119
S701, parts 3490
S701, removal 3015
S702 - CD117 2022
S702 - WD64/2A 1863
S702, location 2061
S704 - CD34 1939
S704 - WD59.1/1B 1855
S704 - WD59/1B 1854
S704, adjust 3018
S704, location 2119
S704, parts 3490
S704, removal 3017
S712 - CD120 2025
S712 - WD59.1/1B 1855
S712 - WD59/1B 1854
S712, location 2117
S712, parts 3468
S712, removal 2967
S713 - CD33 1938
S713 - WD59.1/1B 1855
S713 - WD59/1B 1854
S713, adjust 2969
S713, location 2119
S713, parts 3480
S713, removal 2968
S714 - CD33 1938
S714 - WD59.1/1B 1855
S714 - WD59/1B 1854
S714, location 2119
S714, parts 3480
S714, removal 2968
S8, location 2130
safety
laser (single beam) 2647
laser (two beam 240) 2741
laser (two beam 240/300) 2848
laser interlock (single beam) 2648
laser interlock (two beam 240) 2742
laser interlock (two beam 240/300) 2849
safety *(continued)*
laser safety filter check (single beam) 2650
laser safety filter check (two beam 240) 2743
laser safety filter check (two beam 240/300) 2850
laser shutter (single beam) 2649
laser shutter (two beam 240) 2744
laser shutter (two beam 240/300) 2852
safety ground schematics 1786
safety switches, stacker gate - CD33 1938
samples, print 1600
save configuration settings 3780
save forms 1595
SC Arm Shaft l (88F3127) (-250D) 3410
SC0101 EPROM, removal 3021
SC0103 EPROM, removal 3021
SC061, location 2120
SC061, removal 3019
SC061 Card, (57G6527) (-70) 3458
SC061 EPROM, (90H2363) (-79) 3458
SC061 EPROM, removal 3020
SC091, removal 3019
SC091 Card, (24H8015) (-70) 3458
SC091 EPROM, (11L6176) (-79) 3458
SC091 EPROM, removal 3020
SC101, removal 3019
SC101 EPROM, (90H1783) (-79) 3458
SC101Card, (90H1110) (-70) 3458
SC103, removal 3019
SC103 Card, (90H1291) (-70) 3458
SC103 EPROM, (11L6204) (-79) 3458
SC106 Card, (90H1365) (-70) 3458

SC106 EPROM, (11L6177) (-79) 3458
SC108 Card, (90H1365) (-70) 3458
SC108 EPROM, (11L6276) (-79) 3458
Scale, Forms Length E1 (88F3447) (-69A) 3320
Scale, Forms Length E2 (88F3448) (-69B) 3320
Scale, Forms Length E3 (88F3449) (-69C) 3320
scavenger roll, adjust 2398
scavenger roll, location 2069, 2083
scavenger roll, removal 2396
scavenger roll lever, location 2066
scheduled maintenance
definition 3618
scr0139 295
Scraper, Toner Feed (04H1124) (-57) 3256
scraper blade A, location 2082
scraper blade C, location 2082
Screw, (Not Shown) (45G2064) 3186
Screw (0438551) (-16A) 3524
Screw (1621192) (-47) 3556
Screw (1621211) (-37) 3556
screw (1621844) (-9) 3552
Screw (45G2111) (-206) 3368
Screw (45G2112) (-205) 3368
Screw (53F1663) (-22A) 3524
Screw (53F1663) (-22B) 3528
Screw (53F1664) (-125) 3188
Screw (53F1665) (-22C) 3532
Screw (53F1665) (-3A) 3520
Screw (53F1672) (-124) 3188
Screw (53F1672) (-12B) 3528
Screw (78X8993) (-38) 3556
Screw (91610) (-30) 3538
Screw (91610) (-31) 3538
Screw (91610) (-33) 3538
Screw, Adjust (30H6698) (-173S) 3300
Screw, Adjust (30H6698) (-173T) 3286
Screw, Adjust (88F2631) (-39) 3266
Screw, Adjust (88F2631) (-39S) 3290
Screw, Adjust (88F2631) (-39T) 3276
Screw, Adjust 2U Asm (57G6697) (-17) 3208
Screw, Bezel (1621198) (-20) 3552
Screw, Bezel (1621211) (-22) 3552
Screw, Cage Assembly (1621211) (-11) 3552
Screw, Clamp (06F0745) (-205) 3400
Screw, Coupling (06F1123) (-95) 3360
Screw, Developer Adjust (57G6696) (-16) 3208
Screw, Fan (1621193) (-14) 3552
Screw, Guide Locking (88F2899) (-125) 3362
Screw, Hex Head M6 X 10 (1621594) (-7C) 3532
Screw, Jack (06F1162) (-5) 3180
Screw, Jack (53F1678) (-15C) 3532
Screw, Jack (88F2909) (-100) 3392
Screw, M3 x 12 (1621173) (-24) 3554
Screw, M3 x 16 (1621174) (-28) 3554
Screw, M4 x 12 (1621192) (-33) 3554
Screw, M4 X 12 Phillips Pan Hd with Star Wshr & Wshr (06F0411) (-9A) 3450
Screw, M4 X 15 (45G2064) (-3C) 3532
Screw, M4 X 60 (1621071) (-6A) 3536
Screw, M4 X 8 (53F1665) (-11A) 3536
Screw, M4 X 8 (53F1665) (-36B) 3530
Screw, M4 X 8 (53F1665) (-7A) 3524
Screw, M4 X 8 (53F1665) (-7B) 3528
Screw, M5 X 10 (30H3100) (-6A) 3524
Screw, M5 X 10 (30H3100) (-6B) 3528
Screw, M5 X 10 (30H3100) (-8C) 3532
Screw, M5 X 12 (1622276) (-26C) 3532
Screw, M5 X 12 Phillips Pan Hd with Star Wshr & Wshr (06F0401) (-7A) 3450
Screw, M5 X 8 (53F1663) (-24A) 3520
Screw, M6 X 10 (1621862) (-14A) 3520
Screw, M6 X 20 (1621342) (-16C) 3532
Screw, Mounting (0091610) (-8A) 3536
Screw, Operator Panel and Switch Asm (1621192) (-19) 3552
Screw, Phillips Flat M4 X 6 (06F0412) (-39) 3478
Screw, Power Supply (1621217) (-15) 3552
Screw, Set (05L5443) (-212) 3370
Screw, set(71H2461) (-213) 3370
Screw, Shoulder (30H6700) (-191S) 3302
Screw, Shoulder (30H6700) (-191T) 3288
Screw, Shoulder (45G2106) (-27) 3238
Screw, Shoulder (53F1667) (-3C) 3518
Screw, Shoulder (65G1918) (-19) 3552
Screw, Tapping Tight (88F3349) (-74) 3212
Screw M4 X 8 (1621190) (-8) 3514
SCSI-2, Enhanced Diff Fast Wide Adaptor (In adapter slot 0/1 and 1/4) (-51) 3556
SCSI adapter card (F50), (73H3568) (-16) 3560
SCSI adapter card (F50), (93H8407) (-16) 3560

scuff pressure roller assembly, location 2075
scuff pressure rollers, adjust 2589
scuff pressure rollers, removal 2586
scuff roll, location 2075
scuff roll, removal 2590
scuff roll drive belt, adjust 2593
scuff roll drive motor, removal 2592
scuff roll motor - CD15 1920
scuff roll motor, location 2074
scuff roll motor (M604) driver routine 1653
scuff roll release cable, adjust 2595
scuff roll release cable, removal 2594
scuff roll release lever, location 2064
scuff roller pressure, check 2588
Seal, Air Duct (88F3338) (-16) 3198
Seal, Blower (88F2967) (-128) 3394
Seal, Cable Asm (57G5987) (-114) 3236
Seal, Conveyor Roll (90H2395) (-3) 3238
Seal, Drum Asm (30H6847) (-33) 3238
Seal, Duct (49G9570) (-107) 3204
Seal, Duct (57G6835) (-285) 3416
Seal, Exhaust Guide (57G5981) (-58) 3232
Seal, Filter (57F6794) (-78) 3312
Seal, Foam (57G6795) (-88) 3312
Seal, Manifold Distribution Filter (88F2980) (-199) 3400
Seal, Rear Asm (45G1882) (-31) 3228
Seal, Scavenger Roll (Mylar) (89H9991) (-89) 3248
Seal, scavenger roll foam (89H9992) (-75) 3246
Seal, Toner Collector (88F2712) (-71) 3312
Seal, Toner Feed Shaft Cover (57G4428) (-54) 3256
Seal, Toner Feed Shaft Cover (57G4429) (-53) 3256
Seal, Toner Hopper Front (24H8058) (-97) 3258
Seal, Toner Hopper Rear (24H8057) (-96) 3258
Seal, Toner Inlet Asm (88F2569) (-138) 3250
Seal, Vacuum (88F2708) (-52) 3310
Seal, Vacuum Rubber (88F3131) (-81) 3434
seals
  conveyor roll seal, location 2066
  developer vacuum, location 2082
  lower, location 2082
secondary erase lamp - CD64 1969
secondary erase lamp, location 2056, 2083
secondary erase lamp (PL101) driver routine 1641
secondary erase lamp, removal 2493
secondary erase lamp sensor - CD64 1969
Secondary Erase Lamp Sensor, (Q102) (53F1869) (-95) 3214
secondary erase lamp sensor, location 2083
secondary erase lamp sensor, removal 2495
secondary erase lamp sensor(Q102), routine 1689
secondary erase lamp starter - CD64 1969
secondary erase lamp starter, location 2061
sense bytes
  action code 1761
  format 0 1752
  format 1 1753
  format 2 1754
  format 3 1755
  format 4 1757
  format information 1751
  interpretation 1751
  sense byte 0 1760
  sense byte 1 1760
  sense byte 2 1761
  sense byte 3 1763
  sense byte 5 1751
sense data in service logs 1565
sensor
  capstan pinch roll open (S301) 1674
  margin tests 1726
  pendulum position sensor (S619) 1685
  printer control panel (SW721) 1675
  stacker table lower limit switch (S701) 1684
  tension arm encoder board 1673
Sensor, Backup Roll Lift Position (S624) (90H2407) (-154) 3440
Sensor, Backup Roll Lift Position Asm (S624) (90H1107) (-154) 3440
Sensor, Conveyer Roll Rotation Asm (113) (53F1829) (-41) 3244
Sensor, Cyclone Blower Rotation (S116) (53F1829) (-49) 3310

Sensor, Cyclone Rotation Asm (88F2705) (-45) 3310
Sensor, Drain Lever Switch (S112) (53F1829) (-66) 3232
Sensor, Fuser Front and Rear Wrap Asm (All printers without Backup Idler Roll hardware) (S617, S618) (53F1961) (-73) 3388
Sensor, Hot Roll Over Temperature (S613) (For printers with thermistor temperature control only) (53F1890) (-278) 3416
Sensor, Hot Roll Over Temperature Asm (S613) (88F3027) (-275) 3416
Sensor, Hot Roll Over Temperature Thermal (S613) (For printers without thermistor temperature control) (53F1890) (-278) 3416
Sensor, Hot Roll Temperature Control (L601) (53F1960) (-291) 3416
Sensor, Plate (04H1109) (-223D) 3408
Sensor, Resolution Lens Position (S202) (30H6814) (-209S) 3302
sensor, skew - WD49 1841
Sensor, Skew (D603) (53F1959) (-109) 3436
Sensor, Toner Control (L101) (45G1877) (-22) 3254
Sensor, Toner Empty (S106) (45G1866) (-74) 3258
Sensor, Upper Tractor Jam (Q301) (53F1795) (-37) 3318
Sensor, Vacuum Shutter Home (S604) (53F1958) (-89) 3434
sensor routines 1666
sensor routines 1666 *(continued)*
backup roll lift motor sensor (S624) 1693
BIR position encoder board (EN131) 1684, 1685
bridge down switch (S609) 1677
bridge up switch (S608) 1677
BUR position encoder (EN131) 1681
BUR position encoder board (EN131) 1680
cleaner brush rotation (S114) 1666
cleaner housing position switch (S103) 1667
contrast control buttons (SW721) 1690
conveyor roll rotation sensor (S113) 1668
cyclone blower rotation sensor (S116) 1666
developer drain lever switch (S112) 1670
developer run switch (S107) 1670
EOF sensor (Q103) 1671
exerciser routines 1666
filter pressure switch (S102) 1668
fine filter switch (S108) 1668
form width sensor card (PW091) 1674
forms length sensor card (FL061) 1681
forms select switch (SW721) 1689
forms width sensor board (PW091) 1676
fuser front wrap sensor (S617) 1679
fuser rear wrap sensor (S618) 1679
fuser wrap sensor (S620) 1680
sensor routines 1666 *(continued)*
hot roll motor blower (B602) 1688
left stacker height sensor (Q703) 1693
oiler belt end switch (S610) 1687
oiler empty sensor (S702) 1688
oiler gate open switch (S605) 1687
optical margin check 1632
optical margin test 1726
PC drum cover interlock switch (S122) 1669
primary erase lamp sensor (Q101) 1671
resolution lens position 1694
right stacker height sensor (Q702) 1692
secondary erase lamp sensor (Q102) 1689
skew sensor (D603) 1678
splicing lever switch (S101) 1676
stacker control panel (SW511) 1686
stacker gate open switch (S712) 1683
stacker gate safety switch (S713 & S714) 1682
stacker jam sensor (Q701& PL701) 1682
stacker length rotary board (FL041) 1681
stacker table upper limit switch (S704) 1683
thermal switch 1691
toner collector (S118) 1667
toner empty sensor (S106) 1669
toner supply switch (S121) 1692

sensor routines 1666 *(continued)*
transfer station open sensor (S302) 1672
upper tractor jam sensor (Q301) 1672
vacuum shutter home sensor (S604) 1678
vacuum switch (S606) 1688
sensor S202 - WD46.2 1838
sensors
(S619), routine 1685
B602, routine 1688
backup roll lift motor sensor, routine 1693
backup roll lift position, location 2065
backup roll lift position, removal 2520
BIR position encoder, routine 1684, 1685
blower, routine 1688
bridge down, routine 1677
bridge up, routine 1677
BUR position, routine 1680
BUR position encoder, routine 1681
cleaner brush rotation,, location 2056
cleaner brush rotation, check 2231
cleaner brush rotation, parts 3224
cleaner brush rotation, removal 2230
cleaner brush rotation, routine 1666
cleaner brush rotation sensor - CD65 1970
contrast control buttons, routine 1690
conveyor roll rotation - CD60 1965
conveyor roll rotation, location 2067
conveyor roll rotation, removal 2368
conveyor roll rotation, routine (S113) 1668
sensors *(continued)*
cyclone blower rotation , adjust 2179
cyclone blower rotation - CD72 1977
cyclone blower rotation , check 2179
cyclone blower rotation , removal 2178
cyclone blower rotation, location 2063
cyclone blower rotation, routine 1666
D603 - WD49/1A 1841
D603, adjust 2607
D603, location 2064, 2073
D603, removal 2604
D603, routine 1678
D604 - CD12 1917
developer drain lever, check 2384
developer drain lever, removal 2383
EN131, routine 1680, 1681, 1684, 1685
end of forms - CD113 2018
end-of-forms, check 2620
end-of-forms, removal 2619
end-of-forms sensor, adjust 2621
EOF, location 2056, 2085
EOF, routine 1671
EOF LED, parts 3198
EOF lower, parts 3204
filter pressure switch, routine 1668
fine filter switch, routine 1668
FL041 - WD59.3/1A 1857
FL061 - WD59.3/1A 1857
forms select switch, routine 1689
forms width circuit breaker, routine 1676
fuser front wrap - CD14 1919
fuser front wrap, location 2075
fuser front wrap, routine 1679
sensors *(continued)*
fuser oil empty - CD117 2022
fuser rear wrap, location 2075
fuser rear wrap, routine 1679
fuser wrap, removal 2532
fuser wrap, routine 1680
fuser wrap sensor, removal 2530
hot roll motor blower, routine 1688
hot roll over-temperature - CD77 1982
hot roll over-temperature, adjust 2561
hot roll over-temperature, location 2075
hot roll over-temperature, removal 2560
hot roll soft start - CD80 1985
hot roll temperature, removal 2558
hot roll temperature control - CD78 1983
hot roll temperature control, location 2073
L101 - WD56/2B 1850
L101, location 2068
L101, removal 2412
L601 - CD78 1983
L601 - WD65/1B 1864
L601, location 2073
L601, removal 2558
left stacker height sensor, routine 1693
O701 - WD59.1/1B 1855
O701 - WD59/2B 1854
O702 - WD59.1/1B 1855
O702 - WD59/2B 1854
O703 - WD59.1/2B 1855
O703 - WD59/2B 1854

sensors *(continued)*
oil empty, location 2061
oiler empty, routine 1688
pendulum position, adjust 3008
pendulum position, location 2117
pendulum position, parts 3464
pendulum position, removal 3007
pendulum position, routine 1685
PL103, adjust 2621
PL103, check 2620
PL103, parts 3198
PL103, removal 2619
PL701, adjust 2980
PL701, parts 3472
PL701, removal 2978
PL701, routine 1682
PL702, adjust 2975
PL702, parts 3484
PL702, removal 2973
PL703, adjust 2972
PL703, parts 3472
PL703, removal 2970
position, backup roll lift - CD24 1929
position, pendulum - CD29 1934
primary erase - CD63 1968
primary erase lamp, location 2056, 2083
primary erase lamp, parts 3216
primary erase lamp, removal 2492
primary erase lamp, routine 1671
PW091, routine 1676
Q101 - CD63 1968
Q101 - WD61.1/1B 1860
Q101 - WD61/1B 1859
Q101, parts 3216
Q101, removal 2492
sensors *(continued)*
Q101, routine 1671
Q102 - CD64 1969
Q102 - WD61.1/1B 1860
Q102 - WD61/1B 1859
Q102, location 2083
Q102, parts 3214
Q102, removal 2495
Q102, routine 1689
Q103 - CD113 2018
Q103 - WD61.1/2B 1860
Q103 - WD61/2B 1859
Q103, adjust 2621
Q103, check 2620
Q103, location 2056, 2085
Q103, parts 3204
Q103, removal 2619
Q103, routine 1671
Q201 - WD46.1/1B 1837
Q201 - WD46/2B 1836
Q301 - CD129 2034
Q301 - WD63/1A 1862
Q301, adjust 3153
Q301, location 2123
Q301, removal 3152
Q301, routine 1672
Q701 - CD26 1931
Q701, adjust 2980
Q701, location 2117
Q701, parts 3472
Q701, removal 2978
Q701, routine 1682
Q702, adjust 2975
Q702, location 2117
Q702, parts 3484
Q702, removal 2973
sensors *(continued)*
Q702, routine 1692
Q703 - CD32 1937
Q703, adjust 2972
Q703, location 2117
Q703, parts 3472
Q703, removal 2970
Q703, routine 1693
resolution lens (two beam 240/300), location 2111
resolution lens (two beam 240/300), removal 2895
resolution lens position (two-beam 240/300), parts 3302
resolution lens position sensor, routine 1694
resolution switching lens motor position - CD56 1961
right stacker height sensor, routine 1692
S101, routine 1676
S102, routine 1668
S106 - CD111 2016
S106 - WD56/2B 1850
S106, location 2069
S106, removal 2414
S106, routine 1669
S107, routine 1670
S108, routine 1668
S112, check 2384
S112, removal 2383
S112, routine 1670
S113 - CD60 1965
S113 - WD57.1/1B 1852
S113 - WD57/1B 1851
S113, location 2067

sensors *(continued)*
S113, removal 2368
S113, routine 1668
S114 - CD65 1970
S114 - WD57.1/1B 1852
S114 - WD57/1B 1851
S114, check 2231
S114, location 2056
S114, parts 3224
S114, removal 2230
S114, routine 1666
S116 - CD72 1977
S116 - WD57.1/2B 1852
S116 - WD57/2B 1851
S116, adjust 2179
S116, check 2179
S116, location 2063
S116, removal 2178
S116, routine 1666
S118, routine 1667
S121, routine 1692
S202 - CD56 1961
S202 - WD46.2/2A 1838
S202, routine 1694
S202 (two beam 240/300), location 2111
S202 (two-beam 240/300), parts 3302
S202 (two beam 240/300), removal 2895
S301 - WD63/2A 1862
S302 - CD108 2013
S302 - WD61.1/2B 1860
S302 - WD61/2B 1859
S302, location 2056, 2072
S302, parts 3216
sensors *(continued)*
S302, removal 3158
S302, routine 1672
S32 - WD21.1/1A 1802
S32 - WD21/1A 1801
S601 - CD80 1985
S601 - WD65/1B 1864
S601, location 2080
S602 - CD80 1985
S602 - WD65/1B 1864
S604 - CD70 1975
S604 - WD58/1B 1853
S604, adjust 2602
S604, location 2065
S604, removal 2599
S604, routine 1678
S606, routine 1688
S608, routine 1677
S609, routine 1677
S613 - CD77 1982
S613 - WD65/2B 1864
S613, adjust 2561
S613, location 2075
S613, removal 2560
S617 - CD14 1919
S617 - WD58/1B 1853
S617, location 2075
S617, routine 1679
S617l 2530
S618 - CD14 1919
S618 - WD58/1B 1853
S618, location 2075
S618, removal 2530
S618, routine 1679
S619 - CD29 1934
S619 - WD52/2B 1845
sensors *(continued)*
S619, adjust 3008
S619, location 2117
S619, parts 3464
S619, removal 3007
S620 - CD14 1919
S620 - WD58/2B 1853
S620, location 2075
S620, removal 2532
S620, routine 1680
S6224 - CD24 1929
S624 - CD24 1929
S624 - WD51.1/1B 1844
S624, location 2065
S624, removal 2520
S624, routine 1693
S701, adjust 3016
S701, parts 3490
S701, removal 3015
S702 - CD117 2022
S702 - WD64/2A 1863
S702, location 2061
S702, routine 1688
S704, adjust 3018
S704, parts 3490
S704, removal 3017
S704, routine 1683
secondary erase - CD64 1969
secondary erase lamp, location 2083
secondary erase lamp, parts 3214
secondary erase lamp, removal 2495
secondary erase lamp, routine 1689
sensor, forms width - CD04 1909
skew, location 2064, 2073
skew, routine 1678
skew sensor - CD12 1917

sensors *(continued)*
skew sensor, adjust 2607
skew sensor, removal 2604
splicing lever, routine 1676
stacker forms length - CD35 1940
stacker height - CD32 1937
stacker height, routine 1692, 1693
stacker height left, location 2117
stacker height right, location 2117
stacker jam - CD26 1931
stacker jam, adjust 2980
stacker jam, location 2117
stacker jam, parts 3472
stacker jam, removal 2978
stacker jam sensor, routine 1682
stacker left height, adjust 2972
stacker left height, parts 3472
stacker left height, removal 2970
stacker right height, adjust 2975
stacker right height, parts 3484
stacker right height, removal 2973
stacker table lower limit, adjust 3016
stacker table lower limit, parts 3490
stacker table lower limit, removal 3015
stacker table upper limit, adjust 3018
stacker table upper limit, parts 3490
stacker table upper limit, removal 3017
stacker table upper limit, routine 1683
SW721, routine 1689, 1690
thermal switch, routine 1691
thermals, routine 1691
toner collector bottle , routine 1667
toner collector switch, routine 1667
toner control, removal 2412
sensors *(continued)*
toner control sensor, location 2068
toner empty - CD111 2016
toner empty, location 2069
toner empty, removal 2414
toner empty sensor, routine 1669
toner supply switch, routine 1692
tractor jam, adjust 3153
tractor jam, removal 3152
tractor motor encoder - CD02 1907
transfer station open - CD108 2013
transfer station open,, location 2056
transfer station open, location 2072
transfer station open, parts 3216
transfer station open, removal 3158
transfer station open, routine 1672
upper tractor jam - CD06 1911
upper tractor jam - CD129 2034
upper tractor jam, location 2123
upper tractor jam, routine 1672
vacuum shutter home - CD70 1975
vacuum shutter home, adjust 2602
vacuum shutter home, location 2065
vacuum shutter home, removal 2599
vacuum shutter home, routine 1678
vacuum switch, routine 1688
sensors, forms path (YS011 card) - WD63 1862
sensors (FSxxx and FUxxx cards), fuser - WD64 1863
sensors (FSxxx card), fuser - WD65 1864
sensors, fuser and stacker (FSxxx & HR091) - WD58 1853
sensors (S112, S113, S114, & S116) - WD57 1851
sensors, stacker (SC061 & SC101) - WD59 1854
sensors, stacker (SC091 & SC103) - WD59.1 1855
sensors (YS011 card) - WD61 1859
sensors (YS011 card) - WD62 1861
sensors and switches (PC211, PC531, & PC551 cards) - WD56 1850
sequence card, printer - WD25 1808
sequence of checks and adjustments, printhead 2926
Serial Number, location 2169
service actions 1563
service disconnect, location 2149
service logs 1564
service maintenance
description 3620
entering the CE or service mode 3622
general instructions for procedures 3625
preventive 3620
procedures 3625
schedule 3620
tasks for specially tracked parts 3638
service password 1558
Service Processor (93H4214) (-13) 3560
servo control, drum drive overspeed - CD09 1914
servo control, drum drive position - CD10 1915
servo control, drum drive time out - CD08 1913
set, nvs 3735
setting configuration values 3769

Shaft (88F2610) (-50) 3262
Shaft (88F2675) (-37) 3308
Shaft (90H2714) (-48) 3468
Shaft, Actuator (88F3162) (-34) 3446
Shaft, Asm Lower (04H0764) (-5) 3476
Shaft, Asm Upper (Same as 04H0763) (30H2755) (-9) 3476
Shaft, Backup Roll (Front) (88F3126) (-59) 3432
Shaft, Backup Roll (Rear) (88F3127) (-69) 3432
Shaft, Bearing (88F2922) (-172) 3398
Shaft, Bearing (88F3135) (-93) 3434
Shaft, BF Hinge (Also shown on Asm 14-107A) (New style with Brake) (30H5518) (-13) 3316
Shaft, BF Hinge (Also shown on Asm 14-13) (30H5518) (-107A) 3324
Shaft, Bias (57G6741) (-53) 3240
Shaft, Cleaner Brush Drive (88F2491) (-107) 3226
Shaft, Cleaner Brush Hinge (88F2486) (-80) 3224
Shaft, Drive (57G6797) (-11) 3316
Shaft, Drive (57G6797) (-15) 3316
Shaft, Driven Cone Asm (53F1873) (-71) 3224
Shaft, Drum (06F0517) (-6) 3260
Shaft, Flange (88F3424) (-299) 3418
Shaft, Front (24H8169) (-8A) 3450
Shaft, Guide (88F2754) (-250) 3338
Shaft, Guide Roller (88F3285) (-33) 3486
Shaft, Hinge (06F0534) (-7) 3356
Shaft, Hinge (88F3239) (-81) 3470
Shaft, Hinge (Europe 50 Hz) (88F3097) (-125) 3426
Shaft, Hot Roll Drive (88F2934) (-62) 3388
Shaft, Idler (88F2736) (-129) 3326
Shaft, Idler (88F2736) (-320) 3346
Shaft, Idler (88F2739) (-136) 3328
Shaft, Idler Asm (88F2605) (-18) 3260
Shaft, Idler Gear (88F2935) (-111) 3392
Shaft, Idler Gear (Europe 50 Hz) (88F3077) (-69) 3422
Shaft, Lift (04H0505) (-233D) 3408
Shaft, Lower Finger Belt (04H0764) (-4) 3482
Shaft, Metal, Fin Drive (30H6610) (-13) 3462
Shaft, Pivot Asm (88F3073) (-58) 3422
Shaft, Pressure Rollers, Front (88F2914) (-160) 3398
Shaft, Pulley (88F2749) (-330) 3346
Shaft, Pulley (88F3136) (-94) 3434
Shaft, Pulley Asm (04H0897) (-152) 3252
Shaft, Pulley Asm (88F1636) (-45) 3256
Shaft, Pulley Asm (88F1636) (-62) 3246
Shaft, Rear (24H8164) (-20A) 3450
Shaft, Reel (88F2805) (-179) 3332
Shaft, Retractor Drive (88F2861) (-23) 3350
Shaft, Retractor Driven (88F2855) (-11) 3350
Shaft, Scuff Roll Asm (57G6830) (-251) 3404
Shaft, Stopper (88F2719) (-286) 3342
Shaft, Table Drive (88F3300) (-95) 3492
Shaft, Toner Auger (04H0913) (-150) 3252
Shaft, Toner Collector Asm (88F2669) (-16) 3306
Shaft, Toner Feed (57G6754) (-34) 3254
Shaft, Top (06F0805) (-24) 3444
Shaft, Tractor Guide (57G6796) (-10) 3316
Shaft, Tractor Guide (57G6796) (-16) 3316
Shaft, Tractor Positioning (88F2750) (-247) 3338
Shaft, Transfer Station Yoke Hinge (88F2723) (-166) 3330
Shaft, Transfer Station Yoke Hinge (88F2723) (-296) 3342
Shaft, Upper Finger Belt (Same as 04H0763) (30H2755) (-8) 3482
Shaft, Valve (06F1124) (-96) 3360
shafts
  rear height stud adjusting, developer carriage, location 2072
  tension arm, removal 3098
  tension arm spring, adjust 3104
  toner control, location 2066, 2067
  toner control, removal 2410
  toner feed, location 2066, 2067
  toner feed, removal 2425
Sheet, Blower Rubber (06F0729) (-55) 3310
Sheet, Driver Insulating (06F0637) (-134) 3272
Sheet, Driver Insulating (06F0637) (-134S) 3298

Sheet, Driver Insulating (06F0637) (-134T) 3284
Shelf (30H2885) (-16A) 3520
Shelf (30H6520) (-16A) 3520
Shelf (90H2665) (-16A) 3520
shipping brace, remove 3673
short error log 1570
short filtered error log 1570
shutdown procedure 1571
Shutter, Beam (30H6727) (-86S) 3294
Shutter, Beam (30H6727) (-86T) 3280
Shutter, Vacuum (88F3139) (-102) 3436
shutter and shutter cable, adjust 2598
shutter control motor - CD69 1974
shutter control motor - CD70 1975
shutter control motor, location 2064
shutter control motor (M602) driver routine 1650
shutter motor, removal 2603
side 1 / side 2 diagnostics 1727, 1730
side 1 / side 2 sensor test 1729, 1733
side 1 / side 2 verification control card 2264
side 1/2 verification sensor card, removal 3077
Side 1/Side 2 Verification Control Card, (11L5278) (-4S) 3534
Side 1/Side 2 Verification Control Card, (24H8141) (-4S) 3534
side 1/side 2 verification control card,location 2153
side 1/side 2 verification sensor card, location 2122
side 1 side 2 verification test 1731
side 1/side 2 verification test 1731
side 1/side 2 verify to MIC - WD83.2 1895
side 2 verification test 1727
side 2 verify, install 3695
signals, pre/postprocessing interface 1589
SIMM, 16MB (43G1796) (-40) 3556
SIMM, 4MB (F50) (70F9973) 3562
SIMM, 8MB (39H8925) (-42) 3556
simplex, AC power control - WD23 1805
simplex, control unit AC control box - WD22 1803
simplex, control unit AC power control - WD21 1801
simplex printer or duplex printer 2 installation 3666
single-beam alignment tool, desc 3810
single beam printhead
  access 2657
  AM201, removal 2660
  AM202, removal 2661
  AO modulator, removal 2660
  AO modulator adjustment 2709
  AO modulator driver, removal 2661
  aperture, adjust 2699
  B201, removal 2668
  B202, removal 2687
  BD121, removal 2663
  beam detect card, removal 2663
  beam detect mirror, adjust 2714
  beam pattern adjustment 2697
  beam pattern check 2696
  beam power check 2703
  check and adjustment 2688
  checking registration with scale 2724
single beam printhead *(continued)*
  checking registration with template 2723
  cleaning 2658
  CYL1, removal 2665
  cylinder lens, removal 2665
  F-Theta, removal 2667
  front fan, removal 2668
  horizontal direction, adjustment 2730
  interrupt mirror, adjust 2712
  interrupt mirror, check 2711
  L102, removal 2679
  laser, removal 2669
  laser current meter, removal 2679
  laser horizontal adjustment 2692
  laser interlock 2648
  laser power supply, removal 2679
  laser safety filter check 2650
  laser shutter 2649
  lens L1, removal 2680
  lens L2, removal 2682
  M1 mirror adjust 2694
  M2 mirror adjust 2701
  M2 mirror check 2700
  M201, removal 2684
  MD141, removal 2685
  mirror motor, removal 2684
  mirror motor driver board, removal 2685
  power adjustment A 2705
  power adjustment C 2707
  PQE stroke width, adjust 2734
  pressurizing fan, removal 2687
  print skew, adjust 2719
  print width, adjust 2716

single beam printhead *(continued)*
printhead interface card, removal 2686
process direction, adjustment 2725
registration, adjust 2721
return mirror, check 2720
safety 2647
scan direction, adjustment 2730
simplified laser adjustment procedure 2673
special tools 2656
VI111, removal 2686
zero beam alignment check 2690
single phase AC motors (M102, M103, M301 & M302) - WD30 1815
six-pump oiling system- CD17 1922
skew sensor - CD12 1917
skew sensor - WD49 1841
skew sensor, adjust 2607
skew sensor (D603) routine 1678
skew sensor, location 2064, 2073
skew sensor, removal 2604
Sleeve (88F2563) (-131) 3250
Sleeve (88F2564) (-132) 3250
Sleeve, Eccentric (88F2826) (-241) 3338
Sleeve, Guide Shaft (88F2735) (-130) 3326
Sleeve, Spring (88F2792) (-44) 3318
Sleeve, Spring (88F2792) (-60) 3320
Sleeve, Tractor Mount (88F2821) (-306) 3342
Sleeve, Tractor Mount (88F2821) (-309) 3344
Slider, Forms Width Guide (88F3240) (-83) 3470
Slider, Poly (88F2774) (-145) 3330
Slider, Poly (88F2774) (-196) 3400
Slider, Poly (88F2863) (-197) 3400
Slider, Poly (88F2863) (-30) 3350
slot, tape, location 2116
SMS Screen 1745
soft start resistor and transformer thermal - CD102 2007
soft start sensors, hot roll - CD80 1985
space requirements 3658
Spacer (04H0725) (-231D) 3408
Spacer (04H0726) (-236D) 3408
Spacer (06F0535) (-5) 3356
Spacer (06F0775) (-3) 3428
Spacer (06F0797) (-90) 3434
Spacer (88F1644) (-170) 3364
Spacer (88F1644) (-42) 3456
Spacer (88F1647) (-222D) 3408
Spacer (88F1647) (-237) 3402
Spacer (88F2474) (-38) 3220
Spacer (88F2475) (-43) 3220
Spacer (88F2570) (-139) 3250
Spacer (88F2576) (-149) 3250
Spacer (88F2580) (-159) 3252
Spacer (88F2864) (-32) 3350
Spacer (88F2942) (-53) 3386
Spacer (88F2956) (-211) 3400
Spacer (88F2956) (-223) 3402
Spacer (88F2957) (-229) 3402
Spacer (88F2959) (-226D) 3408
Spacer (88F2959) (-233) 3402
Spacer (88F2961) (-224D) 3408
Spacer (88F2961) (-235) 3402
Spacer (88F3412) (-99) 3184
Spacer (88F3457) (-73) 3470
Spacer, Back Board (88F2729) (-205) 3334
Spacer, Cleaner Brush (88F2492) (-109) 3226
Spacer, Disk (30H5519) (-109A) 3324
Spacer, Drum Cover (57G6688) (-82) 3202
Spacer, Drum Gear (06F0512) (-29) 3260
Spacer, Idler (06F0525) (-35) 3260
Spacer, Link (88F3093) (-104) 3424
Spacer, Pre-measure Shaft (88F2812) (-201) 3334
Spacer, Sensor (88F3029) (-277) 3416
Spacer, TD (88F3282) (-23) 3486
Spacer, Toner Inlet (88F2560) (-128) 3250
special features passwords 3769
special services function mode 1730
specially tracked parts 3638
backup idler roll 3638
backup roll 3638
definition 3638
hot roll 3638
hot roll motor brushes 3638
speed select alarm - CD103 2008
splice lever, location 2116
splice lever switch - CD107 2012
splice lever switch, location 2116
splice lever switch, removal 2623
splice lever switch,check 2624
splicing lever switch (S101) routine 1676
splicing table, location 2116
Spring (24H8150) (-31A) 3450
Spring (4586927) (-23A) 3524

Spring (4586927) (-23B) 3528
Spring (53F1609) (-4C) 3518
Spring (88F2568) (-137) 3250
Spring (88F2578) (-157) 3252
Spring (88F2882) (-33) 3356
Spring (88F2949) (-300) 3418
Spring (88F3128) (-71) 3432
Spring, Actuator (88F3163) (-38) 3446
Spring, AO (04H0793) (-170S) 3300
Spring, AO (04H0793) (-170T) 3286
Spring, AO Adjust (04H0791) (-166S) 3300
Spring, AO Adjust (04H0791) (-166T) 3286
Spring, Arm (Europe 50 Hz) (88F3100) (-128) 3426
Spring, Belt Drive (06F0361) (-17) 3444
Spring, Clamp PB (30H6509) (-26A) 3264
Spring, Compression (24H8165) (-18A) 3450
Spring, Compression (88F2621) (-19) 3264
Spring, Compression (88F2636) (-48) 3266
Spring, Compression (88F2636) (-48S) 3292
Spring, Compression (88F2636) (-48T) 3276
Spring, Compression (88F2667) (-10) 3306
Spring, Compression (88F2848) (-118) 3272
Spring, Compression (88F2848) (-118S) 3296
Spring, Compression (88F2848) (-118T) 3282
Spring, Compression Coil (57G6853) (-33A) 3450
Spring, Compression Coil (88F2447) (-131) 3214
Spring, Compression Coil, Bottom (57G6853) (-48) 3446
Spring, Compression Coil, Top (57G6852) (-47) 3446
Spring, Contact (88F2944) (-59) 3386
Spring, EMI (-18) 3552
Spring, Extension (04H0371) (-25A) 3264
Spring, Extension (57G6819) (-26) 3380
Spring, Extension (57G6819) (-76D) 3382
Spring, Extension (88F2623) (-25) 3264
Spring, Extension (88F2676) (-7) 3306
Spring, Extension (88F2928) (-178) 3398
Spring, Extension (88F3013) (-295) 3416
Spring, Extension (88F3440) (-155) 3274
Spring, Extension (88F3440) (-155S) 3298
Spring, Extension (88F3440) (-155T) 3284
Spring, Front Hub (88F2483) (-75) 3224
Spring, Front Tension Arm, heavy (For printers with EC-C87554A installed) (88F3431) (-43) 3318
Spring, Front Tension Arm, light (For printers Without EC-C87554A installed) (88F2791) (-43) 3318
Spring, FT (04H0797) (-182S) 3302
Spring, FT (04H0797) (-182T) 3288
Spring, Gas (53F1788) (-25) 3180
Spring, Gas (53F1824) (-2) 3198
Spring, Hinge (04H0794) (-171S) 3300
Spring, Hinge (04H0794) (-171T) 3286
Spring, Mirror 2 (88F2629) (-37) 3266
Spring, Mirror 2 (88F2629) (-37S) 3290
Spring, Mirror 2 (88F2629) (-37T) 3276
Spring, Path Modifier (57G6507) (-49) 3352
Spring, Pre-measure (88F2444) (-127) 3214
Spring, Pressure (88F3128) (-267D) 3412
Spring, PRL (57G6818) (-25) 3380
Spring, PRL (57G6818) (-75D) 3382
Spring, Rear Tension Arm, heavy (For printers with EC-C87554A installed) (88F3432) (-59) 3320
Spring, Rear Tension Arm, light (For printers Without EC-C87554A installed) (88F2790) (-59) 3320
Spring, Reflector (57G6716) (-173) 3218
Spring, Reflector (88F1634) (-162) 3218
Spring, Reflector (88F1634) (-267) 3340
Spring, Return (06F0369) (-245) 3338
Spring, Return Mirror (88F2646) (-68) 3268

Spring, Return Mirror (88F2646) (-68S) 3292
Spring, Return Mirror (88F2646) (-68T) 3278
Spring, Roller (04H1103) (-5) 3380
Spring, Roller (04H1103) (-55D) 3382
Spring, Scuff Roll Tension (88F2977) (-266) 3406
Spring, Steering Cable (88F3125) (-58) 3432
Spring, Tractor Cover (88F3459) (-4) 3316
Spring, Tractor Shift Knob (88F2757) (-253) 3338
Spring Asm, Gas (88F2392) (-1) 3198
Sprocket, Belt Drive (06F0358) (-20) 3444
SQ081, removal 2642
SQ081/SQ082 card, location 2142
SQ082, removal 2642
SR081, location 2089, 2093
SR081, removal 2643
SR601 - WD34/2A 1819
SR601 - WD35/1A 1820
SR601 relay, location 2080
SR602 - WD34/2A 1819
SR602 - WD35/1A 1820
SR602 relay, location 2080
SR603 - WD34/2A 1819
SR603 - WD35/1A 1820
SR603 relay, location 2080
SR604 - WD34/2A 1819
SR604 - WD35/1A 1820
SR604 relay, location 2080
SR605 - CD82 1987
SR605 - WD34/2A 1819
SR605 - WD35/1A 1820
SR605 relay, location 2080
SR606 - CD84 1989
SR606 - WD34/2B 1819
SR606 - WD35/1B 1820
SR606 relay, location 2080
SR607 - CD86 1991
SR607 - WD34/2B 1819
SR607 - WD35/1B 1820
SR607 relay, location 2080
SR608 - CD130 2035
SR608 - CD88 1993
SR608 - WD34/2B 1819
SR608 - WD35/1B 1820
SR608 relay, location 2080
src0102 148
src0103 152
src0104 156
src0113 160
src0114 166
src0115 169
src0116 173
src0117 177
src0118 180
src0119 185
src011b 202
src011c 204
src011d 208
src011e 211
src0122 216
src0123 218
src0124 223
src0125 226
src0132 235
src0133 244
src0134 264
src0135 280
src0136 285
src0137 291
src0138 292
src013a 299
src013b 305
src013c 311
src013d 318
src0141 324
src0142 328
src0143 332
src0144 336
src0145 340
src0146 343
src0152 346
src0153 351
src0154 359
src0155 366
src0156 371
src0157 373
src0161 375
src0162 391
src0163 394
src0164 400
src0165 410
src0166 413
src0167 416
src0169 419
src0171 424
src0172 428
src0174 437
src0175 441
src0176 453
src0177 459
src0178 469
src0182 472

src0183 479
src0184 484
src0185 505
src0186 523
src0187 531
src0188 536
src0189 543
src018a 548
src0190 550
src0211 553
src0212 561
src0213 567
src0214 572
src0221 579
src0222 584
src0223 589
src0224 602
src0225 614
src0226 617
src022a 620
src022b 624
src022c 628
src022d 632
src0231 639
src0232 644
src0233 651
src0234 656
src0235 664
src0241 677
src0242 683
src0243 689
src0244 695
src0251 701
src0252 706
src0253 712
src0254 715
src0256 716
src0261 720
src0262 724
src0263 725
src0264 730
src0265 734
src0266 738
src0281 744
src0282 750
src0283 754
src0284 760
src0285 764
src0286 767
src0287 770
src0288 773
src0289 776
src028a 779
src028b 783
src028c 787
src028d 791
src028e 795
src028f 799
src0291 803
src0292 810
src0293 813
src0294 820
src0295 823
src0296 826
src0297 832
src0298 837
src0299 843
src029a 848
src029c 853
src029d 860
src029e 866
src029f 875
src0300 880
src0321 885
src0322 892
src0323 898
src0330 903
src0331 905
src0500 909
src0501 925
src0511 947
src0514 1015
src0515 1018
src0516 1024
src0600 1026
src0782 1032
src0783 1036
src0784 1040
src0785 1044
src0786 1048
src0787 1051
src0788 1055
src0789 1059
src078a 1064
src078b 1069
src078c 1074
src078d 1078
src0791 1086
src0792 1093
src0793 1098
src0794 1103
src0795 1107
src0796 1112
src0797 1119
src0798 1123
src0799 1132
src079a 1136
src079c 1147

src07a0 1150
src0800 1155
src0810 1157
src0820 1167
srcbxxx 1488
srccxxx 1491
srcd706 1509
srcd706a 1525
srcd70b 1538
srcdxxx 1494
SSA adapter card (F50), (09L2061) (-16) 3560
ST101 - CD64 1969
ST101 - WD39.1/1A 1824
ST101 - WD39/1A 1823
ST101, location 2061
ST101, parts 3208
ST101, removal 2498
ST102 - CD63 1968
ST102 - WD39.1/1A 1824
ST102 - WD39/1A 1823
ST102, location 2061
ST102, parts 3208
ST102, removal 2498
stacker
CD30 - cooling blower (B703) 1935
CD35 – forms length hall sensor 1940
cooling blower (B703) - CD30 1935
finger belts - CD25 1930
forms length control switch - CD37 1942
forms length hall sensor - CD35 1940
gate open switch - CD120 2025
gate safety switches - CD33 1938
height sensor - CD32 1937
stacker *(continued)*
jam sensor (Q701) - CD26 1931
length motor - CD36 1941
location 2117, 2118
location, control 2120
M701 - CD25 1930
M702 - CD25 1930
M704 - CD27 1932
M704, overcurrent - CD28 1933
M707 - CD36 1941
M803 - CD31 1936
pendulum motor - CD27 1932
pendulum motor, overcurrent - CD28 1933
Q701 - CD26 1931
Q703 - CD32 1937
S701 - CD34 1939
S704 - CD34 1939
S712 - CD120 2025
S713 - CD33 1938
S714 - CD33 1938
SW511 - CD37 1942
table height switches - CD34 1939
table motor (M803) - CD31 1936
stacker control card, location 2121
Stacker Control Panel, (SW511) (53F1787) (-41) 3456
stacker control panel, location 2119
stacker control panel, removal 2957
stacker control panel (SW511) routine 1686
Stacker Cooling Blower, (B703) & C704 Asm (53F1965) (-51) 3456
stacker cooling blower, location 2057
stacker cooling blower, removal 2959
stacker cooling fan, location 2120
Stacker Finger Belt, (06F0220) (-7) 3482
Stacker Finger Belt, (06F0220) (-8) 3476
Stacker Front Cooling Fan, (24H8035) (-80) 3460
stacker gate, location 2119
Stacker Gate Interlock Switch, (S712) (06F0207) (-54) 3468
stacker gate interlock switch, removal 2967
stacker gate open switch, location 2117
stacker gate open switch (S712), routine 1683
stacker gate safety switch, adjust 2969
stacker gate safety switch, removal 2968
Stacker Gate Safety Switch (S713 & S714), (06F0206) (-52) 3480
stacker gate safety switch 1, location 2119
stacker gate safety switch 2, location 2119
stacker gate safety switch routine 1682
stacker height knob, location 2081
stacker height left LED, location 2118
stacker height left sensor, location 2117
stacker height right LED, location 2118
stacker height right sensor, location 2117
stacker inner cover, removal 2976
stacker jam LED, location 2117
Stacker Jam LED (PL701), (53F1776) (-110) 3472
stacker jam sensor - CD26 1931
stacker jam sensor, adjust 2980

stacker jam sensor, location 2117
Stacker Jam Sensor (Q701), (53F1775) (-111) 3472
stacker jam sensor (Q701 & PL701) ,routine 1682
stacker jam sensor, removal 2978
Stacker Left Height LED (PL703), (53F1997) (-95) 3472
Stacker Left Height Sensor (Q703), (53F1998) (-96) 3472
stacker left height sensors, adjust 2972
stacker left height sensors, removal 2970
stacker length belts, adjust 2996
stacker length belts, removal 2995
stacker length drive motor, adjust 3000
stacker length drive motor, location 2120
stacker length drive motor, removal 2997
stacker length motor (M707) driver routine 1660
stacker length rotary board, adjust 3003
stacker length rotary board (FL041), routine 1681
stacker length rotary board, location 2120
stacker length rotary board, removal 3001
stacker length switch driver routine 1660
Stacker Mirror 1 (88F3256) (-119) 3474
Stacker Mirror 2 (88F3257) (-120) 3474
stacker rear cooling fan, location 2057
stacker rear cooling fan, removal 3010
Stacker Right Height LED, (PL702) (53F1839) (-44) 3484
Stacker Right Height Sensor, (Q702) (53F1886) (-50) 3484
stacker right height sensors, adjust 2975
stacker right height sensors, removal 2973
stacker sensors and EOF lamps (SC061 & SC101) - WD59 1854
stacker sensors and EOF lamps (SC091 & SC103) - WD59.1 1855
stacker switch cover, install 3691
stacker switch panel (forms length & width cards) - WD59.3 1857
stacker switch panel (SW511 & FSxxx card) - WD59.2 1856
Stacker Table Drive Belt, (06F0198) (-40) 3486
stacker table drive belts, adjust 3012
stacker table drive belts, removal 3011
Stacker Table Lower Limit Sensor, (S701) (88F2415) (-60) 3490
stacker table lower limit sensor, adjust 3016
stacker table lower limit sensor, removal 3015
stacker table lower limit switch, location 2119
stacker table lower limit switch (S701) routine 1684
stacker table motor, location 2120
Stacker Table Motor (M803) & C803 Asm (06F0195) (-111) 3492
stacker table motor (Mm803) driver routine 1647
stacker table motor, removal 3013
Stacker Table Upper Limit Sensor, (S704) (53F1793) (-56) 3490
stacker table upper limit sensor, adjust 3018
stacker table upper limit sensor, removal 3017
stacker table upper limit switch, location 2119
stacker table upper limit switch (S704) routine 1683
Stand, Beam Detect Mirror (88F2633) (-43) 3266
Stand, Beam Detect Mirror (88F2633) (-43S) 3292
Stand, Beam Detect Mirror (88F2633) (-43T) 3276
Stand, Laser Filter Asm (04H0807) (-146T) 3284
Stand, Laser Filter Asm (324 PPM) (11L1156) (-146S) 3298
Stand, Laser Filter Asm (Except 324 PPM) (04H0807) (-146S) 3298
Stand, Mirror 2 (57G6655) (-36) 3266
Stand, Mirror 2 (57G6655) (-36S) 3290
Stand, Mirror 2 (57G6655) (-36T) 3276
Stand, Pulley (88F2746) (-155) 3330
Stand, Pulley (88F2746) (-99) 3324
Stand, Toner Bottle (88F2710) (-18) 3306
standalone diagnostics 1744
Standoff (30H2817) (-15A) 3524
Standoff (57G6482) (-14B) 3528
Standoff, Bias (04H1092) (-103A) 3248
Standoff, Bias (57G5959) (-103) 3248
Standoff, Bias (57G5959) (-103A) 3248

Standoff, Planar (06H7697) (-7) 3560
Starter, Primary Erase Lamp (ST102) (57G6698) (-20) 3208
Starter, Secondary Erase Lamp (ST101) (06F0091) (-19) 3208
station open sensor 3159
Stay, Bridge (88F3066) (-37) 3420
Stay, Connecting (88F2390) (-126) 3194
Stay, Connecting Asm (88F2389) (-125) 3194
Stay, Tension Arm (88F2797) (-53) 3320
Stay, Tension Arm (88F2798) (-55) 3320
Stay, Transfer Station Stopper (88F2455) (-151) 3216
steering control changes 1615, 1617
steering gain 1616, 1618
steering motor - CD13 1918
steering motor, location 2064
steering motor (M601) driver routine 1650
steering motor, removal 2611
steering pulley rotation 1615, 1617
Stop, Stacker Gate (88F3238) (-74) 3470
Stop, Vacuum Plate (88F3148) (-137) 3438
Stopper (88F2674) (-8) 3306
Stopper, Bearing (88F2770) (-141) 3328
Stopper, Bearing (88F2770) (-312) 3344
Stopper, Cover (88F3417) (-105) 3184
Stopper, Lever (06F0926) (-43) 3478
Stopper, Magnet (88F2391) (-127) 3194
Stopper, Rubber (57G6676) (-55) 3190
Stopper, Spring (88F2800) (-176) 3332
Stopper, Transfer Station (88F2421) (-6) 3208
Strap (88F3119) (-41) 3432
Stud (06F0796) (-84) 3434
Stud (30H6521) (-23A) 3520
Subtable assembly (24H7993) (-19) 3454
summary log 1566
summary report, EREP 1748
Support, Ball Bearing (06F0516) (-9) 3260
Support, Bridge Frame (Europe 50 Hz) (88F3102) (-130) 3426
Support, Idler (57G4410) (-67) 3242
Support, Idler (57G4412) (-62) 3242
Support, Idler (57G4414) (-57) 3240
Support, Retractor Motor Asm (88F2860) (-21) 3350
SW1 switch, channel priority, location 2152
SW32 switch, location 2146
SW33 - WD21.1/1A 1802
SW33 - WD21/1A 1801
SW33 switch, location 2146
SW34 - WD21.1/1A 1802
SW34 - WD21/1A 1801
SW34 switch,location 2146
SW42 - WD21.1/2A 1802
SW42 - WD21/2A 1801
SW42 switch, location 2146
SW43 - WD21.1/2A 1802
SW43 - WD21/2A 1801
SW43 switch, location 2147
SW44 - WD21.1/2A 1802
SW44 - WD21/2A 1801
SW44 switch, location 2147
SW511, location 2119
SW511, parts 3456
SW511, removal 2957
SW721 - CD115 2020
SW721 - WD62/1B 1861
SW721, location 2056, 2116
SW721, removal 2622
SW901 - WD69/1B 1870
SW902 - WD69/2B 1870
Switch (57G6491) (-207) 3368
Switch, Bridge Down (S609) (53F1875) (-76) 3424
Switch, Bridge Up (S608) (53F1793) (-75) 3422
Switch, Capstan Pinch Roll Open (S301) Asm (57G6805) (-282) 3342
Switch, Developer Run (S107) (06F0059) (-70) 3232
Switch, Developer Toner Supply (S121) (57G5974) (-71) 3232
Switch, Filter Pressure Asm (S102) (53F1986) (-32) 3308
Switch, Fuser Wrap (S620) (04H0277) (-89D) 3384
Switch, Non-locking, (Not Shown) (31F4217) (-61) 3558
Switch, Oiler Belt End (S610) (53F1984) (-73) 3448
Switch, Oiler Gate Open (S605) (06F0143) (-166) 3398
Switch, Splice Lever (S101) (53F1793) (-97) 3360
Switch, Thermal (06F0173) (-16) 3500

Switch, Toner Collector (S118) (88F2678) (-13) 3306
Switch, Vacuum (S606) (06F0174) (-187) 3398
switch, voltage, location 2169
switch panel (forms length & width cards), stacker - WD59.3 1857
switch panel (SW511 & FSxxx card), stacker - WD59.2 1856
switches
B1J11 - S1, location 2130
B1J11 - S2, location 2130
B1J11 - S8, location 2130
bridge down - CD44 1949
bridge down, check 2195
bridge down, location 2061
bridge down, removal 2195
bridge up - CD39 1944
bridge up, adjust 2211
bridge up, check 2210
bridge up, location 2061
bridge up, removal 2209
capstan pinch roll open - CD43 1948
capstan pinch roll open, location 2122, 2123
capstan pinch roll open, removal 3031
cleaner housing - Cd67 1972
cleaner housing position, parts 3220
cleaner housing position, routine 1667
cleaner housing position switch, location 2054
cleaner housing switch, adjust 2235
cleaner housing switch, check 2235
cleaner housing switch, removal 2233
switches *(continued)*
CU power Off, location 2146
CU power On, location 2146
CU remote/local, location 2146
developer drain lever - CD112 2017
developer drain lever, location 2069
developer drain lever, routine 1670
developer run - CD114 2019
developer run, location 2069
developer run, removal 2387
developer run, routine 1670
diagnostic function, location 2130
diagnostic function switch 1608
filter pressure - CD116 2021
filter pressure, check 2182
filter pressure, removal 2182
fine filter - CD121 2026
fine filter, check 2184
fine filter, location 2054
fine filter, removal 2184
forms select, location 2116
key mode, location 2158
oiler belt end - CD118 2023
oiler belt end, adjust 2563
oiler belt end, location 2075
oiler belt end, removal 2562
oiler belt end, routine 1687
oiler gate interlock switch, adjust 2567
oiler gate interlock switch, removal 2566
oiler gate open - CD119 2024
oiler gate open, location 2075
oiler gate open, routine 1687
pc drum cover interlock - CD57 1962
pc drum cover interlock - CD58 1963
switches *(continued)*
PC drum cover interlock, adjust 2477
PC drum cover interlock, location 2056
PC drum cover interlock, parts 3204
PC drum cover interlock, removal 2476
PC Drum cover interlock switch, routine 1669
power, location 2158
printer local power, location 2142
printer power Off, location 2147
printer power On, location 2147
printer remote/local, location 2146
R5, location 2100
reset, B1J11, location 2130
reset switch 1608
S1 switch, location 2149
S101 - CD107 2012
S101 - WD61.1/1B 1860
S101 - WD61/1B 1859
S101, check 2624
S101, location 2116
S101, removal 2623
S102 - CD116 2021
S102 - WD56/1B 1850
S102, check 2182
S102, location 2054
S102, removal 2182
S103 - CD67 1972
S103 - WD56/1B 1850
S103, adjust 2235
S103, check 2235
S103, location 2054
S103, parts 3220
S103, removal 2233

switches *(continued)*
S103, routine 1667
S107 - CD114 2019
S107 - WD56/1B 1850
S107, location 2069
S107, removal 2387
S108 - CD121 2026
S108 - WD56/2B 1850
S108, check 2184
S108, location 2054
S108, removal 2184
S112 - CD112 2017
S112 - WD57.1/1B 1852
S112 - WD57/1B 1851
S112, location 2069
S118 - CD110 2015
S118 - WD56/1B 1850
S118, adjust 2187
S118, check 2187
S118, location 2063
S118, removal 2187
S121 - CD122 2027
S121 - WD56/1B 1850
S121, location 2069
S121, removal 2438
S122 - CD57 1962
S122 - CD58 1963
S122 - WD41.1/2B 1827
S122 - WD41/2B 1826
S122, adjust 2477
S122, location 2056
S122, parts 3204
S122, removal 2476
S122, routine 1669
S301 - CD43 1948
S301, location 2122, 2123
switches *(continued)*
S301, removal 3031
S602, location 2080
S605 - CD119 2024
S605 - WD58/2B 1853
S605, adjust 2567
S605, location 2075
S605, removal 2566
S605, routine 1687
S606 - CD109 2014
S606 - WD58/1B 1853
S606, location 2065
S608 - CD39 1944
S608 - WD64/2A 1863
S608, adjust 2211
S608, check 2210
S608, removal 2209
S609 - CD44 1949
S609 - WD64/2A 1863
S609, check 2195
S609, removal 2195
S610 - CD118 2023
S610 - WD64/2A 1863
S610, adjust 2563
S610, location 2075
S610, removal 2562
S610, routine 1687
S701 - CD34 1939
S701 - WD59.1/1B 1855
S701 - WD59/1B 1854
S701, location 2119
S704 - CD34 1939
S704 - WD59.1/1B 1855
S704 - WD59/1B 1854
S704, location 2119
S712 - CD120 2025
switches *(continued)*
S712 - WD59.1/1B 1855
S712 - WD59/1B 1854
S712, location 2117
S712, parts 3468
S712, removal 2967
S712, routine 1683
S713 - CD33 1938
S713 - WD59.1/1B 1855
S713 - WD59/1B 1854
S713, adjust 2969
S713, location 2119
S713, parts 3480
S713, removal 2968
S713, routine 1682
S714 - CD33 1938
S714 - WD59.1/1B 1855
S714 - WD59/1B 1854
S714, location 2119
S714, parts 3480
S714, removal 2968
S714, routine 1682
S8, location 2130
service disconnect, location 2149
splice lever - CD107 2012
splice lever, check 2624
splice lever, location 2116
splice lever, removal 2623
stacker forms length - CD37 1942
stacker gate interlock, parts 3468
stacker gate interlock, removal 2967
stacker gate open - CD120 2025
stacker gate open, location 2117
stacker gate open (S712), routine 1683
stacker gate safety - CD33 1938

switches *(continued)*
stacker gate safety, adjust 2969
stacker gate safety, parts 3480
stacker gate safety, removal 2968
stacker gate safety, routine 1682
stacker gate safety switch 1, location 2119
stacker gate safety switch 2, location 2119
stacker height - CD34 1939
stacker table lower limit, location 2119
stacker table upper limit, location 2119
SW1, channel priority, location 2152
SW32, location 2146
SW33 - WD21.1/1A 1802
SW33 - WD21/1A 1801
SW33, location 2146
SW34 - WD21.1/1A 1802
SW34 - WD21/1A 1801
SW34, location 2146
SW42 - WD21.1/2A 1802
SW42 - WD21/2A 1801
SW42, location 2146
SW43 - WD21.1/2A 1802
SW43 - WD21/2A 1801
SW43, location 2147
SW44 - WD21.1/2A 1802
SW44 - WD21/2A 1801
SW44, location 2147
SW511 - CD37 1942
SW721 - WD62/1B 1861
SW901 - WD69/1B 1870
SW902 - WD69/2B 1870
TH501, thermal, location 2089
switches *(continued)*
TH501 thermal, location 2093
TH502, thermal, location 2089
TH502 thermal, location 2093
toner collector bottle - CD110 2015
toner collector bottle, adjust 2187
toner collector bottle, check 2187
toner collector bottle, location 2063
toner collector bottle, removal 2187
toner supply - CD122 2027
toner supply, location 2069
toner supply, removal 2438
UEPO, location 2147
UEPO, parts 3538
vacuum - CD109 2014
vacuum, location 2065
voltage, location 2169
switches (YS011 card) - WD61 1859
switches (YS011 card) - WD62 1861
switches and sensors (YS011 card) - WD61 1859
switches and sensors (YS011 card) - WD62 1861
System Card (F50) (73H1925) (-37) 3564

T

T1 - WD22.1/1A 1804
T1 - WD22/1A 1803
T501 - WD18/2B 1795
T501 transformer, location 2089, 2093
T502 - WD17.1/1B 1794
T502 - WD17/1B 1793
T502 - WD19.1/1B 1797
T502 - WD19/1B 1796
T502 transformer, location 2089, 2093
T503 - WD17.1/1A 1794
T503 - WD17/1A 1793
T503 - WD19.1/1A 1797
T503 - WD19/1A 1796
T503 transformer, location 2089, 2093
Table, Modulator AO (88F2619) (-13) 3264
Table, Toner Collector (88F2670) (-31) 3308
table height switches, staker - CD34 1939
table motor, staker (M803) - CD31 1936
TAG IN connector, location 2152
TAG OUT connector, location 2152
Tailgate, (25F9401) (-2A) 3524
Tailgate (25F9401) (-2B) 3528
Tape, Transfer Corona Shield (06F0116) (-183) 3332
Tape Drive, 4mm (F50) (21H5172) (-32) 3564
TB, 101 (88F2398) (-24) 3198
TB101 - WD16/1A 1792
TB101 - WD18/1A 1795
TB101, location 2058
TB501 - WD16/1A/2B 1792
TB501 - WD18/1A 1795
TB501, terminal block, location 2085
TB502 - WD16/1B 1792
TB502 - WD18/1B 1795
TB502, terminal block, location 2085
TB503 - WD16/2B 1792
TB503 - WD18/2B 1795
TB601 - WD35/2A 1820
TB601, terminal block, location 2079
TB901 - WD69/1B 1870

TB902 - WD69/2B 1870
temperature control (TC) in connector, location 2081
temperature control (TC) out connector, location 2081
temperature control card, removal 2534
temperature control sensor, hot roll - CD78 1983
template, registration 3820
tension arm, location 2124
tension arm encoder - CD11 1916
tension arm encoder adjustment routine 1701
tension arm encoder board, location 2059, 2125
tension arm encoder board routine 1673
tension arm encoder position, adjust 3093
tension arm encoders, removal 3090
tension arm parallelism, adjust 3105
tension arm plate, removal 3097
tension arm position, adjust 3106
tension arm shaft, removal 3098
tension arm spring, adjust 3104
terminal, charge corona (90H1038) (-86) 3212
terminal block
T501 - WD18/2B 1795
T502 - WD17.1/1B 1794
T502 - WD17/1B 1793
T502 - WD19.1/1B 1797
T502 - WD19/1B 1796
T503 - WD17.1/1A 1794
T503 - WD17/1A 1793
T503 - WD19.1/1A 1797
terminal block *(continued)*
T503 - WD19/1A 1796
TB101 - WD16/1A 1792
TB101 - WD18/1A 1795
TB101, location 2058
TB501 - WD16/1A/2B 1792
TB501 - WD18/1A 1795
TB501, location 2085
TB502 - WD16/1B 1792
TB502 - WD18/1B 1795
TB502, location 2085
TB503 - WD16/2B 1792
TB503 - WD18/2B 1795
TB601 - WD35/2A 1820
TB601, location 2079
TB901 - WD69/1B 1870
TB902 - WD69/2B 1870
Terminator, SCSI (00G2223) (-35) 3554
Terminator, wide/fast SCSI (J8) (08H7757) (Not Shown) 3586
terms, print sample 1601
test card, pre/postprocessing interface 1587
test point 140VM, location 2134
test point AG, location 2134
test prints
alternate 1604
bar code 1603
color 1605
gray 1605
micr 1605
overall print quality 1602
postprocessor 1605
primary 1602
print 1568
printhead power 1605
test prints *(continued)*
printing 1600
terms 1601
text 1 1605
text 2 1605
white 1605
tests
6 PPI sync voltage 1592
adjustment routines 1695, 1696
alarm 1582
attention light 1582
coupled interface wrap 1585
driver routines 1635
encoder routines 1705, 1706
ESCON channel basic 1574
ESCON channel wrap 1574
Ethernet 1576
FDDI 1578
intelligent interface wrap 1584
MIC basic 1580
MIC isolation wrap 1734
MIC loop 1580
mic side 2 verification test 1727
motor 1586
motor voltage 1592
offset 1586
offset voltage 1592
operator panel 1582
optical sensor margin 1726
parallel channel basic 1573
parallel channel wrap 1573
pre/postprocessor 1583
printer activation 1582
printer interface 1582
run CFS/BTS voltage 1592
sensor routines 1662, 1663

tests *(continued)*
side 1 side 2 verification test 1731
side 1/side 2 verification test 1731
side 2 verification test 1727
single beam, MIC isolation wrap 1735
system (host) 1747
Token ring 1575
two beam, MIC isolation wrap 1738
tether, security, location 2169
text 1 print sample 1605
text 2 print sample 1605
TH501 - WD16/1A 1792
TH501 - WD18/2B 1795
TH501, thermal switch, location 2093
TH501 thermal switch, location 2089
TH502 - WD17.1/1B 1794
TH502 - WD17/1B 1793
TH502 - WD19.1/1B 1797
TH502 - WD19/1B 1796
TH502, thermal, location 2093
TH502 thermal switch, location 2089
Thermal, Bias (57G5988) (-113) 3236
thermal sensor S601 , location 2080
thermal sensor S602 , location 2080
thermal switch (Thermals) routine 1691
Thermistor (Not present on all printers) (24H8225) (-313) 3418
thermistors
hot roll, location 2075
hot roll temperature control - CD76 1981
S621 - CD76 1981
S621 - WD59.1/2B 1855
S621, location 2075
S622 - CD76 1981
S622 - WD59.1/2B 1855
thermistors *(continued)*
S622, location 2075
S623 - CD76 1981
S623 - WD59.1/2B 1855
S623, location 2075
TH501 - WD16/1A 1792
TH501 - WD18/2B 1795
TH502 - WD17.1/1B 1794
TH502 - WD17/1B 1793
TH502 - WD19.1/1B 1797
TH502 - WD19/1B 1796
three-pump oiling system- CD16 1921
Token Ring Cable (F50) (53F3930) 3564
Token Ring Card (F50), (94H1038) (-16) 3560
Token ring test results 1579
Token ring tests 1575
toner
collector bottle assembly, removal 2186
toner auger, location 2067
toner auger drive belt, location 2068
toner auger drive pulley, location 2066
toner collector bottle, location 2063
toner collector bottle assembly, removal 2186
toner collector bottle switch, adjust 2187
toner collector bottle switch, check 2187
toner collector bottle switch, location 2063
toner collector bottle switch, removal 2187
toner collector bottle switch (S118) routine 1667
toner collector switch - CD110 2015
toner control, check 3735
toner control belt, adjust 2375
toner control belt, removal 2374
toner control card, removal 2402
toner control motor - CD62 1967
Toner Control Motor, (M103) and Capacitor (C103) Asm (53F1838) (-114) 3248
toner control motor, adjust 2408
toner control motor, location 2067, 2068
toner control motor (M103) driver routine 1640
toner control motor, removal 2407
toner control program 1620, 1622
toner control sensor - CD62 1967
toner control sensor, location 2068
toner control sensor, removal 2412
toner control shaft, location 2066, 2067
toner control shaft, removal 2410
toner empty sensor - CD111 2016
toner empty sensor, location 2069
toner empty sensor, removal 2414
toner empty sensor (S106) routine 1669
toner feed belt, adjust 2377
toner feed belt, removal 2376
toner feed button 1615, 1617
toner feed gate, removal 2417
toner feed motor, adjust 2420
toner feed motor, location 2067
toner feed motor (M102) driver routine 1642
toner feed motor, removal 2419
toner feed scraper blade, removal 2421

toner feed shaft, location 2066, 2067
toner feed shaft, removal 2425
toner hopper paddle, adjust 2430
toner hopper paddle, location 2066, 2067
toner hopper paddle, removal 2428
toner inlet, location 2066
toner inlet, removal 2431
toner supply belt, adjust 2379
toner supply belt, removal 2378
toner supply motor, ,adjust 2437
toner supply motor, location 2068
toner supply motor (M102) driver routine 1658
toner supply motor, removal 2431
toner supply motor cover, location 2068
toner supply switch - CD122 2027
toner supply switch, location 2069
toner supply switch, removal 2438
toner supply switch (S121) routine 1692
tool set P/N 04H0739 3798
tool set P/N 45G2033 3798
tool set P/N 57G6639 3799
tool set P/N 62H4857 3799
tool set P/N 65F6225 3798
tool set P/N 90H1644 3799
tool set P/N 90H2606 3798
tools
AFCCU interface extension cable 3808
coupled interface 3802
developer profile gauge 3802
doctor/scraper gauge 3803
drum clearance gauge 3804
drum shaft extension 3807
electrostatic voltmeter 3807
tools *(continued)*
ESCON channel wrap 3809
Ethernet thick coax wrap plug 3808
Ethernet thin coax wrap plug 3809
four and five beam laser 3811
intelligent interface wrap plug 3808
laser alignment 3810
maintenance panel 3815
maintenance panel extension 3815
MIC wrap plugs 3816
parallel channel wrap blocks 3817
path modifier 3817
power tool 3812
power tool support 3813
pre/postprocessing interface test card 3818
registration template 3820
tractor alignment gauge 3814
two-beam 240/300 DPI laser 3811
two-beam Laser 3810
vacuum cleaner 3820
Toroid, Filter (30H2784) (-127) 3188
traces
attachment data 1597
attachment link 1597
configuring 1598
how to run 1596
mechanism interface 1597
tracked parts 3638
tractor, installation 3126
Tractor, Lower Front (45G1839) (-1) 3316
Tractor, Lower Rear (53F1797) (-6) 3316
Tractor, rebuild kit (3 bearings) (90H2620) (-45) 3318
Tractor, Upper Front (53F1798) (-36) 3318
Tractor, Upper Rear (8-inch minimum) (11L5192) (-24) 3316
Tractor, Upper Rear (9-inch minimum) (53F1799) (-24) 3316
tractor alignment, adjust 3142
tractor alignment gauge, desc 3814
tractor belt grounding brushes, adjust 3131
tractor belt grounding brushes, removal 3131
tractor control knob, location 2124
tractor control knob resistance, adjust 3145
tractor control knob resistance, removal 3145
tractor jam sensor, adjust 3153
tractor jam sensor, removal 3152
tractor lower front, removal 3113
tractor lower rear, removal 3116
tractor motor, location 2125
tractor motor (M107) encoder routine 1708
tractor motor (M303) driver routine 1644
tractor motor, removal 3111
tractor motor and encoder - CD02 1907
tractor motor drive belt, adjust 3112
tractor motor gain setting 2214
tractor motor gain switch, location 2129
tractor pin feed belts, adjust 3129
tractor pin feed belts, removal 3127
tractor upper front, removal 3117
tractor upper rear, removal 3125
transfer corona - CD46 1951
transfer corona, cleaning 2321

transfer corona, location 2083, 2124
transfer corona, removal 2320
transfer corona cable, location 2125
transfer corona cleaning brush, adjust 2327
transfer corona cleaning brush, removal 2326
transfer corona driver routine 1644
transfer corona shield, removal 3154
transfer corona shield reel, location 2124
transfer corona voltage, adjust 2340
transfer corona voltage, check 2339
transfer station
adjustment sequence 3160
capstan pinch roll, removal 3024
capstan pinch roll motor, removal 3028
capstan pinch roll open switch, removal 3031
capstan roll, adjust 3035
capstan roll, removal 3033
capstan roll motor - CD41 1946
capstan roll motor, adjust 3039
capstan roll motor, removal 3038
deflector plate to PC drum 3040
forms width sensor board, removal 3046
front cover, removal 3050
location, upper, rear 2125
locations, lower 2122
locations, upper, front 2123
lower forms guide, removal 3042
lower front tractor, removal 3113
lower rear tractor, removal 3116
lower retractor, adjust 3060
transfer station *(continued)*
lower retractor, removal 3059
lower tractor guide plates, adjust 3133
lower tractor guide plates, removal 3132
lower tractor positioning cable B, removal 3140, 3141
lower tractor timing, adjust 3146
M302 - CD41 1946
open sensor - CD108 2013
open sensor, removal 3158
path modifier and springs, adjust 3051
path modifier and springs, removal 3051
path modifier position, adjust 3052
pre-measure unit, adjust 3055
Q301 - CD129 2034
retractor acceleration time, adjust 2214
retractor acceleration time setting 2214
retractor detent position, adjust 3063
retractor motor, adjust 3058
retractor motor, removal 3057
retractor to PC drum gap, adjust 3066
S302 - CD108 2013
side 1/2 verification sensor card, removal 3077
tension arm encoder position, adjust 3093
tension arm encoders, removal 3090
tension arm parallelism, adjust 3105
tension arm plate, removal 3097
transfer station *(continued)*
tension arm position, adjust 3106
tension arm shaft, removal 3098
tension arm spring, adjust 3104
tractor, installation 3126
tractor alignment, adjust 3142
tractor belt grounding brushes, adjust 3131
tractor belt grounding brushes, removal 3131
tractor control knob resistance, adjust 3145
tractor control knob resistance, removal 3145
tractor jam sensor, adjust 3153
tractor jam sensor, removal 3152
tractor motor, removal 3111
tractor motor and encoder - CD02 1907
tractor motor drive belt, adjust 3112
tractor motor gain setting 2214
tractor pin feed belts, adjust 3129
tractor pin feed belts, removal 3127
transfer corona shield, removal 3154
transfer station discharge brush, removal 3156
upper forms guide, removal 3044
upper front tractor, removal 3117
upper rear tractor, removal 3125
upper retractor, adjust 3062
upper retractor, removal 3061
upper tractor guide plates, adjust 3135
upper tractor guide plates, removal 3134

transfer station *(continued)*
upper tractor jam sensor - CD129 2034
upper tractor positioning cable A, adjust 3139
upper tractor positioning cable A, removal 3136
upper tractor timing, adjust 3150
transfer station adjustment sequence 3160
transfer station discharge brush, removal 3156
transfer station front cover, removal 3050
transfer station open/close lever, location 2124
transfer station open sensor, location 2056, 2072
transfer station open sensor, removal 3158
transfer station open sensor (S302) routine 1672
Transfer Station Open Sensor Asm (S302) (53F1829) (-139) 3216
transformer
T1 - WD22.1/1A 1804
T1 - WD22/1A 1803
transformer and soft start resistor thermal - CD102 2007
Tray, Maintenance Panel (88F2884) (-46) 3358
Tube, Silicone (06F0736) (-35) 3308
Tube, Silicone (88F2713) (-34) 3308
Tube, Silicone B (480/600 DPI Printer 2 only) (88F3118) (-37) 3430
Tube, Silicone B (88F2843) (-259) 3338
Tube, Silicone B (All except 480/600 DPI Printer 2, IS1, ID1/ID2, and 324 PPM) (88F3118) (-36) 3430
Tube, Silicone B (IS1, ID1/ID2) (88F3118) (-36A) 3430
Tube, Silicone D (88F2681) (-69) 3312
Tube, Silicone D (88F2682) (-105) 3314
two-beam 240/300 DPI alignment tool, desc 3811
two-beam 240/300 printhead
access 2858
AM202, removal 2863
AM203, removal 2863
AO modulator, removal 2861
AO modulator adjustment 2920
AO modulator driver, removal 2863
AOM driver power, adjust 2865
AOM skew, adjust 2945
aperture, adjust 2911
B201, removal 2873
B202, removal 2892
BD131, removal 2867
beam detect card, removal 2867
beam detect mirror, adjust 2924
beam detect mirror, check 2923
beam pattern adjustment 2909
beam pattern check 2908
beam power check 2914
check and adjustment 2899
checking registration with scale 2935
checking registration with template 2934
cleaning 2859
CYL1, removal 2869
cylinder lens, removal 2869
F-Theta, removal 2871
two-beam 240/300 printhead *(continued)*
front fan, removal 2873
horizontal direction, adjustment 2941
L102, removal 2884
laser, removal 2875
laser current meter, removal 2884
laser horizontal adjustment 2903
laser interlock 2849
laser power supply, removal 2884
laser safety filter check 2850
laser shutter 2852
lens L1, removal 2885
lens L2, removal 2887
M1 mirror, adjust 2906
M2 mirror adjust 2912
M201, removal 2889
M202, removal 2893
MD192, removal 2890
mirror motor, removal 2889
mirror motor driver board, removal 2890
power adjustment A 2916
power adjustment C 2918
PQE stroke width, adjust 2949
pressurizing fan, removal 2892
print skew, adjust 2930
print width, adjust 2927
printhead interface card, removal 2891
process direction, adjust 2936
registration, adjust 2932
resolution lens motor, removal 2893
resolution lens sensor, removal 2895
return mirror, check 2931
S202, removal 2895
safety 2848

two-beam 240/300 printhead *(continued)*
scan direction, adjustment 2941
simplified laser adjustment procedure 2879
special tools 2857
vertical registration, adjust 2936
VI141, removal 2891
Wollaston prism, removal 2897
zero beam alignment check 2901
two-beam 240 printhead
access 2750
AM201, removal 2753, 2861
AM202, removal 2755
AM203, removal 2755
AO modulator, removal 2753
AO modulator adjustment 2809
AO modulator driver, removal 2755
AOM driver power, adjust 2757
AOM skew, adjust 2834
aperture, adjust 2799
B201, removal 2765
B202, removal 2784
BD132, removal 2759
beam detect card, removal 2759
beam detect mirror, adjust 2813
beam detect mirror, check 2812
beam pattern adjustment 2797
beam pattern check 2796
beam power check 2803
check and adjustment 2787
checking registration with scale 2824
checking registration with template 2823
cleaning 2751
CYL1, removal 2761
cylinder lens, removal 2761
two-beam 240 printhead *(continued)*
F-Theta, removal 2763
front fan, removal 2765
horizontal direction, adjustment 2830
L102, removal 2776
laser, removal 2767
laser current meter, removal 2776
laser horizontal adjustment 2791
laser interlock 2742
laser power supply, removal 2776
laser safety filter check 2743
laser shutter 2744
lens L1, removal 2777
lens L2, removal 2779
M1 mirror, adjust 2794
M2 mirror adjust 2802
M2 mirror check 2800
M201, removal 2781
MD141, removal 2782
mirror motor, removal 2781
mirror motor driver board, removal 2782
power adjustment A 2805
power adjustment C 2807
PQE stroke width, adjust 2840
pressurizing fan, removal 2784
print skew, adjust 2819
print width, adjust 2816
printhead interface card, removal 2783
process direction, adjust 2825
registration, adjust 2821
return mirror, check 2820
safety 2741
scan direction, adjustment 2830
two-beam 240 printhead *(continued)*
simplified laser adjustment procedure 2771
special tools 2749
vertical registration, adjust 2825
VI141, removal 2783
Wollaston prism, removal 2785
zero beam alignment check 2789
two-beam alignment tool, desc 3810
two-beam printhead - CD126 2031

U

UEPO Switch (8492368) (-34) 3538
UEPO switch, location 2147
updating microcode 1594
upper forms guide, location 2056, 2082
upper forms guide, removal 3044
upper front tractor, removal 3117
upper preheat platen, location 2074
upper rear tractor, removal 3125
upper retractor, adjust 3062
upper retractor, removal 3061
upper tractor guide plates, adjust 3135
upper tractor guide plates, removal 3134
upper tractor jam sensor - CD06 1911
upper tractor jam sensor - CD129 2034
upper tractor jam sensor, location 2123
upper tractor jam sensor (Q301) routine 1672
upper tractor jam sensor routine 1672
upper tractor positioning cable A, adjust 3139
upper tractor positioning cable A, removal 3136

upper tractor timing, adjust 3150
urge unit (duplex) - WD69 1870
Urge Unit (Duplex Printer 2) (-198) 3370
Urge Unit (Duplex Printer 2) (57G6487) (-198) 3368
urge unit (high speed), install 3761
urge unit, install 3764
usage meter - WD39 1823
usage meter, location 2057
using PM log 3623

V

vaccum shutter home sensor - S604 1975
Vacuum, Developer (88F2494) (-16) 3228
Vacuum, Developer (88F3388) (-19) 3228
vacuum blower, check 2191
vacuum blower, location 2063
vacuum blower, removal 2191
vacuum blower motor (M105) driver routine 1651
vacuum cleaner 3820
vacuum filter , location 2059
vacuum LED, location 2064
vacuum shutter, removal 2596
vacuum shutter home sensor, adjust 2602
vacuum shutter home sensor, location 2065
vacuum shutter home sensor, removal 2599
vacuum shutter home sensor (S604) routine 1678
vacuum switch - CD109 2014
vacuum switch, location 2065
vacuum switch (S606) routine 1688
vacuum system 3735
Valve, Splicing Table (06F1122) (-94) 3360
VD1 connector , location 2157
VD1 connector (single beam), location 2155
VD1 connector (two beam), location 2157
VD2 connector, location 2157
VD2 connector (two beam), location 2157
verify printer operation 3777
VI111, location 2103
VI111, parts 3270
VI111 (single beam), removal 2686
VI141, parts 3280, 3294
VI141 (two beam 240), location 2107
VI141 (two beam 240), removal 2783
VI141 (two beam 240/300), location 2111
VI141 (two beam 240/300), removal 2891
video data - CD51 1956
video data - CD55 1960
voltage check 3687
voltage distribution, (−12 V) - CD95 2000
voltage distribution, (+12 V) - CD94 1999
voltage distribution, (+24 VB) - CD97 2002
voltage distribution, (+24 VD) - CD127 2032
voltage distribution, (+24 VD) - CD96 2001
voltage distribution, (+24 VE) 2003
voltage distribution, (+24 VH) - CD99 2004
voltage distribution, (+42 V) - CD100 2005
voltage distribution, (+5 V) - CD93 1998
voltage distribution, (+5 VM/+12 VM and +120/+140/+260 V) - CD101 2006
voltage error indicators, location 2142
voltage ranges 3664

W

Washer (06F0420) (-83) 3184
Washer (1622276) (-9C) 3532
Washer (1622302) (-202) 3368
Washer (1622304) (-10A) 3520
Washer (1622304) (-18A) 3536
Washer (1622304) (-21C) 3532
Washer (1622304) (-4A) 3524
Washer (1622304) (-4B) 3528
Washer (1622305) (-13A) 3536
Washer (1622305) (-46) 3556
Washer (1622306) (-6C) 3532
Washer (1622321) (-18C) 3532
Washer (1622346) (-2A) 3536
Washer (88F3352) (-148) 3250
Washer (88F3359) (-114) 3436
Washer, Bolt D3 (88F2818) (-18) 3264
Washer, Bolt D3 (88F2818) (-22) 3316
Washer, Bolt D8 (06F0405) (-108A) 3324

Washer, Bolt M6 (06F0405) (-95) 3434
Washer, Brake (06F0804) (-25) 3444
Washer, D10 (88F1641) (-5) 3350
Washer, D8 (88F2759) (-257) 3338
Washer, Fan (1622346) (-14) 3552
Washer, Flat (1622303) (-13A) 3524
Washer, Flat (1622303) (-13B) 3528
Washer, Flat (1622303) (-35B) 3530
Washer, Flat (23141) (-115) 3186
Washer, FP (06F1158) (-13) 3254
Washer, FP (06F1158) (-78) 3424
Washer, Insulating (06F0635) (-138) 3272
Washer, Insulating (06F0635) (-138S) 3298
Washer, Insulating (06F0635) (-138T) 3284
Washer, Link (88F3358) (-102) 3424
Washer, Operator Panel and Switch Asm (1622346) (-19) 3552
Washer, Plastic (88F3360) (-37) 3446
Washer, Point (88F3361) (-40) 3446
Washer, Power Supply (1622302) (-12) 3552
Washer, Press (06F0417) (-6A) 3450
Washer, Press (06F0420) (-23) 3466
Washer, Special (07F0406) (-239D) 3408
Washer, Spring (stainless) D3 (57G4438) (-78) 3246
Washer, Spring D3 (stainless) (57G4433) (-83) 3258
Washer, Spring D3 (stainless) (57G5961) (-92) 3248
Washer, Spring M6 (06F0405) (-96) 3434
Washer, Star (0338169) (-14A) 3524
Washer, Star (1622346) (-2A) 3520
Washer, Star (1622348) (-12A) 3520
Washer, Thrust (88F3355) (-297) 3342
Washer, Toothed 3D (88F3356) (-70) 3360
Washer, VF (06F0417) (-124) 3426
Washer FP (06F1158) (-92D) 3384
Washer Wave (06F0417) (-226S) 3304
Wheel, Scuff Roll (06F0155) (-264) 3406
Wheel, Scuff Roll Asm (88F2976) (-263) 3406
white print sample 1605
window, Display/Touch Screen main 1555
window, printer status 1557
Wire, Corona (30H6586) (-45) 3210, 3212
Wire, Corona (30H6586) (-62) 3210
Wire, Corona (57G6503) (-45) 3210
Wire, Corona (57G6503) (-62) 3210
Wire, Corona (57G6503) (-85) 3212
Wire, Transfer Corona (57G6503) (-263) 3338
Wires (8), Corona (30H6586) (-263) 3338
wiring diagrams
  200 VAC blowers - WD26 1810
  200 VAC blowers - WD28 1813
  200 VAC blowers (310 PPM, 480/600 DPI and InfoPrint 4000) - WD26.1 1811
  3 phase AC motors (M101, M104, M105 M108) - WD29 1814
  AC circuits 1789
wiring diagrams *(continued)*
  AC current protection 1791
  AC/DC power tables 1790
  AC distribution to hot roll lamps - WD34 1819
  AC distribution to preheat platen - WD35 1820
  AC motor M112 - WD32 1817
  AC motors (M603, M605, M606 & M609) - WD31 1816
  AC motors (M604, M701, M702 & M803) - WD33 1818
  AC output table 1789
  AC power control (duplex) - WD23.1 1806
  AC power control (simplex) - WD23 1805
  address/data bus networks - WD55 1849
  backup roll and backup idler roll encoders (HR091 & FSxxx cards) - WD60 1858
  beam detect (310 PPM, 480/600, 240/300 DPI) - WD42.3 1830
  block diagrams of logic flow 2038
  control unit (IR3/IR4) controller to SSA MIC - WD73.5 1879
  control unit AC control box (duplex) - WD22.1 1804
  control unit AC control box (simplex) - WD22 1803
  control unit AC power control (duplex) - WD21.1 1802
  control unit AC power control (simplex) - WD21 1801

wiring diagrams *(continued)*
controller to narrow SCSI MIC, 1 of 2) - WD72 1873
controller to narrow SCSI MIC, 2 of 2) - WD72 1874
controller to wide SCSI MIC, (IR1/IR2) (1 of 2) - WD73.3 1877
controller to wide SCSI MIC, (IR1/IR2) (2 of 2) - WD73.4 1878
controller to wide SCSI MIC, 1 of 2) - WD73.1 1875
controller to wide SCSI MIC, 2 of 2) - WD73.2 1876
coupled pre-postprocessor interface wrap plug 'A' - WD84 1896
DC circuits 1821
display/touch screen, control unit - WD68 1869
erase lamp and usage meter - WD39 1823
erase lamp and usage meter (480/600 DPI & 240/300 Switchable) - WD39.1 1824
forms path sensors (YS011 card) - WD63 1862
fuser and stacker sensors (FSxxx & HR091) - WD58 1853
fuser sensors (FSxxx and FUxxx cards) - WD64 1863
fuser sensors (FSxxx card) - WD65 1864
high voltage to coronas - WD40 1825
laser modulator (310 PPM and 240/300) - WD42.2 1829
laser modulator (five beam printhead) - WD42.4 1832
wiring diagrams *(continued)*
laser modulator (four beam printhead) - WD42.4 1831
laser modulator and beam detect - WD42 1828
laser power and drum cover interlock - WD41 1826
laser power control and drum cover interlock - WD41 1826
laser power control and drum cover interlock (30 mw laser) - WD41.1 1827
low voltage power supply, MIC, PQE and fans (240/300 DPI) - WD20.2 1800
low voltage power supply, MIC and fans (480/600 DPI) - WD20.1 1799
low voltage power supply, MIC fan - WD20 1798
maintenance panel - WD43 1833
MIC control unit 2 to MIC control unit 1 (narrow SCSI) (1 of 2) - WD74 1880
MIC control unit 2 to MIC control unit 1 (narrow SCSI) (2 of 2) - WD75 1881
MIC to coupled pre/postprocessor interface - WD82 1893
MIC to intelligent postprocessor - WD83 1894
MIC to operator alert assembly - WD79 1887
MIC to operator's panel - WD78 1886
MIC to printer control cable (1 of 2) - WD76 1884
MIC to printer control cable (2 of 2) - WD77 1885
wiring diagrams *(continued)*
MIC wrap plugs (PJJ1 and PJJ6) - WD87 1899
motor M106 - WD44 1834
motor M107 - WD45 1835
motor M201 - WD46 1836
motor M201 (480/600 and 240/300 DPI) - WD46.1 1837
motor M202/sensor S202 (480/600 DPI & 240/300 Switchable) - WD46.2 1838
motor M303 - WD47 1839
motor M304 - WD48 1840
motor M601 and skew sensor - WD49 1841
motor M602 - WD50 1842
motor M607 - WD51 1843
motor M610 - WD51.1 1844
motor M704 - WD52 1845
motors B602, B703 & 200 VAC blowers - WD27 1812
motors M706 and M707 - WD53 1846
oil pumps L701, L702 & L703 - WD54 1847
oil pumps L701, L702, L703, L704, L705, & L706 - WD54.1 1848
over temperature protection 1791
parallel channel signal (tailgate to controller, 1 of 2) - WD70 1871
parallel channel signal (tailgate to controller, 2 of 2) - WD71 1872
postprocessor interface wrap plug 'B' - WD85 1897
PQE (five beam printhead) - WD81.4 1892

wiring diagrams *(continued)*
PQE (four beam printhead) - WD81.3 1891
PQE (single beam printhead) - WD81 1888
PQE (two beam printhead) - WD81.1 1889
pre and postprocessing printer circuitry - WD88 1900
preheat control - WD66 1865
printer AC power supply (200V) - WD16 1792
printer AC power supply (200V 324 PPM)- WD17.1 1794
printer AC power supply (200V Except 324 PPM)- WD17 1793
printer AC power supply (400V) - WD18 1795
printer AC power supply (400V 324 PPM) - WD19.1 1797
printer AC power supply (400V Except 324PPM) - WD19 1796
printer DC power distribution - WD38 1821
printer DC power distribution (Printers with M610) - WD38.1 1822
printer DC power units and sequence card - WD24 1807
printer sequence card - WD25 1808
printer sequence card (310 PPM, 480/600, 240/300 DPI) - WD25.1 1809
printer speed control - WD67 1866
printer speed control (310 PPM) - WD67.1 1867
wiring diagrams *(continued)*
printer speed control (310 PPM) (480/600 DPI & 240/300 DPI Switchable) - WD67.2 1868
safety ground schematics 1786
sensor S202 - WD46.2 1838
sensors (S112, S113, S114, & S116) - WD57 1851
sensors (S112, S113, S114, & S116) (480/600 DPI & 240/300) - WD57.1 1852
sensors and switches (PC211, PC531, & PC551 cards) - WD56 1850
side 1/side 2 verify to MIC - WD83.2 1895
single phase AC motors (M102, M103, M301 & M302) - WD30 1815
stacker sensors and EOF lamps (SC061 & SC101) - WD59 1854
stacker sensors and EOF lamps (SC091 & SC103) - WD59.1 1855
stacker switch panel (forms length & width cards) - WD59.3 1857
stacker switch panel (SW511 & FSxxx card) - WD59.2 1856
switches and sensors (YS011 card) - WD61 1859
switches and sensors (YS011 card) - WD62 1861
switches and sensors (YS011 card)(480/600 DPI & 240/300) - WD61.1 1860
urge unit (duplex) - WD69 1870
wide SCSI MIC control unit 2 to wide SCSI MIC control unit 1 (1 of 2) - WD75.1 1882
wiring diagrams *(continued)*
wide SCSI MIC control unit 2 to wide SCSI MIC control unit 1 (2 of 2) - WD75.2 1883
wrap cable (PJJ2, PJJ3 and PJJ12), MIC - WD86 1898
Wollaston prism (two beam 240), location 2107
Wollaston prism (two beam 240), removal 2785
Wollaston prism (two beam 240/300), location 2111
Wollaston prism (two beam 240/300), removal 2897
world trade, voltage adaptation for 3662
wrap blocks, parallel channel 3817
wrap cable (PJJ2, PJJ3 and PJJ12), MIC - WD86 1898
wrap plug 'A', coupled pre-postprocessor interface - WD84 1896
wrap plug 'B', intelligent postprocessor interface - WD85 1897
wrap plug, Ethernet thick coax 3808
wrap plugs
coupled interface 3802
ESCON channel wrap 3809
Ethernet thick coax 3808
Ethernet thin coax 3809
gauge, path modifier 3817
intelligent interface 3808
MIC 3816
parallel channel 3817
printer power jumper 3819
wrap plugs (PJJ1 and PJJ6), MIC - WD87 1899
wrap test, coupled interface 1585

wrap test, ESCON channel 1574
wrap test, intelligent interface 1584
wrap test, MIC isolation 1734
wrap test, MIC isolation single beam printhead 1735
wrap test, MIC isolation two beam printhead 1738
wrap test, parallel channel 1573
wrap test, two beam 1735, 1738
write to or read from memory 1611
writing to memory 1613

Y

Y cable connector, location 2152
YS011, removal 2627
YS011 card, location 2116

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